development communication report

et, N.W.
on, D.C.
37 USA

rch 1983
No. 41

An Insider's Perspective:

Dr. Henry Cassirer Talks to *DCR* about Development Communication and Unesco

In a long and distinguished career, Dr. Henry R. Cassirer has worked closely with Unesco. He has been a U.S. broadcaster, a freelance documentary film producer, a media consultant, an advisor on educational radio and TV for scores of countries around the world, a teacher, and director of educational media for Unesco. This interview, conducted both in person and by mail, reflects the perceptions and experience of a man who has been involved with development communication for many years.

DCR: In light of the fact that most of Unesco's recent energies and efforts in the area of communication seem to have been focused on issues of information flow and the New World Information Order, do you see the possibility of the organization's returning to, or developing a real concern for, the area of *our* interest, development communication?

HC: Let's begin by trying to clear up some misunderstandings. Most of the noise about Unesco's concern with communications turns indeed around the issues of information flow and the New World Information Order. But a closer look at Unesco's activities and budgetary commitments indicates that the core of its work is devoted to the "development of communication." It is this operational sector which, according to the Director General, "accounts for over 77 percent of the funds devoted to communication . . ."

DCR: How do you distinguish between "development communication" and "the development of communication?"

HC: They are, as you know, quite different. To get a clearer picture, we will have to go back a little. Unesco has always been involved in four different aspects of communication: 1) the free flow of communication between all countries; 2) the development of communication media; 3) the use of communication for education, science, and culture; 4) the dissemination of public information about Unesco.

These four areas were given varying emphasis and resources in response to changing conditions. But, though they influence each other, the four are in fact distinct and should be understood as such to avoid harmful misunderstandings.

DCR: Why are we hearing so much about the first two points today, the free flow issue and development of the media?

HC: Developing countries have become increasingly aware of, and impatient with, being largely on the receiving end of international communication. They have also found it politically convenient to protest against "western domination" rather than to look with equal criticism at the domination of their own people by media controlled by government or wealthy elites. Imbalance of communication is indeed a major social injustice, but, in my opinion, authoritarian governments who deny freedom of expression to their own people are ill-placed to carry the flag of free flow of communication. Western countries, on the other hand, by focusing on Unesco's role in international communication in the name of defending freedom of information and the independence of journalists, divert attention from the sociopolitical impact of their own communication practices and neglect the potential uses to which the media could be put in the interest of development.

DCR: Does Unesco's focus on public statements about international disequilibrium reflect a policy change within the organization?

HC: It does, at least in part. In previous years, the then Director of Mass Communication, Tor Gjesdal, supported by Director General René Maheu, stressed that Unesco was only dealing with the "technical" issues of communication, while political issues were a matter for the United Nations to deal with. But the present Director General, Amadou-Mahtar M'Bow, has a different approach. He considers Unesco to be *the* UN agency to deal with all but the technological aspects of communication for which the ITU is responsible. This has evidently accentuated the political issues.

DCR: What sort of projects is Unesco currently emphasizing in its communication program?

HC: According to an October 1982 statement by the Director General, the key objective of the Major Project *Communication in the Service of Man* is "to help bring about a more equitable situation regarding communication and the media." He adds that, "with this end in view, a substantial program for infrastructure development and training of manpower has been defined with the aim of gradually attenuating the inequalities existing at present."

DCR: Could we return to the question of the confusion between development of communication and development communication?

HC: Yes—this issue is a further cause for misunderstanding. Development of communication resources—both technical and

(continued on page 2)

In this issue . . .

Henry Cassirer Interview 1
A New Role For Comic Books in Rural Honduras 2
Computer Software for Planners 4
Radio Outreach to Women in Nepalese Villages 5
PAHO Workshop on Communications for Health 7
A Communicator's Checklist 8
Satellite Communication for Breastfeeding 10
On File at ERIC 12
Solutions to "Dirty Power" 12
Audiocassettes and Distance Ed 14
Foreign Television for U.S. Language Students 16

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(continued from previous page)
human (through training)—is a prerequisite for the application of media to development needs. Nor can contribution to socioeconomic development ever be considered the sole concern of the media. Information and entertainment remain primary preoccupations of national authorities, the media, and the public at large. But there are pitfalls in a purely technological approach.

DCR: What pitfalls or dangers do you see in too much reliance on technology?

HC: The introduction of sophisticated technology and the imitation of western media practices may well be counterproductive to development and lead to increased dependence on imports (both of hardware and software). Television and satellites can present such risks. Their high cost and complicated production techniques favor trends toward centralization and the importation of equipment and slick programs whose entertainment appeal is greater than that of programs most developing countries are able to produce. If communication is to contribute to socioeconomic development, an "appropriate technology" must be selected for the media.

DCR: Could you explain in more detail what you mean by "appropriate technology" in this case?

HC: For example, satellites may be geared primarily toward the distribution of TV signals, in which case they tend to reinforce trends of dependence and centralization. But they may also fulfill a vital need for grassroots communication by introducing widespread access to narrow-band telecommunications, to telephone, telex, digital information, and to radio. Officials at Unesco are quite aware of these alternatives. The risk exists, however, that international technological assistance may promote the interests of foreign manufacturers and local elites rather than promoting self-determination and democratic participation.

To go back, though, it would be wrong to say, as your earlier question seemed to imply, that Unesco is not at all involved in development communication as such. In fact, some of the objections to Unesco, particularly in the United States, seem to arise from Unesco's concern for the application of the media to development needs. At Unesco's last Executive Board session, the US Delegate, Mrs. Gerard, said that there was some criticism in the U.S. of the notion that the media should be 'used' for specific purposes, since this was an opening wedge for the 'use' of journalists by government authorities. Director General M'Bow responded that the media "certainly have a 'role' to play in spreading culture and in contributing to the advancement of knowledge. This by no means implies that in order to play this role they must be subject to a public authority or to particular interests of large-scale private enterprises or to transnational corporations, of which mention was made in several speeches."

Service to critical social tasks is expected of all social institutions, from the judiciary to the education system, from the military to municipal authorities. Even industrial enterprises are expected to perform socially useful functions. Are only the media exempt, in the name of free enterprise and freedom of expression?

The American tradition of investigative journalism has long made it evident that public service, far from impinging on journalistic honesty, can only flourish in a climate of freedom of expression. A genuinely democratic journalist not only reports the views of authorities and expounds his or her own appreciation of the current scene, but acts as a genuine 'mediator' who gives voice to those who are condemned to silence. He or she bends an ear to the grassroots, relays to the rest of society the needs, views, and aspirations of minorities whose challenges are an impetus for change and 'development.' Expectation that the media render public service, far from restricting journalistic freedom, makes its protection a prerequisite. When there is resistance to public service and frank dialogue with the public through the media, society is ill prepared for 'development communication.'

What, may I ask in turn, is your own comment on the issue of whether it is an infringement on journalistic freedom and media autonomy to expect journalists to render services to society?

DCR: I think I would have to answer that in our tradition, finding and reporting the truth is in itself considered to be a service to society. The motto "You shall know the truth and the truth shall make you free" is one that is dearly held in this country. So producing social change and service to society are often seen as important byproducts of journalism, but I do not think they are the primary objective of most journalists.

HC: Personally, I doubt whether you can effectively promote development communication unless the media and at least some of their professionals are *expected* to devote *part* of their efforts to meeting the challenges of socioeconomic conditions.

DCR: Turning back to an earlier question, Dr. Cassirer, could you cite some of Unesco's involvement in projects specifically concerned with development communication?

HC: A look at the record shows that Unesco applies itself to development communication in both its training programs and operational projects. The Asia-Pacific Institute for Broadcasting Development, for instance, which was set up with Unesco aid in Kuala Lumpur and continues to receive its assistance, includes in its training such topics as population and development communication (radio); environment development; educational media for literacy; communication for the advancement of women; broadcasting in the service of culture; regional workshops on community media with special reference to local radio; distance learning through radio; and TV programs for young children. It might be of interest to readers of *DCR* to learn more about these and other training courses and workshops offered by the AIBD. (Note: *The address of the Asia-Pacific Institute for Broadcasting Development is P.O. Box 1137, Pantai, Kuala Lumpur, Malaysia.)*

DCR: Yes, we at the Clearinghouse are well acquainted with the excellent work done by the AIBD. Both their director, Dr. Balakrishnan and Ms. Eileen Wahab of their program staff have visited the Clearinghouse.

Turning to another communication interest of Unesco, would you say something about rural newspapers?

HC: Newspapers are usually an urban phenomenon since literacy, population density, and relative affluence provide ready markets in the cities for publishers and advertisers. To counterbalance this trend, Unesco emphasizes the establishment of the rural press in African and Latin American countries. Objectives for developing the rural press were listed in the 1971–72 Unesco program and budget, and included such things as providing reading material to new literates in rural areas in their own language, facilitating dialogue between authorities and rural people, decentralizing information, and informing readers about local events as well as about events in the world at large. These objectives fit well into those of development communication and have since guided Unesco in the establishment of rural newspapers in a dozen African countries.

DCR: There is also an emphasis on local radio, if I am not mistaken.

HC: Local radio is an area where Unesco has been very active. In Sri Lanka, for instance, the Broadcasting Corporation is establishing the Mahaweli Community Radio with the support of Unesco, which in turn uses funds-in-trust and an expert provided by Denmark. Serving a colonization scheme in a newly irrigated area, the Mahaweli Community Radio aims "to motivate the listeners to change their pattern of work and life in order to improve their socioeconomic situation." Programs are produced by mobile open-air studios in the villages, in consultation with the peasants. When problems are raised which require discussion with government officials, "the officer concerned will be brought to the village so that the recording is done when the explanation or advice is given directly to the villagers . . . All editing and mixing of the programs take place in the vil-

(continued on page 13)

Comic Books Carry Health Messages to Rural Children in Honduras

Oscar Viganó

Innovation is using something old in a different way.
Dewey

A new project in rural western Honduras is using children as message-carriers to teach villagers important health lessons about clean water and sanitation. Working with a specially created comic book, the children learn the health concepts in school and then share them with their families. This Honduran Water and Sanitation Project represents a cooperative effort on the part of two institutions which usually work independently: the Water and Sanitation Department of the Ministry of Health, and the National Autonomous Water and Sewer System. The Project is the first in Honduras to have a specific health education component written into the project design from the beginning.

Organizationally, the Ministry of Education is directly responsible for the health education component, and for the construction of wells, latrines, and windmill systems, while the National Autonomous Water and Sewer System is responsible for the construction of aqueducts and sewer systems. The Project will benefit 100,000 people living in small rural communities of up to 50 families each. Most of the communities in the Project area have nearby schools and health units where children can easily be reached.

The objective of the health education component of the Project is to change attitudes and behavior of community members with regard to water consumption and use, and maintenance of latrines, wells, and aqueducts. Investigators found, during the survey conducted to help design the Health Education Implementation Plan, that in Honduras, as in most rural areas, children play an important role in providing and handling drinking water, as well as in caring for younger members of the family. The children are, in turn, most affected by health problems related to water and sanitation.

When Project designers considered how best to reach the children with the health education messages in coordination with Project activities and objectives, rural primary schools surfaced as one of the most important channels of communication. However, to tap the children's potential, it was necessary to design a system simple enough to be used in the schools without much training, economical to produce, effective and attractive to children, and above all, in line with the Project's philosophy that dialogue and participation are an essential part of health education. Any materials used should contain basic information about the subject, ideas and exercises to conduct in a classroom situation, and information for children designed to encourage classroom participation.

Analyzing the different possible combinations of materials, the team came up with the idea of using a teaching module consisting of a class manual for the teacher with information about the learning objectives, water-related health problems, industrial and in-home techniques to purify drinking water, exercises for each particular class, evaluation, suggestions, *and* an accompanying comic book for each child.

Comic books were selected because their format has many advantages. Comic books are obviously entertaining, are fairly easy to produce, can relay information visually and step-by-step, combining action and a written technical vocabulary, and can be consulted again and again. In addition, children can take comic books home and pass them on to members of their family or to other children, multiplying the educational message.

It is interesting to note that despite all their advantages, comic books are seldom, if ever, applied in education for development as an integrated aid to classes. Efforts to use them have been mostly informational, such as pamphlets given away for people to read without any follow-up content discussion.

The main concern in developing the comic book centered on the style of illustration to be used. The designers chose a humorous style, something children relate to very well. Suggestions for characters were narrowed down to two children, a girl and a boy who would discuss health and sanitation matters. Then the problem became how these children knew or learned about the subject, and which one would be the expert. Finally an "expert" was born; nobody knows more about water than water itself, therefore a talking Drop of Water became the second character, and the comic books were called "Juanita y la Gotita" (Little Jane and the Drop of Water).

Content Description

The subjects of the comic books follow the Project objectives and are related to health education in water and sanitation. Each comic book contains single-concept messages; such topics, for example, as one cause of water contamination, or one way to purify water. Special care was taken to ensure that the illustrated sequences were not confusing and would be easily understood by children.

In the scripts the story develops sequentially, the events follow one another in the present time, without showing past or future actions. The script writers drew technical information for the different subjects from books and validated the data through area experts working with the Project or the Ministry of Health.

In order to correct any content or language errors, once technical changes are made, a rough copy is illustrated, photocopied, and distributed among area experts and personnel familiar with the subject and with rural audiences. It should be noted that the comic book has been designed for the formal schools, so although very simplified, the language used does not contain any slang.

Subject and Learning Objectives

The first comic book (see illustration)

(continued on next page)

In this sequence, greatly reduced here, the Water Drop is explaining to Juanita that, before he is boiled, he can make people sick when they drink him. But if she will boil him for 15 minutes... The comic books have an average of 8 pages, and contain a glossary to define new words and a questionnaire for the children to complete.

(continued from previous page)
dramatized the causes of water contamination and how to decontaminate water by boiling it. Learning objectives were: 1. identify in writing one cause of water contamination, 2. identify in writing one way to decontaminate drinking water within the reach of the rural family, 3. describe in writing what bacteria is and describe its effect on drinking water, and 4. describe in writing the dangers of drinking contaminated water.

Pretest Results

Once the design of the first module was completed, drafts of the teaching guide and photocopies of the comic book were pretested in three rural schools with three teachers and 54 third to sixth grade children. During the pretest of the comic book, each child was given a questionnaire with five questions related to the content of the health education class to be answered before they saw the comic book. Afterwards, children took the comic book home to read; the following day the teacher conducted a health education class using the teaching guide content and asking questions related to the comic book story, expanding each answer with information taken from the guide. Once the class was over, questionnaires with eleven questions (five from the earlier questionnaire, plus six about comic book content) were given to children.

Correct answers for the first five questions went up from 59 percent to 80 percent. During the test, the correct answers about boiling water to purify it rose as much as 90 percent. Ninety-five percent of the children indicated that they liked the characters, and teachers expressed their satisfaction with the materials and welcomed the opportunity to use them.

Production plans include 12 modules containing educational materials about such topics as the prevention of water-related sickness, and personal hygiene. Five thousand copies of the first comic book have been printed, and the Project expects to reach 100 rural community schools, distributing an average of 40 copies per school. To date, 1,200 copies have been distributed among school children in 30 rural schools, and teachers are sending back information which will be used in the design of future modules.

The relatively low production cost, US $0.30 per copy, the comic books' acceptance by teachers and school children, their potential for carrying sequential visual and written communication, and their effectiveness in relaying the educational message all make the comic book a perfect medium to introduce health education in the rural schools. ■

Oscar Viganó, the comic book's artist, is the Field Project Director of the Joint Ministry of Health and SANA Water and Sanitation Project being funded by USAID/Honduras under a contract to the Academy for Educational Development.

For further information, contact Oscar Viganó, Field Director, AED/PRASAR, A.P. 140, Tegucigalpa, D.C., Honduras.

Computers Come to the Aid of Planners:
New Software Package Available

by Judy Brace

Ministries of physical planning and other government institutions involved in urban and regional development should be heartened to learn of a new planning tool available to them through the United Nations Center for Human Settlements (UNCHS): a microcomputer software program. Stating that this is appropriate technology at its most accessible, the program's project manager, Jerry Coiner, has taken special pains to see that the costs of using the program are kept to a minimum, that workshop training is available to those who will use the program and whose needs it will meet, and that back-up consultancy is provided as needed for up to six months after the program is introduced.

Package Designed for Many Needs

The Urban Data Management Software (UDMS) package has been designed by UNCHS to meet the needs for data storage, analysis, display, and mapping for physical, social, health, environmental and land-use planners, housing officials, resource managers, and regional scientists. The package is written in CBASIC for any C/PM disc operating system which allows it to be used on almost any microcomputer on the market.

Because costs for microcomputers are steadily falling while their capabilities are increasing (due to technological advances), Dr. Coiner recommends a minimum investment in hardware. His suggested requirements for a 48 kilobyte microcomputer, at least 500 kilobytes of disc storage, two disc drives, a video terminal and a standard line printer, can be met in the U.S. for US$8,000. The copyrighted software package and necessary manuals are available free of charge to governmental organizations. Should a government require technical assistance to put the program in place, install the software and train personnel, the total cost, including hardware, will vary between US$40,000 and $80,000, depending on local conditions.

Dr. Coiner has received requests to date from over 30 countries interested in using this tool for physical planning. The National University of Colombia's Habitat Center and Sri Lanka's Urban Development Authority are two institutions that have successfully introduced this program. Jamaica's Urban Development Authority is about to institute the system.

International Requests

It is essential that an institution's need determine the kind of hardware and software it acquires, with the appropriateness of the software being absolutely crucial. By using this high technology at the small-scale operational level to process its own data in a useful way, the institution will avoid the common pitfall of having too much data with too few uses, while at the same time becoming comfortable with the technology.

A number of publications are available to accompany the program. One manual in particular, however, can stand alone as an excellent guide to the concepts of data management. Designed for human settlements planning and management agencies, these concepts are nonetheless relevant to others interested in a clear understanding of data processing technology. Each chapter of *Data Management for Urban and Regional Development* deals with a specific set of actions that must be taken to determine the utility of data management concepts and to select the appropriate technology for specific tasks. These chapters are grouped into "Basic considerations," "Assembling an information system" and "Technical and personnel aspects of information systems." A glossary, a bibliography, and a list of acronyms are included. The cost of this publication (number CHS/PP/81-1/S) is US$10.00. ■

Judy Brace is Resource Center Manager and Acting Director of the Clearinghouse.

For further information on this Urban Data Management Program, or to order the above publication, contact Dr. Jerry Coiner, UNCHS (Habitat), P.O. Box 30030, Nairobi, Kenya.

Seeking Songs for Health

Dear Colleague,

In a number of countries popular songs, appropriately re-worded, are used to encourage good health practices. If you know of any such songs we would be very grateful if you would send us details. We would like to have the translation of songs which are not in English and we would be grateful for the words of the original song if it is one which we are not likely to know. In such a case it would be helpful if you could also send us the music or at least the vocal part, if this is possible. Of course the words and music on a tape would be best of all, but we realise this may not be possible.

Your help with this would be much appreciated.

Yours sincerely,
David Morley and Duncan Guthrie

Child-to-Child Programme, c/o Institute of Child Health, 30 Guilford Street, London WC1N 1EH, United Kingdom.

International Conference on Oral Rehydration Therapy (ICORT)

A major International Conference on Oral Rehydration Therapy (ICORT) is being planned to take place at the Shoreham Hotel in Washington, D.C., from June 7 to 10, 1983. ICORT will be sponsored by the Agency for International Development (AID) with the cooperation of the International Center for Diarrhoeal Disease Research/Bangladesh (ICDDR/B), UNICEF, and the World Health Organization's Diarrheal Disease Control Program (WHO/CDD).

The purpose of the Conference is to increase professional and lay awareness of the value of oral rehydration therapy (ORT) in the control of diarrheal diseases, the major cause of infant morbidity and mortality in the developing world.

World experts in oral rehydration therapy from both the developed and developing world are being invited to participate. A Technical Advisory Committee made up of representatives of the organizations involved and outside consultants has developed the agenda and both plenary and panel sessions will be held over the three-and-a-half day conference. The agenda is designed to openly discuss oral rehydration therapy, its justification, practical utilization, program experiences, and issues related to implementation of ORT programs. A session will also be devoted to Future Directions including Directions for Future Research.

The ICORT conference will be an open meeting but registration will be required. For further information, contact Mary Beth Allen, ICORT Conference Staff, Room 3534, NS, Agency for International Development, Washington, DC 20523, USA. Telephone 202-632-0226. ■

Leadership for Development

The National Training Laboratories (NTL) Institute is currently receiving applications for its international program *Leadership for Development* to be held in Bethel, Maine, USA, August 8–21, 1983.

The *Leadership for Development* program is intended for men and women currently in leadership positions who are responsible for designing and implementing development programs at the community level in Third World countries.

The course will be conducted in English and the cost is US$1500 (excluding travel and per diem). Senior staff will be Dick and Marion Vittitow. Application forms may be obtained from: Ms. Virginia Sprecher, NTL International Programs, P.O. Box 9155, Rosslyn Station, Arlington, Virginia, 22209 USA. For further information contact Dick Vittitow, 90 Tamalpais Avenue, Mill Valley, CA 94941, USA. ■

Radio Improving Status of Women in Nepal

by Kathleen Goodman and Mana Wagley

An innovative project in Nepal is using a wide variety of instructional radio programs for upgrading the skills of primary school teachers. While the project was not designed specifically to promote improvements in the status of women in Nepal, a review of data on literacy rates and school enrollment in Nepal clearly indicates that improving women's participation in formal and nonformal educational activities should be included as a part of the overall objectives of any educational project in that country. Consequently, the project is using radio broadcasts to encourage girls to attend school more regularly, and to stay in school beyond the third grade, and is generally presenting strong and positive female role models to women throughout Nepal.

The Radio Education Teacher Training Project (RETT) is sponsored by the United States Agency for International Development (USAID) and implemented by Southern Illinois University (SIU) and His Majesty's Government (HMG) of Nepal's Ministry of Education and Culture (MOEC), the Institute of Education (IOE), and Radio Nepal. The RETT Project attempts to upgrade the teaching skills of untrained primary school teachers who have not completed their own secondary school training. Instruction is provided over the radio with the support of written materials to primary teachers working in even the most remote areas of this mountainous kingdom.

Women are under-represented throughout the entire educational system in Nepal. An AID-sponsored study on the status of women in Nepal (1981) reports that lack of literacy and education are important constraints to women's active participation in economic growth, and they limit access to the development activities of their kingdom. The 1977 census in Nepal reported literacy rates of around 5.2 percent among women. Nepal's Ministry of Education and Culture (MOEC) data indicate that only approximately 28 percent of students enrolled in primary school are girls. Girls generally are needed at home to look after younger siblings, tend animals, and help with household chores like gathering wood and carrying water. In general, educating daughters is considered to be less important than educating sons.

Need to Encourage Girls in School

Although these attitudes are changing, special efforts are still needed to encourage parents to send their daughters to school and to allow them to attend regularly. Even when girls are enrolled in school, their attendance is often sporadic and they frequently bring their younger siblings with them. This situation makes it difficult for teachers to organize their instruction and for girls to perform well in classroom activities. In many parts of the country, girls are found clustered in the back of the classroom with their younger siblings, shyly watching the teacher or leafing through their textbooks with little or no involvement in the classroom instruction. It is therefore not surprising that still more girls drop out of school after third grade, with the percentage of girls in fourth grade around 21 percent (1980).

Unfortunately, the lack of educated women may also contribute to the low representation of women in the teaching profession. Of the estimated 6,004 untrained, non-matriculated teachers targeted by the RETT Project, only 361 are women—approximately 4 percent.

Increasing the participation of women at all levels of education has been integrated into RETT Project goals. To achieve this objective, RETT's team of Nepali writers and producers has developed four basic strategies:

Radio Training for Women Primary School Teachers

RETT has been able to directly attack the low representation of women in teaching positions in two ways. All untrained, non-matriculated women who are currently teaching will be included in the RETT training program and, thus, will have the opportunity to become trained teachers and receive a salary increase for successfully completing training. This will have the effect of making their positions more secure as well as increasing their salaries. Consequently, RETT will help women currently teaching to remain within the educational system. Second, since RETT training is now readily available to all untrained, non-matriculated teachers and approximately 3,000 new teachers must be provided each year to keep up with increased student enrollment, School Management Committees may also be more willing to hire untrained women to teach in their primary schools, thus providing new employment opportunities for women.

Characterization of Women in RETT Broadcast and Written Materials.

The strongest impact of RETT on women's status in education may come about through the comprehensive integration of women's programming into the instructional materials. Radio is a powerful medium and listeners are influenced in many ways by the things that they hear. During RETT broadcasts, voices portray various types of vil-

(continued on next page)

(**Nepal** continued from previous page)

lagers, teachers, and teacher educators. If the characters were all men, RETT programming would act to perpetuate the stereotype that educators are generally men. Moreover, if characters played by women actors were ineffective or incompetent in some ways, the RETT programming might establish an image that female educators are not as good as male educators. Consequently, RETT programming has been carefully designed to ensure that there are a significant number of women characters and that they are always portrayed in a strong positive way.

In RETT programming, roles played by women include one teacher, two teacher educators, and one health educator. These are among the more prestigious roles in the scripts and certainly occur more frequently in RETT radio scripts than the actual representation of women at comparable levels in the educational system in Nepal. In addition, when classroom situations are depicted, 50 percent of the children's voices are girls—well above current classroom averages. Hearing women acting in the role of teachers and teacher educators provides the opportunity to RETT women teachers and other women listeners to imagine themselves working in these situations and to establish career objectives compatible with these higher level aspirations.

Special Programming for Women

Because teachers enrolled in the RETT Project listen to the instructional broadcasts in their homes, the broadcast is generally available to all individuals within hearing range and is not limited to enrolled teachers. The broadcast is timed to occur when most women have completed their work in the fields so the wives and families of enrolled teachers can benefit from the non-formal portion of the broadcast or magazine program. With this in mind, programming has also been developed to ensure that areas of special interest to women are included in the magazine portion of the radio broadcast. Efforts have also been made to include interviews with, and information on, important women in Nepal who could serve as positive role models for women listeners.

Another example of this type of programming is a "soap opera" on women's legal rights under HMG's legal system. A third example includes special materials on "women in development" programs and activities in Nepal, and how listeners may gain access to them. A total of 24 such magazine segments have been developed specifically for women.

It is important to note, however, that most program segments are of general interest to men *and* women. Topics include agricultural methods, improved resource conservation practices, health, and nutrition. While these segments are not specifically developed for women listeners, they refer to activities frequently performed by women. Ideally, women who listen to the programs will also directly benefit from ideas contained in these sequences.

> *"Wherever possible, special programming for women has been incorporated into the regular curriculum."*

Programming to Increase Female Student Participation

RETT has also tried to address the problem of the low enrollment of girls in primary schools through the training provided to primary school teachers. If primary school teachers can become more skilled in recruiting girls for school and in improving girls' performance in the classroom, then one could expect to see a related increase in the number of girls who complete their education. RETT writers carefully reviewed the teacher training curriculum to find ways to improve primary school teachers' skills in recruiting and working with their female students. Wherever possible, special programming for women has been incorporated into the regular curriculum. Lessons have included:

- one unit in Education on classroom management techniques which features special ideas to encourage girls to participate more actively in classroom activities;
- one unit in Social Studies on Community Services which suggests using roleplaying as a method to teach children about the different government positions in their villages. Teachers are specifically instructed to make sure that all children in the classroom roleplay each type of job; and
- some units in Social Studies which describe the role of great women, like Bhrikuti, in Nepal.

Increased Participation by Women as Staff Members in RETT

Since RETT writers and professional staff doubled as actors for the radio broadcasts, it has been imperative that women be well represented on the Project staff. This situation has given additional impetus to the already-strong commitment to integrating women in all levels of RETT Project development and implementation. Although overall staffing has varied considerably during the Project, for the majority of the production phase, 32 percent of the professional staff working in the Project were women. Although these figures do not begin to approach equal representation, they are well above current levels of representation by women in the educational system in Nepal. Achieving this level of participation by women required considerable effort by all involved with the Project. The following are examples of the kind of activities and accommodations used to increase the participation by women in RETT.

1. Flexibility was maintained in program scheduling to allow female HMG staff to continue working on the Project materials and participate in training opportunities and still take maternity leave and spend time with their small babies.

2. RETT Production Staff worked many hours with individual staff women to try to improve voice and pronunciation so that they could participate in the actual broadcasting of Project materials. Since RETT has a large number of male staff members, if a male staff voice was not radio quality or if teachers complained about not being able to understand the voice, then this person's voice was not used again. However, since RETT has a limited number of female staff members, efforts were made to incorporate as many as possible into the radio broadcast. This included trying to use the voice of women typists, administrative assistants, and cleaning persons.

3. *All* eligible women staff members received short-term training out of Nepal (either in the USA or at the AIBD in Malaysia) in addition to that provided in-country.

RETT broadcasts cover the entire Kingdom of Nepal, even the most remote, isolated villages. It is hoped that the use of educational radio will enable women who cannot easily access other methods of communication to gain skills and information.

Kathleen Goodman is Assistant for International Development with the Office of International Education at Southern Illinois University, Carbondale, Illinois, and is Curriculum Coordinator and Self-instructional Materials Specialist with the RETT Project in Nepal.

Mana Wagley is with His Majesty's Government's Ministry of Education and Culture, and Coordinator of the RETT Project in Nepal.

For more information, write Kathleen Goodman, Office of International Education, SIU at Carbondale, Carbondale, IL 62901, USA.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Social Marketing Strategies for Diarrheal Disease Control Programs

PAHO "Communications for Health" Workshop

by Ann Jimerson and Michael McQuestion

Primary health care, with its focus on the "client," has much in common with a seemingly distant discipline: marketing. Health planners are finding increasing relevance in the techniques developed by marketers for analyzing the needs of the target market; designing appropriate services and products; and utilizing effective pricing, distribution, and communication to inform, motivate, and service that market. Marketing strategies are tailored to the consumer, and, while they can vary widely in scope and application, all aim to put the client at the center of planning efforts.

How to apply social marketing to one aspect of primary health care, the control of diarrheal diseases (CDD), comprised the focus of a recent workshop sponsored by the CDD Program within the Pan American Health Organization (PAHO). The two-week workshop, which took place in December 1982, brought together twenty-one health professionals and educators from ten Latin American countries at the Latin American Center for Educational Technology in Health (NUTES/CLATES) in Rio de Janeiro, Brazil.

Need for Effective Planning

The idea for the workshop, designed to inaugurate a yearlong project in each of the ten participating countries, grew from concerns over the quality of communications/educational materials which were being produced to support CDD activities. In countries where posters, pamphlets, or radio spots had been developed, the materials were too often produced with little or no interaction with the people for whom the information was intended. Requests from some countries for assistance in designing effective communications campaigns confirmed the need for a meeting on the topic. Representatives from countries with active CDD Programs, including several with full-scale information campaigns on diarrheal diseases already underway, were invited to attend.

PAHO and NUTES/CLATES collaborated to design an active workshop which would be a model of the participatory style being promoted. Roleplay, games, discussions, small work groups, readings, and case studies were used to involve all of the participants and to introduce various methodologies to analyze, design, test, produce, and evaluate communications materials.

To better understand the communities making up their target audiences, the participants were introduced to the "focus group" technique of structured discussion groups. They then discussed the selection of appropriate media and tone for reaching that group. Pretesting methodologies were presented for trying out concepts and prototype materials, to lessen the chances of investing time and money in possibly misdirected attempts. Formative evaluation was discussed as an often-overlooked means of continuing the fine tuning of a campaign once it is underway.

A simple circular flowchart, incorporating the main steps in the social marketing strategy, provided the conceptual framework for the workshop. The chart helped to remind the participants that materials design is not an isolated activity which can be successfully carried out without venturing beyond the four walls of an office. The marketing methodologies which were introduced all fit into this broad scheme, each step of which puts health workers in touch with the needs, attitudes, vocabulary, and perceptions of the target audience. As health educators, the participants quickly recognized the stages in the flowchart as the familiar steps of planning, testing, and feedback which are basic to any good health education program.

Technical Design Stressed

Four small groups worked with the NUTES/CLATES production technicians to create model materials carrying messages related to national diarrheal control programs. The "hands-on" production of a radio spot, a poster, community participation materials, and a short slide tape, served to reinforce the marketing approach step by step and provided the doctors and educators with an inside glimpse of the technical end of communications work.

The workshop was unusual for its built-in follow-up component. Before leaving the course, participants from each country drew up a plan of action for applying the marketing strategies to existing or to new projects back home. The PAHO Washington office will act as a clearinghouse for reports from participants, sharing information on the projects among the countries throughout the upcoming year. The participants will meet again at the end of the year to critique the materials that have been produced and to exchange further ideas and experiences among themselves.

Participants were requested to bring samples of educational materials already being produced by their national CDD Programs. Their spontaneous discussions as they taped posters and booklets to the classroom walls early in the first week underlined the participants' eagerness to know what is being done in other countries. PAHO plans to sponsor visits among participating countries during the coming year, as part of the follow-up component, since the participants themselves are perhaps best qualified to offer one another support in the development of their communications projects.

Future Workshops Planned

The CDD Program plans to replicate the workshop for the English-speaking Caribbean later this year, with several changes in the course format. The participants in the pilot course agreed that field practice would greatly enhance the classroom discussions and roleplay. Work in villages near the workshop site will thus be included as a means of reinforcing the concepts and providing the participants with actual opportunities to conduct focus groups, pretests, and formative evaluations.

Participants Help Design New Workshop

In evaluating the workshop, the participants generally expressed the need for deeper theoretical background in communications methodologies, and suggested emphasis on the production of model materials. Cutting down on production time would allow a shorter workshop (two weeks seemed too long for some of the participants) even with the addition of field trips.

The course will undergo further revision and adaptation for worldwide application. Although the workshop was conceived by the CDD Program, PAHO/WHO recognizes that the course will provide a means of assisting professionals working in other areas of primary health care to develop more effective communications materials targeted to specific community and/or professional groups. The use of marketing techniques, carefully aimed at the community level, could help bring more effective primary health care interventions to those most in need of them. ■

For more information on the workshop, contact: CDD Program, PAHO/WHO, 525 23rd Street, N.W., Washington, D.C. 20037, USA. Copies of the selected readings used in the workshop are available in Spanish or English; the workshop report is available in English only.

Ann Jimerson is a freelance consultant, based in Washington, D.C., producing audiovisual materials and training health workers in applied communications.

Michael McQuestion is a Technical Officer for the CDD Program in PAHO's Washington office.

A Communicator's Checklist

1

Computers in Developing Nations, edited by John M. Bennett and Robert E. Kalman (The Netherlands, North-Holland Publishing Company, 1981), 272 pp.

This volume is a collection of papers presented at a one-day seminar on computers in developing nations held in Melbourne, Australia, on October 13, 1980. The first few papers in the collection illustrate a broad theoretical knowledge of what computers should be able to do, but very little practical knowledge of what they actually do. Although computers are presented as problem-solvers in themselves, practical experience usually dispels that notion quickly. Computers can't do anything humans can't do—they just work faster and don't get tired or frustrated.

Just as I was beginning to lose heart with the form and substance of this book, I came upon several papers well worth reading and attention. For instance, S.V. Deodhar, Manager of Computer Services at Ballapur Industries in New Delhi, India, cites guidelines for the introduction of large computer systems in developing nations. The advice he presents is of such value it should be applied universally. His realistic approach is summed up in the following: "It is important to recognize at this stage that application of computers is not an end in itself, but only a tool enabling us to perform better while attending to other jobs."

Another thoughtful piece contained in this book was written by C.F. Iau of the Malaysian Computer Society. Iau relates the findings of two computer surveys he conducted. His findings can save developing countries hours of frustration surrounding the selection and installation of systems once the decision to computerize has been made.

"The Prospective Impact of Computers in Papua New Guinea" gives readers a good perspective on how developing nations can cope with the problems and pressures of too much "good advice" from computer salesmen eager to corner the market in a particular country. N.G. Cook, the author of this paper cautions: "I am convinced that in developing countries with a shortage of resources, the luxury of selecting different computers for similar tasks, at least within government, is one we can ill afford."

Then, in "A New Keyboard for Chinese Information Processing," S.C. Loh gives a fascinating account of the engineering problems associated with creating a Chinese ideograph keyboard. This should be read by any person still fearful that computers will replace humans. The solutions demanded human problem-solving and creativity and illustrate clearly that only humans can create, while computers merely simulate.

I would be remiss if I did not comment that the $39.75 price tag for this cheaply produced hardcover book is difficult to comprehend. It is ironic that the editors of a volume extolling the virtues of great advances in "informatics" didn't apply even the most elementary use of informatics—word-processing—in its production. Papers are xeroxed "as is" (some are single-spaced, some are double-spaced and replete with typos, strikeovers, and illegible copy), reduced to a small type size, and then bound between hard covers. Granted the cover is attractive and the title page is newly typeset, but why couldn't the papers be typed in the same typeface? The poor production job does little to enhance the book's message. There is, however, much information and good advice contained between the covers of *Computers in Developing Nations.* ◻

Available for US $39.75 from Elsevier North-Holland, Inc., 52 Vanderbilt Avenue, New York, N.Y. 10017, USA.

Reviewed by Arlene Horowitz, program assistant and in-house computer expert, Clearinghouse on Development Communication.

2

Against the Grain: The Dilemma of Project Food Aid, by Tony Jackson with Deborah Eade (OXFAM/England, Oxford, England, 1982), 132 pp.

Project food aid is 30 percent of the total food aid sent to developing countries, with a net dollar value of $785,700,000 in 1980. It comes mainly from the United States, the European Economic Community, Australia, Canada, and Japan. Used as an "incentive" to promote food-for-work projects or to encourage participation in maternal/child health or school feeding projects, it is presumed to be humanitarian development assistance.

As a general rule, program administrators think food aid is usually good, while field workers—those who actually handle it—think it is bad. Theory versus practice? Why the opposing views?

Tony Jackson, food aid consultant to OXFAM/England, has collected information on food programs since they began 25 years ago. In a short, crisp narrative (written with co-worker Deborah Eade), Jackson presents a point-by-point argument that food aid, when used as a "development tool," is most likely a flop.

Jackson contends that food aid falls disappointingly short of the development goals for which it has been used. As stated: "Year after year, independent and commissioned evaluations have failed to find evidence of an improvement proportional to the vast amounts of food, money, and human effort which have been expended."

Jackson believes that food aid not only does little good, but that it actually works against development since it does not stimulate self-sufficiency. To the contrary, it acts to create a dependency. In addition, food aid competes with local crops and ties up handling and storage facilities. Often those people who most need food do not receive it. And those who have to administer the bulky shipments spend their time managing hand-outs rather than designing meaningful projects.

However, the real story of *Against the Grain* is between the lines and in the footnotes. That is where the reader will discover why the programs exist and why it will be so hard to change them.

The prevailing attitude in the developed world is that food aid is necessary. The rich nations should share with the poor. But the motives for continuing food aid programs are not quite so altruistic.

Private voluntary organizations who distribute most of the food aid are largely funded by the international development assistance agencies. They are not likely to say that their major work is ineffective. The international assistance agencies distribute their countries' excess production for use overseas. For one of the largest donors, the United States, there is even a minimum tonnage marked for project food aid, as mandated by Congress in the 1970s.

Food aid advocates justify the continuation of project food aid as a "short-term expedient." But this, according to Jackson, has been the justification for over 25 years, "long enough to turn rhetoric into reality, yet the tendency has been to institutionalize food aid-dependent projects."

Food aid has thus become, according to Jackson, the prime example of an available commodity determining aid policy. As *Against the Grain* states quite often, the "food aid tail wags the development dog," with development workers or recipients de-

vising projects just to distribute or receive more food.

Jackson recommends that project food aid be cut back drastically and the entire concept reappraised. In essence, Jackson says that the real problem in developing countries is poverty, not hunger, and that free hand-outs of food only aggravate a reality that needs creative analysis. *Against the Grain* raises difficult questions for those who would look for answers. ◘

Available from OXFAM, 274 Banbury Road, Oxford, OX2 7DZ, United Kingdom, for £4.50. Trade inquiries to Third World Publications, 151 Stratford Road, Birmingham, B11 1RD, United Kingdom.

Reviewed by Judith Kelly, who writes on development and environmental issues, most recently for the U.S. Peace Corps.

3 *Communications Technology in Education and Training—Proceedings of the Fourth National Conference on Communications Technology in Education and Training,* published by Information Dynamics, Inc. (Silver Spring, MD, 1982), 186 pp.

After spending several enjoyable hours going through the pages of this collection of papers presented at the Fourth National Conference on Communications Technology in Education and Training, held in Boston, Massachusetts, in March 1982, I regret not being there in person. Reading the book is almost as good as being there, though. There's something for everyone here. Almost every page contains valuable insights and/or fascinating anecdotal accounts of just about every conceivable communications application to skills training. The conference was sponsored by Emerson College, the American Society for Training and Development, and GTE Laboratories in cooperation with eight education organizations, institutions, private groups, and professional associations.

The contributors were in almost every case practitioners—either industry trainers or educators—rather than academic theoreticians, a refreshing and welcome change for a primer in educational technology. The book's only serious drawback is that, although its subject is skills training, there is only one presentation representing labor's viewpoint, and it is the very last one in the book, giving the reader an impression that it was an afterthought. Labor unions have been very active in designing training programs that use the latest communication and educational technologies. It is disappointing not to see mention of their contributions to the field.

The selections in this book are well written, well researched, and offered in plain, easy-to-understand English—quite an accomplishment given the technical subject matter. The major headings include: Use of Teleconferencing for Training; Company Use of Communications Technology; Computer-Assisted/Computer-Based Training for Industry; Multi-Media Training Approaches; and College and University Use of Communications Technology to Serve Industry Training Needs. A quick rundown of the topics covered includes the use of teleconferencing (audio and video), computer-assisted training, multi-media approaches, satellite teleconferencing, videodisc instruction, television, etc.

In the paper presented by John S. Jeness, Director for Human Resources, Planning, and Development for Consolidated Edison in New York, the special pressures placed on educational technologists to provide adequate skills education are thoughtfully described. "I can't emphasize enough the need for all sides in this triangle—industrial trainers, academicians, and equipment and software developers—to continually talk *with*—not at each other, so that we all have a better understanding of each other's points of view, interests, and needs. We can call that 'better communication about technology in education and training.' "

When any new educational technology is developed, as educators in the developing world are all too painfully aware, the claims for its miraculous curative powers over whatever ails that particular country are legion. In view of this, LDC readers will be particularly pleased with what Rod L. Boyes says in his paper on video delivery to remote locations, although his point could apply to almost any technology. "Delivery of technologies sometimes clouds the issue. Teleconferencing has a great deal of sex appeal; however, some organizations buy into this process in cases where a 'one-way' communication is sufficient. Even a well-designed and written pamphlet can be extremely effective and efficient—more so than video or microcomputer-based systems, depending on the application."

I will end this review with the quote that opens this wonderful volume. It was written in 1913, at the time Thomas Edison invented the motion picture. "Books will soon be obsolete in the schools. Scholars will soon be instructed through the eye. It is possible to teach every branch of human knowledge with the motion picture. Our school system will be completely changed in ten years."

This kind of says it all, doesn't it? ◘

Available for US$20.00 (hardbound) from Information Dynamics, Inc., 111 Claybrook Drive, Silver Spring, Maryland 20902, USA.

Reviewed by Arlene Horowitz, program assistant and in-house computer expert, Clearinghouse on Development Communication.

In Brief... Publications to Note

- Readers of *DCR* will be pleased to note the appearance of the 1982 *Educational Media Yearbook,* edited by James W. Brown. As usual, the *Yearbook* provides a variety of valuable information: articles, lists, and more lists. There are seven "International Reports" on educational technology activities in Saudi Arabia, Indonesia, Singapore, and the U.K.; and on the professional health of educational technology in the United States: spending trends, employment trends, and media design for training, for example. Then come the lists: of organizations and associations in the U.S. and abroad; of doctoral and master's programs in instructional technology, library and information science, and mass communication; of funding sources; of media-related periodicals, both alphabetically and by subject; of reference tools such as books, films, filmstrips, microfiche, computer programs, etc. (Included here are books *listing* other media resources.) Following these entries is probably the most important list of all, addresses for the periodicals and resources. The *Educational Media Yearbook* is available from Libraries Unlimited, Inc., Dept. EMY, P.O. Box 263, Littleton, Colorado 80160, USA, for US$37.50.
- To pursue educational technology a bit further, our readers should be reminded of two Latin American journals on the subject: The *Revista de Tecnología Educativa,* (in Spanish), published in Chile by the Organization of American States, (Casilla 16162, Correo 9, Santiago, Chile), and *Tecnologia Educacional* (in Portuguese), published in Brazil by the Brazilian Association of Educational Technology (Av. Erasmo Braga, 255, Grupo 401–402, 20020 Rio de Janeiro, RJ, Brazil).
- Also published in Brazil is a new series of communication monographs, *Cadernos Intercom* (in Portuguese), published by the Brazilian Society of Interdisciplinary Studies in Communication (who also publish *Boletin Intercom).* The first four have covered popular journalism; television and the working classes; reform and revolution in Latin American communication; uses and abuses of new educational and communication technologies. The Society's address is Caixa Postal 20793, São Paulo, SP, Cep. 01000, Brazil.
- A very useful new "broadsheet," *The Cost of Distance Education,* comes to us from the International Extension College. Author Hilary Perraton has earlier given us studies of a number of distance education programs. Here he looks at the costs of print, correspondence courses, radio and

(continued on page 15)

South Pacific Islanders Use Satellites in Nutrition Communication

By Gloria A. Renda and Brian M. Riordan

Many people are surprised to learn that a Regional Nutrition Program to promote and protect breastfeeding and improve maternal and infant nutrition is using a satellite to communicate with nine participating countries. This pilot nutrition-by-satellite project is under way, of all places, in the South Pacific.

The Foundation for the People of the South Pacific (FSP), a nonprofit organization which began in 1965, conducts programs that assist human development in the Pacific Basin. In 1981, FSP, with the assistance of a grant from the Office of Nutrition, United States Agency for International Development (USAID/ON), began a South Pacific Regional Maternal and Infant Nutrition Program. The small program staff, which consisted of a regional nutritionist and a secretary in Suva, Fiji, faced a most challenging communications assignment. Their task was to provide ongoing personal contact and support to nurses, dieticians, medical officers, and health educators scattered throughout the nine participating nations (Cook Islands, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu, and Western Samoa). Telephone systems have improved over recent years, but to hold conference calls to nine countries over millions of miles of ocean would not only be a communications nightmare, but prohibitively expensive.

In 1966 NASA launched ATS-1 (Applications Technology Satellite No. 1) as an experimental satellite. Since 1972, the University of the South Pacific Network (USPNET), including their nine Country Extension Centers, and the PEACESAT Network (Pan-Pacific Educational and Communication Experiments by Satellite), have joined to include 18 participating stations which extend from Papua New Guinea to California, and from Saipan to as far south as New Zealand.

FSP had long been aware of the great potential the satellite and its ground terminals had as a modern communication tool for teaching and for the transfer of information, particularly with its ability to provide instant two-way communication and involve large numbers of people in on-the-spot dialogue.

Use of the satellite by countries in the South Pacific is available free, a service provided jointly by the PEACESAT Network and the University of the South Pacific Network (USPNET). (See *DCR* 35, "Technical Assistance Spans the Pacific.") Using a telephone hook-up (the cost of a long-distance phone call) to the Honolulu satellite station, resource persons in the United States are able to participate in round-table discussion sessions by satellite with the South Pacific nations.

The participating sites use a common (open) circuit on the ATS-1, with simplex (one-way) transmission. All the participants can listen to the conference since it is on an open line. Seminar sites are connected through inexpensive VHF earth stations at each of the PEACESAT or USP sites.

A Senior Health Personnel Seminar was held in Suva, Fiji (May 11-15, 1981), to inaugurate the FSP Regional Nutrition Program. This was the first seminar in the South Pacific concerned with promoting and protecting breastfeeding and improving maternal and infant nutrition practices. The decline in breastfeeding and the problems associated with artificial feeding practices are the primary factors contributing to malnutrition of infants in the South Pacific. The final session of the seminar featured a two-hour round-table satellite session in which the participating resource persons reported on the seminar results to health professionals in the nine countries. Those unable to attend in person were given the opportunity to question experts such as Derrick and Patrice Jelliffe (of the University of California at Los Angeles and authors of *Human Milk in the Modern World),* Richard Manoff (president, Manoff International), and Bluebell Standal (professor, University of Hawaii) as well as to hear and question their country representative at the seminar. This marked the first use of the satellite by FSP, and clearly showed the powerful implications of this medium for communications.

A joint resolution passed by the seminar participants strongly urged that the governments of all Pacific nations give their fullest possible support to the promotion and protection of breastfeeding practices, and that they adopt the WHO/UNICEF International Marketing Code on Breastmilk Substitutes.

Plans were immediately developed for the South Pacific Regional Maternal and Infant Nutrition Program to hold quarterly round-table sessions, with specific subjects for discussion, and to have technical experts available to respond to questions from program participants throughout the region. Some examples of the content of these planned sessions are:

- follow-up on status of country action plans developed at the seminar to promote and protect breastfeeding;
- discussion of problems of supplementary feeding in the Pacific—need for development of appropriate multi-mix;
- report of activities undertaken by participants on return from the Public Health

(continued on page 11)

Breaking the Cycle

by Jacques Dupont

In 1980, only 43 percent of the 2.3 billion people living in developing countries had reasonable access to safe drinking water. Only 25 percent had any kind of sanitary facility.

The 1976 Habitat Conference in Vancouver promoted the idea of clean water for all by 1990, an idea that ultimately gained the official endorsement of the United Nations as the International Drinking Water Supply and Sanitation Decade 1981–1990.

Two of the greatest obstacles to achieving the goal are the lack of trained and experienced personnel, and the continued use of inappropriate, expensive technologies where practical, low-cost alternatives could be applied.

The water supply side of the decade—the pumps, taps, and pipelines—has received much attention. Sanitation and waste disposal have not. Yet experience has taught that, without accompanying improvements in sanitation and disposal practices, simply providing clean water will not break the cycle of disease that annually kills as many as six million children under five years of age.

Few concrete attempts have been made to reach water supply planners, extension workers, and the people themselves with the message that contaminated water supplies and poor sanitation practices transmit disease.

To make this essential connection and to promote some simple methods and practical technologies, the Communications Division of IDRC (Canada's International Development Research Centre) is producing a short documentary film for health care decision-makers, technicians, and community workers charged with implementing water and sanitation programs.

Using animated sequences to demonstrate the cycle of disease, and live-action scenes, the film will attempt to show the cause-and-effect relationship between poor sanitation practices and gastroenteritic disease.

The documentary frankly but discreetly addresses a problem that has usually been avoided on film because of barriers raised in people's minds against a "sensitive" or "distasteful" subject. But there is no elegant way to die of diarrhea.

Written and produced by the Communications Division and the Health Sciences Division of IDRC, in collaboration with the World Health Organization (WHO) and Oxfam (U.K.)—international agencies active in water supply and sanitation programs—the film will be available through development agencies and Canadian missions in developing countries in mid-1983. ■

Reprinted with permission from the IRDC Reports, *Volume 11, Number 4, Jan. '83.*

(**Satellites** continued from page 10)

Nutrition Training Course (January 12–February 12, 1982) conducted by the FSP Regional Nutritionist.

These round-tables are usually organized using the Suva, Fiji, station as a control with a chairperson acting as moderator. There can be many participants from each country, but with only two hours typically available, efforts are made to have a spokesperson from each country. However, the number of observers is only limited by the size of the ground station studio and the interest generated by the subject matter.

It is not unusual for a session to have up to 20 participants and twice as many observers, with professional backgrounds ranging from village health workers to directors of health for island nations.

The impact of the satellite for nutrition training and education has yet to be fully measured; however, as a direct result of this program, individuals in Tonga were motivated to form a Food and Nutrition Action Group which is now receiving official recognition for its work. FSP plans to continue the use of this innovative approach to nutrition issues and, in addition to the quarterly round-tables, may hold monthly follow-up sessions to the Nutrition Media Message Workshop (Nov. 2–12, 1982) coordinated by the FSP Regional Nutritionist.

The first two years of the FSP Regional Nutrition Program have created an awareness of maternal and infant nutrition problems. A recent evaluation of the FSP Regional Nutrition Program made it clear that the program had met its original objectives and that additional activities could capitalize on the enthusiasm generated to tackle nutrition problems in the South Pacific. FSP is planning to continue funding for the program for an additional three years. ■

Gloria A. Renda has been the Regional Nutritionist for the FSP Regional Nutrition Program since it began in 1981 and is based in Suva, Fiji.

Brian M. Riordan was formerly the FSP Nutrition Program's Administrator in New York, and is currently based in Hawaii.

For more information, contact Gloria Renda, FSP Nutrition Program, P.O. Box 1493, Suva, Fiji; or, FSP, Suite 808, 200 West 57th Street, New York, NY 10019, USA.

(**In Brief** continued from page 15)

of planning and integrating nonformal programs into existing systems. A chapter is devoted to the "origins and meanings" of nonformal education; another to "approaches to planning nonformal education;" and while the bibliography is limited, there is a helpful list of nonformal education-related institutions.

The IIEP held two workshops related to educational media, and published a report from each. One, by Tony Bates, carries the workshop title: *The Planning and Management of Audio-Visual Media in Distance Learning Institutions,* and is based on a survey of 12 distance learning systems. It covers the kinds of media used, the educational uses of these media, their production, distribution, cost, evaluation, etc. Six appendices provide additional information on workshop participants, institutions using audiovisual media, media use data, and criteria and issues relating to use.

IIEP research report number 31, *The Use of Modern Media for Rural Education in Developing Countries: The Organizational Problems* by M. Gutel, covers television and radio, film, slide projectors, audiocassettes, videocassettes, videotape, and the organizational support systems they need for effective educational applications. The author regrets the lack of cost-benefit analyses, but a look at the bibliography shows no sources more recent than 1975. By now the literature is more extensive in this area. The address of the IIEP to order any of these five publications is International Institute for Educational Planning, 7-9 rue Eugène-Delacroix, 75016 Paris, France.

- The Educational Research Institute of British Columbia has published a very nice review of new technologies applied to distance education. Although the orientation is toward Canada's British Columbia, many of the issues and opportunities can be found in other contexts. A general discussion of learning at a distance opens the report, which then considers currently used media such as print materials, radio, audiocassettes, television and its related applications, slow scan, videotape, teleconferencing. The four most promising of the new technologies from the Institute's viewpoint have been given chapters to themselves. These are satellites, videodiscs, videotex, and microcomputers. Each of these is examined through projects in which they are already in use. Any reader with an interest in these developments will be well served by *Learning at a Distance and the New Technology.* Available for US $10.00 from the Educational Research Institute of British Columbia, 400-515 West 10th Avenue, Vancouver, British Columbia, Canada V5Z 4A8.
- Unesco's series, Population Communication: Technical Documentation, has a new issue. Number 8, *Folk Media and Mass Media in Population Communication,* treats the current use of the folk media and their potential to support population programs. The report presents case studies from the Philippines, Mexico, Indonesia, and Papua New Guinea, gives results of a Unesco-sponsored study in Haiti, and covers a Unesco meeting on integrating folk and mass media. Planners are encouraged to use this report in conjunction with one of the Unesco training films, "Family Planning Communication: Folk Media." For information regarding this publication and the accompanying film, contact the Population Division, Unesco, 7 place de Fontenoy, 75007 Paris, France.
- Those readers who are concerned with the developments in space will want to take note of a recent Worldwatch Paper, *Space: The High Frontier in Perspective* (Number 50). Some of the discussion centers around the competitive U.S.-Soviet space programs; scientific data gathering from space is reviewed, as is the "satellite communications revolution." The paper takes note of Bela Mody's never-too-often repeated warning that "the biggest constraint on reaping the educational advantages of direct broadcast satellites is not the hardware—the satellites, the transmitters and the receivers—but the software, such as programming geared to villages, teachers capable of integrating the images into meaningful lessons . . ." This Worldwatch Paper No. 50 can be ordered for US $2.00 (postage additional) from the Worldwatch Institute, 1776 Massachusetts Avenue, N.W. Washington, D.C. 20036, USA.
- Popular culture and development communication are closely allied in many parts of the world. Mini-radio soap operas carrying a nutrition message in the Philippines, puppets speaking in support of family planning in India, *fotonovelas* presenting a health message in Ecuador, and folk theater advancing development in Botswana have been well documented in these pages. Nowhere does popular culture flourish more vigorously than in Latin America, so it is not surprising to see that the academic community is looking seriously at this social indicator. This community has a new forum in *Studies in Latin American Popular Culture*—a journal whose intent is to rectify the "neglect of Third World popular culture." The journal defines the field as "some aspect of culture which is accepted by or consumed by significant numbers of people." The premier issue features articles, among many others, on Mexican *fotonovelas,* post-revolutionary participation in sports in Nicaragua and Cuba, Panamanian bus art, the Brazilian *telenovelas,* and Argentine postal stamps as mythmakers.

  This almost 300-page publication will give a new perspective on many kinds of cultural communication heretofore overlooked or ignored. For information regarding the availability of *Studies in Latin American Popular Culture,* contact Charles M. Tatum, Department of Foreign Languages, Box 3L, New Mexico State University, Las Cruces, New Mexico 88003, USA. ■

Reviewed by Judy Brace, Resource Center Manager and Acting Director of the Clearinghouse on Development Communication.

On File at ERIC

Recent entries in the ERIC (Educational Resources Information Center) files reviewed in this column are concerned with educational radio, the evaluation of media-based education programs, and the role of information in national development. All are available from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, USA.

- Hall, Budd L. ***Mtu ni Afya ("Man Is Health"): Tanzania's Health Campaign.*** 1978. 79pp. (ED 216 682)

This account of the Tanzanian health campaign, which was conducted in 1973, opens with a brief explanation of how radio forums fit into the mass media scheme. Campaigns in other countries are then reviewed, with emphasis on aspects pertinent to the Tanzanian experience. The Tanzanian campaign, entitled Mtu ni Afya (Man Is Health), had three aims: (1) to increase people's awareness of how they can make their lives healthier and to encourage both groups and individuals to take appropriate action; (2) to provide clear and simple information about the symptoms of specific diseases and their prevention; and (3) to encourage those who had participated in the national literacy campaign to maintain their skills by reading campaign materials designed especially for the newly literate. This report also describes more recent development projects in Tanzania, and 38 references are listed. Available from EDRS in microfiche for 97¢ or in paper copy for $7.40.

- Imhoof, Maurice. ***Reading by Radio. A Position Paper on the Use of Radio in Teaching Reading Skills for Educational Development.*** 1981, 32pp. (ED 217 379)

To support the position that radio has significant instructional potential for the improvement of language arts skills—especially reading—in developing nations, this paper discusses the use of radio in relation to other aspects of educational development in those countries. The discussion of the role of language in educational development in the first section of the paper includes literacy, vernacular languages, international languages, language policy, and language and economic expectations. The second section reviews the use of radio in educational development, including the advantages of radio, radio in education, radio and language instruction, and radio and unqualified language teachers. Current theoretical descriptions of the reading process and their congruence with the use of radio are summarized in the third section, including psycholinguistics and reading, reading in a second language, language and language arts instruction, and radio and reading. The concluding section suggests ways in which radio's potential can be realized in a language arts reading program. Available from EDRS in microfiche for 97¢ or in paper copy for $3.90.

- Kaungamno, E. E. ***Use of International Documentation: Some of the Major Problems Facing Developing Countries. Occasional Paper No. 14.*** 1980, 13pp. (ED 220 082)

This discussion of the role of information in national development addresses such issues as for whom and for what purposes information is needed in developing countries, the impact of the information explosion on the Third World, and the problems inherent in current national and international information infrastructures. A series of statements formulated at the COSTED—Unesco Expert Meeting (held in Bangalore, India, in 197[illegible]) on the kind of information needed by developing countries is presented. As an example of information that is useful for development but expensive to access, a list of online

(continued on page 13)

The "Dirty Power" Problem

by Gary Garriott

A significant obstacle to the introduction of microelectronics technology in developing countries is unreliable and/or unstable electrical power, known as "dirty power." Delicate electronic circuitry is easily damaged if operating voltages exceed design limits, even for extremely short periods of time (fractions of a second). If the power is suddenly interrupted, any data held in the computer's RAM (random access memory) is lost. The table below describes various electrical problems and typical corrective/protective devices available in the marketplace:

PROBLEM	SOLUTION
Voltage spikes (very fast) and surges (at least a few cycles in length) are short increases in voltage caused by lightning strikes, power equipment switching/cycling; transient voltages in general (temporary increases or decreases in line voltage).	Line filters and transient suppressors.
Noise caused by power line conditions, switching equipment, fluorescent lights, etc. (Noise frequencies may be similar to frequencies used by digital circuits and cause data errors.)	Most filters, suppressors, and line isolators.
Varying line voltage not associated with transient conditions, but with difficulties in demand regulation at the utility end, including deliberate voltage reduction to decrease load ("brownouts").	Line isolators (usually includes voltage regulation circuitry as well as transient suppression and filtering); "brownout" and overvoltage protection.
Total power blackout; loss of data stored in RAM.	Back-up power supplies that switch in a charged batter—short delay; some connect battery to circuitry at all times to avoid power interruption altogether; may include voltage regulation and transient/noise suppression.
Lightning or static build-up on antenna and transmission lines (as distinct from electrical power lines).	Impulse suppressors.
Determination of what electrical problems exist (power failures, high-low line voltage, spikes, noise, etc.).	Power line monitors that provide visual and/or audible alarms when an abnormal condition exists; some models include machine tape-sized printers noting the type of problem and time/date it occurred.

Most devices cost from a few hundred to several thousand dollars, although simple line filters are available for less than a hundred US dollars. Readers can obtain more information relating to a specific problem by writing: Inquiry Service, Volunteers in Technical Assistance, 1815 N. Lynn Street, Arlington, Virginia 22209, USA.

databases in the field of agriculture is provided, along with their associated usage fees. Weaknesses in the information infrastructures of developing countries described by a 1975 FAO conference on agricultural research are reviewed, and the recommendations made at that conference for the strengthening of national and international information infrastructures are summarized. An 8-item reference list and a checklist on information infrastructures accompany the text. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- ***Low-Cost Aids for Elementary Science Teaching in Asia and the Pacific.*** 1982, 169pp. (ED 219 279)

This report, based on the outcomes of four regional workshops which were held within the framework of the Asian Programme of Educational Innovation for Development (APEID) to strengthen national efforts in the development of elementary science aids/materials, provides (1) guidelines for the development of appropriate and low-cost aids for science instruction; (2) an inventory of the aids developed by workshop participants; (3) a synthesis of experiences leading to the development of the aids, focusing on teacher education/development, use and availability of aids, curriculum, school level organization, instructional strategies, and financial support; and (4) recommendations. The major emphasis is on the low-cost aids, which are grouped under the headings Basic Tools, Living Things, Matter, Energy, and Earth and Sky. (The division of science into these content areas is common in elementary science programs in Asian and Pacific countries.) A brief description is given for each item. In addition, content, skills, and attitude objectives are listed when appropriate, materials for construction are listed, instructions for making the device are given, and suggestions for uses and modifications are provided. Among the aids described are a spirit burner for supplying heat, a microbalance, single-pan/spring balances, laboratory stands, a water clock, a thermometer, a box of biological tools, a plant press, a stethoscope, a breathing system, a potometer, electricity kits, weather apparatus, and electric motors. Available from EDRS in microfiche for 97¢ or in paper copy for $12.65.

- Mayo, John K. and Hornik, Robert C. ***Evaluation and Research in the Planning, Development and Support of Media-Based Education. Final Report of the IIEP Workshop (Florida State University, Tallahassee, Florida, October 27-30, 1980.)*** 1981, 70pp. (ED 212 120)

This workshop focused on methods of evaluating and monitoring media-based education programs as a means of improving the use of television or radio to communicate a useful message to students, the general populace, or a particular group. Originally prepared as the basic discussion paper for the workshop, this document reviews the role of evaluation and research in the various stages of the policy-making and implementation process, and stresses the need to relate evaluation to system planning as a whole, rather than confining it to summative research or to formative evaluations as instructional materials are being developed. This paper has been revised to incorporate the major themes of the workshop discussions and includes the participants' criticisms and recommendations. Available from EDRS in microfiche only for 97¢ plus postage, or from IIEP Publications in paper copy. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210 USA.

Nonformal Ed Study-Conference Set for June

Michigan State University has announced its Fifth Annual Institute for Studies in Nonformal Education.

The Nonformal Education Study-Conference will be held in East Lansing, Michigan, from June 6–24, 1983.

For more information, contact Dr. Ted Ward, 518 Erickson Hall, MSU, East Lansing, MI 48824, USA.

(**Cassirer** continued from page 2)

lage, with the villagers as active bystanders making sure that the producers will never forget the quality of the listeners. This also offers the producer the possibility of discussing editing with the participants. The completed programs are monitored and discussed in the village before the mobile production team leaves." (Quotes are from a Sri Lanka Broadcasting Corporation document to be published shortly.) An international meeting is planned at Mahaweli to familiarize other countries with the approach and the experience gained.

Another example comes from Kenya where a local radio station is planned for Homa Bay on Lake Victoria. After a preliminary survey and local construction of the station, operation is envisaged for 1984 with similar goals of participatory communication with the rural population.

DCR: What has been Unesco's position on regional news agencies?

HC: Unesco has favored establishment of national or regional news agencies or feature services. News agencies are usually seen primarily in the context of the international flow of communication. But it should not be forgotten that agencies have also an important function in reporting news from inside the country so development may become a topic for national awareness and discussion. More specifically development-oriented is the Latin American agency on special information (ALASEI) which receives support from the International Program for the Development of Communication (IPDC) (See *DCR* 38). It will begin operation in 1983. Another project is the Asian News Network (ANN) whose task will be to exchange news on the development role of the media.

Reinforcement of the trend toward Unesco's involvement in development communication may come from the IPDC. Its Council has adopted criteria governing approval and financing of projects which specify that projects be relevant to development, especially as reflected in regional, subregional, and national development policies and plans, and that they increase the communications capacity to receive and transmit information of concern to individuals and groups at both the rural and urban community levels.

While Unesco is actively involved in development communication, it is interesting to note that resources for this purpose are drawn to a considerable extent from funds-in-trust provided by the Federal Republic of Germany, Scandinavia, and countries primarily interested in concrete contributions to development. Unesco's public image and many of its operational activities are, however, dominated by the wish to rectify the international imbalance in communication and to introduce modern communications technology. The limited budget for development communication and the lack of public attention to Unesco's efforts to improve the uses of media within countries are probably due, in part, to the poor news value of constructive initiatives. As any journalist knows, good news is no news. Hence the major importance of lending prestige and encouragement to Unesco's development activities.

The most important task, as I see it, is to strengthen allegiance to development communication at the governmental level. To this end, delegations of Member States, especially that of the United States, should be sensitized to the issue. Pressure should be brought on Unesco to devote itself increasingly (as expressed in programs, staffing, and budgets) to, as I called it more than thirty years ago, communication of the people, by the people, for the people.

DCR: Thank you very much, Dr. Cassirer. ■

Using Audiocassettes in Distance Education

by Jo Bradley

Audiocassette recorders first came on the market in rich western countries in the early 1960s. They were cheaper and more portable than reel-to-reel machines, and much easier to use. They have since become even cheaper and lighter and cassette tapes are now familiar to people all over the world.

Distance teachers are making increasing use of audiocassettes, especially in countries where cassette recorders can be found in most households. Cassettes have the advantage of being easy to record and copy, and simple to use. They are strong enough to send by post without special packing, and cheap to mail because they weigh so little.

Audiocassettes lend themselves to many different uses with correspondence students. Here are just some of them:

1. They can provide material which needs to be heard, rather than read or looked at, such as music, drama, historical speeches. They are especially useful in foreign language teaching.
2. They can be used to guide the student through complex visual materials, such as mathematical diagrams. Instead of switching from printed text to diagram and back again, the student can study the diagram at the same time he or she is listening to the instructions.
3. Hearing the voices of tutors and course writers draws the student closer to the teaching institution and personalizes his or her links with it. Listening to group discussions is more involving than reading about different viewpoints on a topic.
4. Students can record as well as listen, which encourages two-way communication, especially with students who find writing difficult.

Some of these functions have traditionally been performed by radio programs. In institutions where audiocassettes are taking over to some extent from radio, the reasons are usually to be found among the following:

1. Using cassettes frees the institution from dependence on a broadcasting organization or radio station. This is particularly helpful when there is only a limited amount of transmission time available, or where the institution is under pressure to reduce the number of hours it broadcasts. The alternative is often for students to have to listen at inconvenient times of day.
2. It can be cheaper to use cassettes than radio for courses with small enrollments if students have audiocassette machines in their homes.
3. Students can use cassettes more flexibly than radio programs, listening to them when they reach the right point in the course rather than when they happen to be broadcast. Cassettes can easily be stopped, started, and replayed as often as necessary, and can be used for revision at the end of the course.
4. Audiocassettes are an informal medium; it is easy to learn how to record as well as how to play back, and people are becoming accustomed to the technology. Using them can help to break down the isolation of the correspondence student. ■

Reprinted with permission from About Distance Education, *Issue No. 15, August 1982. For more information write to the International Extension College, 18 Brooklands Avenue, Cambridge CB2 2HN, United Kingdom.*

New Communications and Development Unit Announced

"The Institute for International Development and Co-operation at the University of Ottawa has established a 'Communications and Development' unit. Its aim is to organize a unified and comprehensive research effort on communications in the development of nations. The research will be interdisciplinary in nature, involving practitioners and researchers from Canada and other developed and developing countries and will result in a full-fledged capability at the Institute in Ottawa and associated institutions abroad, in training communications experts for work in developing nations.

"Recent advances in communication technology have placed the world on the threshold of a 'Communications Revolution' that could have far-reaching consequences for society. If the world is to make optimum use of the developmental capabilities of communications, then more and better knowledge of the role of communications in specific domains of development is required. The unit being set up will fulfill just such a requirement. Topics to be explored include: policy-making and analysis in communications; organization of the communications sector; the collection and organization of data on communications; financing of communications projects; technology and communications; telecommunication; communications and productivity; energy-saving role of communications; and the role of communications managers and consultants.

"For further information write to: Dr. Jacob R. Joseph, Chief, Communications and Development, Institute for International Development and Co-operation, 50 College Lane, Ottawa (Ontario), K1N 6N5, Canada. Telephone 613-231-2340."

Guide to Teaching Health Care Workers

Teachers of health workers may have a thorough knowledge of their subject and extensive field experience, but few of them have had exposure to modern teaching methods. They find it difficult to pass on their knowledge to their students, according to a World Health Organization (WHO) manual.

Teaching for Better Learning is a 137-page guide for primary health care teachers and trainers that explains how to:

- decide exactly what the students should learn;
- choose and use suitable teaching methods;
- test what the students have learned; and
- prepare teaching materials.

Choosing course content. Selecting task-oriented topics and concentrating on the relevant facts, skills, and attitudes that students will need in their work is emphasized.

In order to decide how much detail should be included and what standards of performance are required in designing course curriculum, teachers and trainers should assess community health needs. The manual discusses some practical short cuts for carrying out a community analysis to discover the prevalent common diseases and the educational, social, economic, cultural, and agricultural factors that affect health.

Another important tool is task analysis—an exact breakdown of the knowledge, skills, and attitudes needed to carry out each step of a task. Examples of task analysis are given for weighing babies in a clinic and a 17-step task for persuading an unwilling mother, in a remote area, to take her child for immunizations.

Teaching methods. The author emphasizes that learning by doing rather than just listening is the best approach. There are detailed discussions on the use of feedback and role-playing, the importance of motivation, clarity, and active learning.

A 17-page chapter details different methods of student learning assessment. They include oral exams, essays, short answer questions, multiple choice questions, project reports, record books, and checklists.

Preparing teaching materials. The final part of the manual is aimed at helping teachers to plan, write, produce, adapt, and evaluate materials, ranging from single-page handouts for use in lessons to complete manuals for health workers.

Tips are given for writing simply; for giving the information in the right order; and for deciding on objectives. The book is no longer available from AID *Resources Report* but may be ordered from the African Medical and Research Foundation (AMREF), Book Distribution Unit, Wilson Airport, P.O. Box 30125, Nairobi, Kenya, for US $6.50. ■

Reprinted with permission from AID Resources Report, *July/August 1982, No. 22.*

(**In Brief** continued from page 9)

television. This information should be of great help to education planners and ministry economists who need to know such things as the relative costs of the various methods of distance teaching in order to build a budget, whether they will have to spend more than for traditional teaching methods, or whether new courses can be afforded if they use distance teaching methods. At the same time an early chapter warns that there are no simple answers, that costs, as other things in this world, are relative (and subject to inflation!). There is a nice bibliographic reference section that will guide the researcher who looks for lengthier treatments of the subject of educational costs. IEC Broadsheet on Distance Learning No. 17, *The Cost of Distance Education,* is available from the IEC, 18 Brooklands Avenue, Cambridge, CB2 2HN, United Kingdom, for £4.00 surface mail, £4.90 air mail.

- The Latin American Association of Radiophonic Education (ALER) is publishing several series which will be of interest to our Spanish-reading audience. For those primarily interested in case studies, their *Serie Experiencias* is valuable. The series has, to date, three monographs on radio programming for education (health education, rural development, and teaching). A second series, *Serie Investigaciones,* includes two research monographs. A third series treats the institutional aspects of ALER. The Association also publishes a bimonthly journal, *Informa,* and has brought out a special issue, a ten-year overview of ALER. For prices and a publication list, write to the Secretaria Ejecutiva, ALER, Casilla 4639-A, Quito, Ecuador.
- Unesco's International Institute for Educational Planning (IIEP) has been regularly publishing material of particular value to *DCR's* audience. In their series, Fundamentals of Education Planning, two monographs should be noted. Number 29, *Communication Media in Education for Low-income Countries: Implications for Planning* is by Emile McAnany and John Mayo, and covers aspects of media applications that should be considered by planners. The four case studies will all be known to our readers as will the critical issues facing the educational planner. Nonetheless, to have it all synthesized in compact and readable fashion, with a good bibliography, makes it useful indeed.

  Number 30 in this series is *The Planning of Nonformal Education* by David Evans. Now that nonformal education is beginning to take its rightful place in educational systems, it is important to have such a monograph as this to support the process

(continued on page 11)

Cornell Offers Communication Planning Courses

Two courses related to communication and rural development will be offered in 1983 by Cornell University to observe World Communication Year. "Communication Planning and Strategy" and "Reaching Rural Women" are designed especially for program planning and management-level officials in developing countries.

"Communication Planning and Strategy" will be held July 11–29, 1983, on the Cornell University campus in Ithaca, New York (USA). Using case studies, participants' own experiences, and other materials, the course will cover such topics as: how to develop appropriate strategies for communicating with various publics; how to mobilize communication resources, from manpower to technology; how to coordinate mass communication with interpersonal communication methods; and how to provide communication support for field workers.

Applications are invited from public and private sector officials who have planning, administrative, or training responsibility for programs in agriculture, health, nutrition, family planning, rural development, and non-formal education. Priority will be given to persons in developing nations whose positions allow them to make practical use of the course experience or who can extend the benefits of the course to others.

Tuition and fees for the three-week course are US$900. Housing, meals, and personal expenses are not included. For information contact Dr. R.D. Colle or Christine Hollis, Department of Communication Arts, 640 Stewart Avenue, Ithaca, N.Y. 14850, USA. Telephone: 607-256-6500. ■

(**Satellites** continued from page 16)

or her own motivation and desire to understand another language.

c) The combination of visuals, motion, and audio is a strong factor in attracting and keeping the attention of the students.

d) Every television program is a living teaching tool, not only for the students, but also for the faculty.

Many foreign language instructors in the United States are U.S. born and educated. During their training as foreign language teachers, their exposure to a foreign culture is limited, in the majority of cases, to the country where the target language originated. For instance, most teachers of Spanish are exposed during their training to the language and cultures of either Spain or Mexico, and the instructor's teaching reflects his or her previous experience and background. It is rare to find a teacher whose experience has been acquired in any of the South American countries.

The exposure of faculty to current foreign language television programs produced in countries other than the dominant one is an eye-opener. The instructor soon learns that there are subtle and sometimes strong differences in language and culture among countries with the same mother tongue. The continued viewing of these foreign language programs via satellite updates the knowledge of the instructor which hopefully leads to better instruction.

Plans for Receiving Television Programs in Other Languages

With the current equipment owned by UMBC it is only possible to receive programming from those satellites located between 83 degrees West and 143 degrees West. Satellites located beyond 83 degrees West, such as the French and German language Symphonie and the Russian language Statsioner and Ghorizont, are not currently within our reach due to the differences in video standards, frequencies, the configuration of the feed, the limitations of the receiver, and the size of the parabolic dish.

To overcome these limitations, a new satellite receiver system, with future capabilities for transmitting as well as receiving, is being designed by the technical staff of the Department of Instructional Media Resources at UMBC and will soon be installed.

Afterthought

In preparing this material, I have addressed our use of satellite technology and some of our technical problems. We are doing this work in the spirit of experimentation. I have not addressed the political and ethical implications of operating a private satellite receiver. As a word of caution to other prospective experimenters, it is wise to be aware of the licensing position of the country concerned. Some countries have a virtual "open-skies" policy—the signals that come from any satellite are the property of the receiver unless the originator prevents the reception by special law or by signal scrambling.

In other countries the reception of private communications *without permission* is illegal. Special permission may be granted for experimental, developmental, or demonstration work, as it was in our case. ■

For further information contact Victor H. Aulestia, Director, Department of Instructional Media Resources, University of Maryland-Baltimore County, Baltimore, MD 21228, USA.

Victor H. Aulestia is the Director of the Department of Instructional Media Resources at UMBC and a consultant in media utilization. Prior to this position he was an Instructor of Spanish and the Director of the Language Center at UMBC. He is the current President of the International Association for Learning Laboratories.

Foreign Television by Satellite Enhances Language Studies in U.S.A.

by Victor H. Aulestia

A satellite receiving station was a recent addition to the language training program at the University of Maryland-Baltimore County Campus in the United States.

Project Background

Prior to 1977, the Modern Language Program at the University of Maryland-Baltimore County (UMBC) was a traditional program. The curriculum in the individual languages was oriented, as are most U.S. foreign language programs, toward the study of literature. Aided by two major grants from the National Endowment for the Humanities, the department has entirely reshaped its curriculum to establish a better balance between language, literature, and culture. Above all, the language department created a coherent new communication-oriented curriculum.

This new program was designed to provide students with the practical language skills and cultural awareness needed for other fields of study; for jobs in business, government, social and health services, and other positions that involve international contacts. The program's goal was to enable the students to actually use their knowledge of the target language and culture not just in the classroom, but in "real life" situations, and to arrive at a better understanding of those societies where the language they are learning is spoken.

In order to make the language experience as dynamic as possible, extensive use of media by both students and faculty is a feature of the new program. Hundreds of audio, film, and video materials are readily available in the Language Media Center for independent use by faculty and students alike. A state-of-the-art language laboratory and high quality courseware provide the students with the opportunity to practice what they learn in the classroom.

Perhaps the most interesting and potentially valuable piece of equipment on the campus for learning foreign languages and cultures is the satellite receiver. In 1979, UMBC's instructional technologist was impressed by encouraging reports from both the AID Rural Satellite Program and the Application Technology Satellite Program on their successful use of satellite technology to support the delivery of basic social services and classroom instruction to isolated areas in a number of developing countries. He studied the feasibility of applying the same technology used in Indian villages in 1975 to receive satellite transmissions from the ATS-6, to capture for American classrooms foreign television programs transmitted by international and domestic satellites.

The technical recommendations of the study were for the purchase of a 3.5 meter parabolic dish, a 110 K Low Noise Amplifier, and a professional agile video receiver. Because of the lack of experience at the time with such equipment and international video standards, the equipment purchased was limited to receiving television programs from domestic (U.S.) satellites.

The new equipment is able to receive foreign language television programming which is limited to four Spanish channels and three French channels from domestic and Canadian satellites. In addition to these television channels, the Language Media Center receives audio-only programming in such languages as Polish, Russian, Chinese, etc.

An Effective Tool

UMBC's new language studies now include, on a scheduled basis, French and Spanish commercial and non-commercial television programs relayed from the above-mentioned satellites. These are transmitted to the Language Center and to television receivers in all classrooms from the head-end (TV distribution center) of the UMBC Television Complex.

These foreign language television programs may be viewed at any time during the day by faculty and students on any of the classroom TV monitors. They may be used during classes to enhance the lesson or as a warm-up device, or as entertainment after classes. The variety of content, language usage, cultural characteristics, non-verbal language, idiomatic expressions, socio-cultural codes, etc., contained in these programs constitutes an excellent means of developing listening comprehension proficiency and awareness of cultural similarities and differences.

From the informal observations and reactions of the students to this new educational resource, some tentative assumptions have been reached. Notice that these observations are only hypotheses and are not hard scientific facts.

a) The level of comprehension of the target language increases proportionately to the amount of viewing of television programs in that foreign language.

b) The acquisition of a higher level of comprehension is partly due to the fact that the student is not under any obligation to watch the programs. The operating factor here is his

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1414 22nd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

Judy Brace, Acting Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Assistant

ISSN 0192-1312

AED
International Division

Academy for Educational Development

Cassirer Interview; TV for Language; Radio for Teachers; Comic Books for Health; Food for Thought

development communication report

1414 22nd Street, N.W.
Washington, D.C.
20037 USA

June 1983
No. 42

RECEIVED
SEP 14 1983

RADECO: Radio-Based Primary Education in the Dominican Republic

by Andrew Hanssen, Steven Kozlow, and Anne Olsen

Many of the governments of the developing world are facing economic constraints which prevent them from adequately providing their school-age populations with educational services. The Dominican Republic, like many other developing nations, cannot accommodate the demand for access to its formal school network by its burgeoning school-age population. Scattered throughout the country's Southwest Region are literally hundreds of communities containing tens of thousands of children who are denied the opportunity for education because the government simply cannot afford to build enough schools and train enough teachers. It is increasingly evident that the Dominican government will not in the near future have the resources to substantially expand the formal school system.

The approximate out-of-school population in the Southwest Region of the Dominican Republic is 120,000. The cost of construction of a single classroom there is estimated at US$14,000. To incorporate 120,000 additional students into the formal school system, with each classroom serving 110 students in two sessions a day, would require a capital investment of more than US$15 million. In addition, the recurrent expenses for such items as personnel services, materials, and equipment that an additional 120,000 students would require would total more than $5 million yearly. A more cost-effective strategy of education must be developed if the Dominican government is to provide all of its people with basic education. And once developed, a successful strategy could be replicated around the world.

InterAmerica Research Associates was contracted by AID's Bureau for Science and Technology to implement an innovative approach to primary education in the Dominican Republic.

Barahona, a town of 15,000 people in the Southwest part of that small Caribbean republic, is the base for the Radio Educativo Comunitario (RADECO) Project, which explores the use of radio as a means of teaching basic literacy and numeracy skills to children between seven and fourteen years of age who do not have access to formal schools.

The methodological base for the RADECO project was laid by the AID-funded Radio Mathematics in Nicaragua (RMN) program, developed in collaboration with Stanford University in the mid-1970s. The Radio Mathematics in Nicaragua project demonstrated that students within a formal classroom will respond to and learn mathematics from a radio broadcast. In fact, the RMN students scored nearly a full standard deviation higher on an end-of-year math test than did a control group: students in comparable classrooms who did not receive radio instruction. In the course of that project, a sophisticated system of formative evaluation was developed and standardized. RADECO seeks to develop a similar program for primary-level reading and to adapt the RMN math materials to the unique circumstances of its own nonformal education program.

(**RADECO** continued on page 11)

In this issue . . .

WCY 83 and USTTI 1
RADECO Project Teaching Rural Children in the D.R. 1
Field Research with Farmers in Botswana 3
Producing Low-Cost Literacy Materials in Kenya 4
Puppets Changing Attitudes in India 5
Information Resources Roundup ... 7
A Communicator's Checklist 8
On File at ERIC 12
Radio Formats Offer Diversity 14
Successful Community Radio in Ecuador 16

ANNEE MONDIALE DES COMMUNICATIONS
WORLD COMMUNICATIONS YEAR
AÑO MUNDIAL DE LAS COMUNICACIONES
1983

DCR *is honored to be among the publications approved by the U.S. Council for World Communications Year 83 to display the official WCY 83 logo.*

Readers of this newsletter will be interested to learn of one wide-ranging program which is an official initiative of WCY. The U.S. is sharing its telecommunications expertise with developing countries around the world in a joint venture between major American telecommunications firms and the U.S. government. The new program, the U.S. Telecommunications Training Institute (USTTI), is offering programs at the senior management and advanced technical levels in an effort to strengthen the planning and operation of telecommunications systems as a part of national development.

Private sector firms are providing the training, equipment, and funding for the Institute, which is administered by a Board of Directors representing both industry and government. The United States government has served as a catalyst in bringing the corporations into the program and in establishing the course curriculum in discussions with representatives of developing nations.

All programs are offered without charge to participants, although trainees, or their sponsoring governments or organizations, are responsible for securing the individual's subsistence and travel expenses. Limited fellowships to help underwrite some of these expenses may be available through USTTI.

The first of these programs was held this spring, when USIA and USTTI together sponsored an unusual project entitled *Communications Technology and Policy* which brought together 28 people from 26 countries on a five-week program in the United States.

(**WCY 83** continued on page 2)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

"World Communications Year is a specific set of activities forming part of the United Nations system's action to foster balanced social and economic development."

From Principles and Objectives of WCY

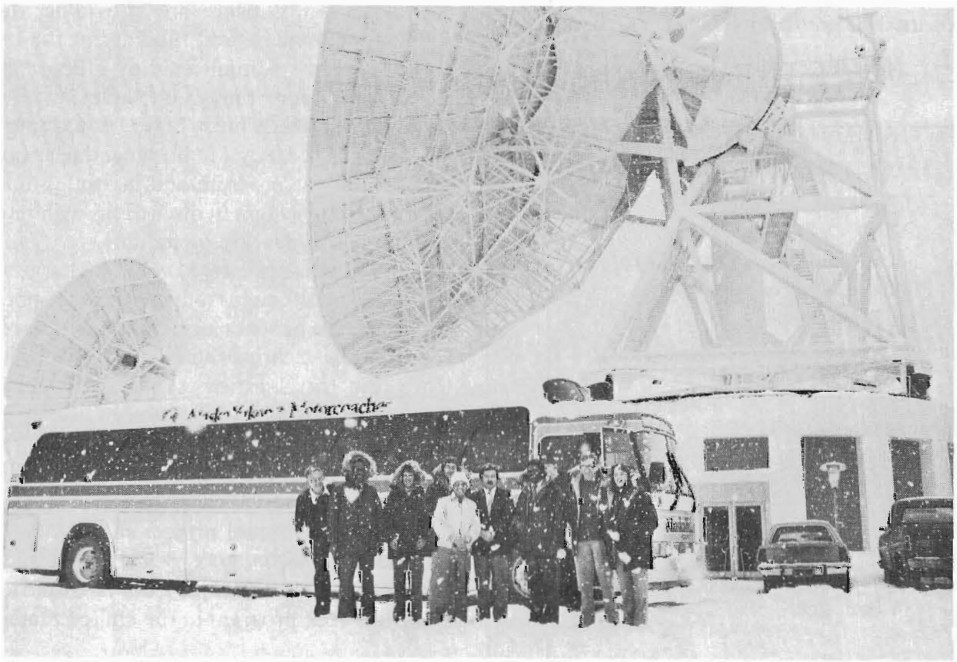
(WCY 83 continued from page 1)

The project, administered by the Academy for Educational Development, was under the overall auspices of USIA's International Visitor Program. Participants came from such diverse countries as England, Honduras, Israel, The Gambia, Kenya, Australia, Ireland, and Lebanon. They were all high-ranking people from the telecommunications sectors of their countries; many had engineering backgrounds; several have represented their country at major international meetings. They were keenly interested not only in the new telecommunications technologies being developed in the United States, but in their applications and in the policy options surrounding them.

The project opened in early April in San Francisco, California, where Dr. Wilbur Schramm delivered the opening address, "The History of the Future." Other speakers and experts met with the group and discussed a range of topics from satellite systems to fiber optics to office automation and digital switching. The visitors were received at three companies whose products typify technological advances in the United States. The visitors then traveled to Alaska, where, as guests of Alascom (the Alaska. Telephone Company), they spent a week of in-depth study of a vast underpopulated region linked almost entirely by satellite communication. Flying next to Florida, the visitors were joined by eleven more international participants for a schedule that included visits to NASA, an earth station manufacturer, a seminar by the Academy for Educational Development, and attendance at the International Association of Satellite Users annual conference.

The final phase of the project took place in Washington, D.C., and focused almost entirely on telecommunications policy issues, domestic and international. Wide-ranging discussions with panelists addressed such topics as "Deregulation of Common Carriers in the United States," "International Telecommunications Legislation," and "The Role of a Domestic Satellite Carrier." Representatives from 12 United States telecommunications corporations met with the visitors to discuss their countries' training needs in the short and long term. These were the corporations who are providing specialized training programs beginning in June 1983 for individuals from the developing world. The project gave senior officials from the companies and the various countries a unique opportunity to help shape future programs of the U.S. Telecommunications Training Institute.

A final weekend 'retreat' in Maryland enabled the visitors and a small group of American experts to discuss important aspects of the global telecommunications revolution that is now taking place and that will affect the lives of so many in the future. Such meetings and discussions directly support the principles of World Communications Year.



Alascom photo by Sean Reid

A snowstorm delights participants of the Communications Technology and Policy program sponsored by USIA and USTTI on their visit to Bartlett Earth Station, Talkeetna, Alaska.

Future Courses

The first technical course USTTI will offer is a six-week Radio Spectrum Management Course, offered by U.S. government agen[illegible] and scheduled to start in mid-June in Wa[illegible]ington, D.C. A four-week training program in Telecommunication Systems: Network Design and Management, offered by AT&T, is scheduled to begin in mid-July at the AT&T training center near Princeton, New Jersey.

Other courses to be offered later in the fall and winter of 1983 include:

- Information Systems for Telecommunications Management, by IBM;
- Satellite Communications Management and Technology, by COMSAT, Hughes Aircraft, and the AID Rural Satellite Program;
- Broadcast Systems Operations and Management Technology, by Harris Corporation;
- Telecommunications Transmission Systems and Technology, by SCS Telecom, Collins Transmission Systems Division of Rockwell International, and GTE;
- Telecommunications Technology, by MCI; and
- Telegraph and Telex Systems Design, Maintenance, and Management, by Western Union and TRT.

The Academy for Educational Development is assisting USTTI in its operations. For further information about the U.S. Telecommunications Training Institute contact USTTI, Academy for Educational Development, 1414 22nd Street, N.W., Washington, D.C. 20037, U.S.A. Telephone: (202) 862-3857; telex: ACADED WSH 89660; cable: ACADED Washington, D.C. ■

By Mary W. Brady, Senior Project Director, Academy for Educational Development.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and [illegible] necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Field Research in Botswana Leads to More Relevant Media Production

by Chris Garforth

In interpersonal communication, an extension worker can adjust the way he or she presents ideas in immediate response to audience reaction. A media communicator, however, must often determine the form and content of his message before there is any chance for feedback. This article, excerpted here and reproduced by permission from Reading Rural Development Communications Bulletin 16, *examines the experience in Botswana which shows that it can be possible to obtain feedback from rural people to help design media relevant to their perception of their problems, to their technical knowledge, and to their existing practices.*

An important part of extension worker training should be the development of sensitivity to other people's points of view, other people's ways of interpreting and talking about the world around them.

But the problem is not so easy to solve when media are used as channels of communication. In a face-to-face dialog, the 'content' and the language of the communication act is developed on the spot, in response to the feedback between the two people involved. In media communication, on the other hand, the content, form, and language are usually determined before there is any chance of feedback. How does the person designing the media decide what information or ideas to include, or what concepts and words will be most readily understood, or with what attitudes and preconceptions the audience will approach a particular topic? There is a further problem too; in face-to-face dialog, we can quickly tell if we are talking too quickly or too slowly, if we are boring the other person, if he or she has not understood a particular phrase. In media communication, there is usually no possibility of adjusting the speed and complexity of the communication.

These are genuine problems. There is plenty of evidence from around the world to suggest that media communication is often ineffective because it is trying to share irrelevant information, in incomprehensible language (and that includes both words and pictures), in inappropriate forms. One way of tackling the problem is to include some systematic research in the process of designing and producing media. Research which tries—in the context of a particular media project or campaign—to answer some of the questions posed above. This has been done in Botswana through the establishment of an Action Research Unit within the Agricultural Information Service of the Ministry of Agriculture. The job of this unit is to provide media producers—radio producers, journalists, artists, photographers—with information about their audience that will help them produce *comprehensible media* that contains *relevant information.* The two main ingredients of this research are:

1. topic research, which includes studies of the audience's knowledge, attitudes, and practices concerning the topic in question; and
2. pretesting.

A couple of examples will show how action research has improved communication between agricultural extension workers and rural people.

Grass Fires: Information Needed, Not Persuasion

First, the Grass Fires Campaign. Uncontrolled grass fires are a regular feature of the dry winter months in Botswana. They destroy vast tracts of grazing land, exposing a delicately balanced eco-system to the ravages of wind and the heavy showers of next spring. Cattle and wild animals die or go hungry. Homes are often threatened. The Government has passed laws forbidding the lighting of fires in fields or in open countryside, except under the strictest control. In addition, regular educational campaigns are mounted, using radio, leaflets, posters, and village meetings to publicize the problems and encourage more care in the use of natural resources.

An action research study in 1978 showed that it was time for a change in approach. Another campaign was to be planned and for the first time an element of action research was included at the early stages. A survey of people's knowledge and attitudes about grass fires was carried out in a random sample of villages, and public discussion meetings were held in the same villages. This research showed that the problem and the causes of grass fires were already widely known; there was no need to keep telling villagers of the dangers—they were only too well aware of them. What they did want to know was how they could minimize the dangers.

During the research we had expected to encounter defensive attitudes concerning grass fires, because fire is still used clandestinely by hunters, for parasite control, and to encourage the growth of new grass. But in fact attitudes towards the idea of controlling and preventing grass fires were extremely positive. The overwhelming response was that any benefits from fire in grazing areas were far outweighed by the damage caused. The research showed further that the concept of fire

"There is plenty of evidence from around the world to suggest that media communication is often ineffective because it is trying to share irrelevant information, in incomprehensible language . . . in inappropriate forms."

breaks was unfamiliar to most people, and that the legal provisions relating to grass fires were not widely known. These findings provided two major themes for the campaign: the planning and construction of fire breaks, and the legal duties and responsibilities of rural people under the Herbage Preservation Act. A leaflet explaining the legal provisions was produced, together with a slidetape program describing how one village had set about the planning and construction of a network of fire breaks to protect their village and farm lands. Although this campaign was only one small part of a long-term educational program, the research that went into it provided those responsible for that program with new insights into the existing knowledge, attitudes, and information needs of rural people.

Livestock Parasites: Learning From Farmers

The second example shows what can happen if this kind of preliminary research is not done. A slidetape program, together with other materials, was produced on the subject of parasite control in cattle and other livestock. This was part of a campaign to encourage farmers to take regular action against both external and internal parasites which carry disease as well as cause general debilitation. The slidetape program was based on the latest technical information available and was prepared by extension workers who had had several years field experience. It began with a general warning about the damage caused by parasites and then pursued the two themes of external parasites and internal parasites.

When the materials were pretested it became obvious that this structure was not as clear as had been hoped. Unfortunately, not only were the Setswana words unfamiliar to many farmers, the concepts themselves were not those commonly used by livestock owners. They spoke of 'ticks' (which are the most serious external parasites) and they spoke of 'worms.' But they did not use an all-embracing category of 'parasites' to link these two specific concepts. This use of unfamiliar categories hindered communication in this case. Most farmers found the slidetape program confusing.

During the pretesting, it also became clear

(continued on page 6)

Kenya Explores New Ways of Producing Literacy Materials for Basic Education

by Muriithi Kinyua

The 1980s should be regarded as years of innovation in education, particularly in adult literacy. For most Third World countries, the 1960s were years of experiment with methods and materials. These were years of reconstruction, and most of the newly independent countries of Africa were busy trying to sort out their development priorities. Many governments recognized the value of literacy as a tool for national development and supported Unesco's World Experimental Literacy Program. During this time, most of them had high hopes of catching up with the more industrialized nations. However, their hopes of achieving a high growth rate were crushed by the oil crisis of the early 1970s which affected the economies of both developed and developing countries. Educational programs which had enjoyed a high priority had now to compete for the scarce financial resources with other development projects. It is not surprising, therefore, that for most Third World countries, innovation in education in the 1980s will mean making the most out of their meager resources and becoming more self-reliant, for as foreign aid continues to shrink, countries' educational needs continue to grow.

Background

Kenya, like many Third World countries, is faced with the problem of high illiteracy. According to a survey carried out in 1976, slightly more than half of the adult population was found illiterate. In fact, when launching the National Literacy Campaign in December, 1978, the President of Kenya, His Excellency Daniel arap Moi, observed, "It is estimated that 35 percent of all male Kenyans above the age of 15, and 70 percent of all female Kenyans in the same group, cannot read and write." By declaring war on illiteracy, the President opened the way for all Kenyans to develop their abilities, enrich their lives, and participate more fully in the social, economic, cultural, and political life of this country. (See "Kenya's New Literacy Program," by Judy Brace, *DCR* 39, Sept. '82.)

That was four years ago and since then a lot of development has taken place. To realize the dream of a fully literate nation, a Department of Adult Education was created in 1979. By April the same year, the Department had recruited 3,000 full-time literacy teachers who were given a two-week course in methods of teaching adults reading, writing, and numeracy. On completing the introductory course, they went back to their villages to start literacy classes. Another 5,000 part-time teachers were recruited to support the program, and by 1981, the number of teachers involved in the program had grown to about 15,000.

The next major problem which faced the Department after the recruitment of teachers was providing learning materials for the adults who had continued to enroll in large numbers. For a country with over 42 local languages, developing reading materials can be an enormous problem. As most people involved in adult education are aware, the process of writing primers is a very slow one involving surveys of learners' needs, linguistic surveys, and organization of writers' workshops. If the primer being developed is to be functional, a period of pretesting must be allowed. It might take months or even a year before a primer finds its way into the literacy class. The bureaucratic tender system used to award printing contracts in many Third World countries does not make the production of primers any easier.

Writing primers for the Department of Adult Education has not been a simple task. Since 1979 we have managed to produce primers in only 15 languages. Furthermore, the primers so far produced represent large geographical and linguistic areas which do not necessarily have homogeneous learning problems. This makes it hard for the primers to focus on any specific learning needs.

The Low-Cost Print Media Project

As we have already noted, with the general economic recession in the Third World countries, progress is no longer a matter of seeking financial allocations to solve development problems, but of trying to find more cost-effective means of solving them. Kenya is no exception, and with the prevailing economic climate, the term "low cost" was bound to gain more prominence. In fact, "low cost" has come to be equated with appropriate educational technology.

The Department seems to have recognized the problems with developing primers, and, in 1980, with the help of the British Council, it initiated an experimental project in low-cost print media. At that time, some teachers who had no primers had started to improvise in one way or another by producing their own teaching materials; those who could not produce materials were using books meant for children. The questions which were worrying the Department were: How could the shortage of learning materials be alleviated? Was it possible to provide teachers with enough skills to help them overcome their daily teaching problems? How could progress be achieved in the most economic way?

What the Department wanted most was to provide teachers with skills to enable them to solve their teaching problems. The aim of the low-cost print project was therefore twofold:

i) To test whether it was possible to reduce cost and time by producing materials locally instead of relying on national headquarters;
ii) To improve teachers' skills in the design and production of learning materials.

To try the new idea, two pilot projects were begun in two districts of Kenya, Meru and Kisumu. Depending on their success, they would be expanded to cover the whole country.

Workshops to Train Trainers

The first step was to organize a training workshop for the facilitators who would train teachers and monitor the project in the pilot districts. A two-week workshop was organized in Meru in November 1980. About 30 participants drawn from the pilot districts, the national headquarters, the Institute of Adult Studies, University of Nairobi, and the British Council attended. During the two weeks, the first curriculum for the low-cost project was discussed. The facilitators also learned new skills and methods which they were later to pass on to the teachers. Following this preparatory workshop, the facilitators returned to their respective districts ready to organize the first workshops. From January to June 1981, the two districts organized a series of workshops to train teachers in low-cost materials production techniques. About 290 teachers were trained in Meru District on how to produce low-cost materials and use them effectively with learners. They learned survey techniques to determine learners' interests, explored the use of locally available resources for teaching aids, and produced and pretested materials with learners. They also learned how to operate simple reproduction equipment like the handpress and duplicator. Among the materials they produced were word cards, syllable cards, booklets, and picture cards. Kismu District was able to train 75 teachers.

Evaluation reports from the two pilot districts were used to refine the low-cost training curriculum. It was generally agreed that the low-cost training workshops should help teachers acquire the skills to:

- conduct surveys to determine the interests and characteristics of local people;
- produce simple visual aids like word cards and syllable cards;
- plan illustrations and booklets;
- use simple graphic techniques and lettering;
- use simple reproduction equipment like handpress and duplicators;
- improvise.

(continued on page 10)

Changing Health Behaviors in the Hospital Setting

by Bette Booth

Studies indicate that people are most likely to change health-related behaviors if they are intercepted in a critical health situation. The Ethio-Swedish Pediatric Clinic in Addis Ababa, Ethiopia, is attempting to change health behaviors by intercepting parents accompanying their children at the out-patient and in-patient wards. Parents, both mothers and fathers, are presented with a 20-minute cassette tape on a health problem and given a supplementary pamphlet with the same information. Both the cassette and booklet are written in Amharic, which is reportedly spoken by 70 percent of the population. Topics covered include: vaccinations, breastfeeding, supplementary weaning foods, communicable diseases, accident prevention, intestinal parasites, and harmful traditional practices.

The sessions, which last about 45 minutes, are a welcome break for the waiting parents. While parents and some older children gather, a cassette of lively local music is played to help people feel comfortable and establish an informal atmosphere. The nurse gives a brief introduction and then plays the health cassette. Group discussion which follows gives the parents the opportunity to ask questions and clarify points. At the end of the meeting the participants are given a five- to seven-page pamphlet which gives the same information in more detail. The recent literacy campaign in Ethiopia has reportedly raised literacy from 7 to 45 percent, and officials believe that at least one person in every home can read and serve as a translator for the materials.

Nurse Mulu-Brhan Djote, Maternal and Child Health Coordinator, and some of the ward nurses write the scripts and produce the cassettes. The pamphlets, which were originally funded by UNICEF, are now printed by the Education Section of the Ministry of Health. Nurse Djote hopes to incorporate formative evaluation of the impact of the cassette-pamphlet program. ■

For further information, contact Nurse Mulu-Brhan Djote, Maternal and Child Health Coordinator, Ethio-Swedish Pediatric Clinic, Addis Ababa, Ethiopia.

Rural Development through Puppetry

by Bunker Roy

This article from India illustrates what impact appropriate communication can have at the village level. Folk media and traditional interpersonal communication for development are sometimes overlooked in favor of mass media and a dazzling array of technical communication devices. Here, we are reminded of what one charismatic leader using traditional media for change can accomplish at the grassroots level.

If there is one resource India's planners and policy makers have grossly and criminally neglected for the socio-economic development of the poor in the rural areas, it is the traditional communication media. While a hot and pointless debate rages on over radio and television, and our experts are squabbling over which is the best and most effective medium of spreading the message, so to speak, we are allowing this incredible human skill of communicating with each other to die. A great resource is staring us in the face, and we are either unable or too stupid to recognize it. This failure indicates a bankruptcy of ideas and imagination which should be a cause of much concern.

In the Sixth Plan Document of the Government of India, published by the Planning Commission, traditional communication media is mentioned under the chapter relating to culture.

Natural Communication Resources Overlooked

Culture? Consigning these communication skills to history and keeping them in a glass case? When half the 600,000 villages in India already have roving theatre groups, puppeteers, oral historians, and minstrels, living a miserable existence, but possessing the art of reaching the people, of conveying ideas simply and at little cost? What on earth is wrong with us? No country in the world has such a rich variety for the asking, accepted and understood by the rural poor with roots in every village in India. Why do we not have the ability or the inclination to recognise this—let alone use it? Really, for aping the West we have no peers. In the West, there is a desperate search for traditional media, and they are very envious of our personalized participatory rural-based communication channels; they are amazed at the callousness and indifference with which we treat these resources.

When such media has been used largely for entertainment, scepticism on the part of the planners for development and extension purposes is understandable. But what is unforgivable is their blinkered approach ruling out the possibility of using local media on an experimental basis and seeing its impact. Village-level communication could change the rural poor's way of thinking and tackling problems, their attitudes to certain government schemes and programs, and, what is more, make people aware of what is happening around them for their own welfare.

Messages that would take months to absorb through radio and television—if absorbed at all—could be conveyed through a puppet show in one evening!

The people who sit in front of the idiot box watching programs of urban dance and drama are not the poor in the villages. They will not understand what is happening. But when puppet shows are organized, everyone attends and they laugh at each other. We know; we have seen this happening in and around Tilonia.

Shankar Singh is an ordinary one-time shepherd boy with an extraordinary skill in puppetry. He worked as a laborer in a famine relief camp in a village in Jawaja (Ajmer District in the Indian State of Rajasthan), soon got himself a degree which he found to be useless, but it helped him get involved in a marginal way in an adult education program sponsored by the Government of India. His attempts at persuading his superiors to let him try his hand at puppetry failed. One day he strolled into Tilonia and very hesitantly suggested that he would like to work with puppets and could he possibly get a job in Tilonia? He got a small group of amateurs from the village together and started holding modest shows in the nearby villages, improvising all the time, weaving stories out of local gossip, bringing out a moral after reshaping true incidents so that everyone in the village could recognize the characters and have a good laugh—much to the discomfort and uneasiness of the village-level government functionary sitting in the audience. It was not only a subtle process of awareness-building, but a crucial way of developing people from non-persons to human beings.

Developing People, Not Things

Shankar Singh is firmly of the view that rural development means, essentially, the development of people—not things. He has been to all the celebrated places where puppetry has been developed as an art, but he has found puppetry too centralised and too divorced from the village situation. He has seen the art and the skill of the rural people taken away from them to be fossilized in buildings located in cities when all along the art should have been alive, changing, adapting, mixing, and absorbing the complexities of rural life. He has managed to do just that with his puppets, giving them an educational bias. But his work is not without struggle.

(continued on page 6)

(**Puppets** continued from page 5)

He went to the annual camel fair in Pushkar, perhaps the largest and most colorful in India, requesting that he be allowed to put up a brief show. The organizers laughed at him. "You? We have renowned artists from all over the country coming here; we have never heard of you—go home." With a little persuasion from a sympathetic bureaucrat, he was given 15 minutes. By the time his show was over four hours later, the audience had swelled to thousands and they would not let him go. He appealed to them all with local jokes in the language and expression they knew best, at the same time getting across serious messages on equality for women, on the evils of untouchability, on the need to pay minimum wages to agricultural laborers, on national integration, and on the ills of moneylending. Largely because of his shows and their apparent impact, the Government included puppet shows as a means for promoting national integration under the 20-Point Program of Mrs. Indira Gandhi in the State of Rajasthan, and schools were encouraged to use the media.

When he started getting requests from remote schools where there was no electricity or even roads, this hardly slowed down Shankar Singh. Often he set up an improvised stage on a bullock cart, got petromaxes organized for lighting, and got the show going. The schools paid his expenses. He started getting invitations to local village fairs, primary and middle schools, local functions to honor a local politician or bureaucrat, and he never missed an opportunity to hit them broadside and make them squirm.

At one function where the guest of honor was the Forest Minister, Shankar Singh taunted him through the puppets and asked him what sort of social forestry program was going on in his State when saplings prepared by children and voluntary groups in the District had not been lifted by the Government for weeks, and when 500,000 saplings barely 100 miles away were lying useless? Within a week tractors and trolleys came and picked the saplings up. The voluntary group had not been able to get to the bureaucrat or minister.

Shankar Singh's legendary puppet character in this area is Jokhim Chacha, a 300-year-old Muslim who has the audacity to call the Chief Minister of the State 'his child,' the Inspector of Schools 'my grandson,' and old respected women in the village 'my daughter'—and get away with it. Jokhim Chacha is in much demand. If a school building needs repair and a contribution from the community is expected, Jokhim Chacha is called and he appeals to the audience. If the attendance in the evening school is dropping, Jokhim Chacha is called to persuade the parents in front of the whole village to get them to agree to start sending their children again. If family planning cases need to be motivated he is roped in; if higher castes are practicing untouchability where some hand pumps have been installed, Jokhim Chacha is dispatched to settle it amicably; if the poor have to be shown how moneylenders are bleeding them dry and keeping them poor, only Jokhim Chacha can do it. In many villages moneylenders have come to him quietly and tried to bribe him to stop the show. Their business, they reluctantly confess, suffers badly after people have seen his show.

"Radio and television are not half as powerful as this medium because puppetry invites, indeed demands, the participation of the people in their own education."

Jokhim Chacha is Shankar Singh's creation. No one else, we have found, can handle these sensitive topics with so much flair and get away from the village without being stoned. Chacha is the pacifier, he settles disputes, and his name is enough to make children go wide-eyed with awe. He is the carrier of messages, revealing how the village-level government servant manages to keep the poor poor.

Radio and television are not half as powerful as this medium because puppetry invites, indeed demands, the participation of the people in their own education. There is no fixed length for performances. If the audience is alive, shows can go on for hours; if it is dead—and Shankar Singh can make it out immediately—he winds up fast. Since he has a bewildering variety of themes up his sleeve, he makes an effort to pick up local gossip, fresh disagreements between agricultural laborers and moneylenders (and their names), and then uses them much to the delight of the villagers who are amazed that Jokhim Chacha should be so aware of the problems in their village. He weaves these real personalities around themes that have a direct bearing on their everyday lives.

The story of Dukkal, the landless laborer who becomes a farmer after the government gives him land becomes serious when villagers see the rich farmer grabbing that land and murdering him in the process while the government looks on impotently. This, of course, has parallels in real life which cannot be ignored, and has the desired effect on the audience. After a puppet show on minimum wages was put on for rural women working in famine relief camps, months later for the first time in the history of this area, 300 women refused to take the wages because they were being discriminated against and they were being asked to sign for amounts they were not receiving. We traced this rare expression of courage and unanimity to the puppet show.

Fortunately, recognition has not spoiled Shankar Singh. Though his village-made puppets have reached Australia and Switzerland, he himself has no wish to travel where he is not understood. The puppets he has made have generated income for his section to the extent he is now self-supporting. From the 100 villages he has visited, he has managed to collect more than Rs 10,000 from donations and he is training people from other States how to use the puppets effectively. The fact that he is responsible for collective attitudes changing on sensitive issues is a source of much satisfaction for him. The pity is the government still refuses to recognize this skill and resource as an input in rural development. ■

For further information, contact Bunker Roy, The Social Work and Research Centre, Tilonia 305 816, Madanganj, Dist. Ajmer, Rajasthan, India.

(**Field Research** continued from page 3)

that farmers do have their own remedies for ticks. No mention had been made in the campaign materials of these local techniques either to suggest that they were ineffective or to show how they could be adapted to increase their effectiveness. These various pitfalls could have been avoided if a study had been carried out on existing methods of tick and worm control and on the words and concepts farmers use when talking among themselves about parasites.

Action Research: A Method Not A Methodology

This type of research is called 'action research' because it is action oriented: its sole purpose is to help media producers improve the effectiveness of their communications. It does not set out to generate or test hypotheses about media communication in general; it sets out to provide information that can be used by media producers in planning specific media on a specific topic. In providing this service, action research makes use of a wide variety of research techniques. There is no standard methodology of action research: research methods are selected according to the particular task at hand. For example, in the design and testing of a series of cassette programs and supporting material for use by groups of villagers in Western Botswana, a preliminary series of public meetings was held to discuss what topics should be included. This was followed by more formal surveys to assess what precise information people wanted on each of the selected topics. Attitudes were assessed using simplified attitude

(continued on page 7)

(**Field Research** continued from page 6)

"The important distinguishing feature of action research is not a particular methodology, it is that the results must be immediately useable by those who are to produce the media."

scales. Cassettes, magazines, and flip charts were pretested both within and outside the villages involved in the group meetings, using individual interviews and group discussions. People's conceptual structures were explored in informal discussion; alternatively, more formal methods—such as classification tests of various kinds—could have been used. The important distinguishing feature of action research is not a particular methodology, it is that the results must be immediately useable by those who are to produce the media. The onus is on the researcher to choose appropriate methods and then to present the results quickly and in a useable form.

In Botswana, then, action research has proved useful in identifying—and often avoiding—the misunderstandings that arise in media production when people from different backgrounds communicate with one another. It has helped media producers identify distinct audiences, make more precise decisions on the content of their media, assess the literacy levels and media access of various audiences, and collect some feedback on the impact of their media. ■

Reprinted with permission from Reading Rural Development Communications Bulletin 16, *December 1982, University of Reading, Agricultural Extension and Rural Development Centre, London Road, Reading SG1 5AQ, United Kingdom.*

Note: *About Understanding,* by Andreas Fuglesang, reviewed in *DCR* #40, is now available from Decade Media Books, Inc., 30 East 42nd Street, New York, NY 10017, USA. The price is US$12.00.

Note: *Against the Grain: The Dilemma of Project Food Aid,* by Tony Jackson with Deborah Eade, reviewed in *DCR* #41, is now available from the Institute for Food and Development Policy, 1885 Mission Street, San Francisco, CA 94103, USA. The price is US $9.95, plus $1.00 for postage and handling.

Information Resources:
Places to Contact, Publications to Order

by Judy Brace

The readership of *DCR* is remarkable for the breadth and depth of its interests. We hope that through the newsletter we not only encourage the application of communications media to these varied interests, but that we also foster a spirit of support and encouragement by identifying a variety of available information resources.

We are pleased to see that the Network of Educational Innovation for Development in Africa (NEIDA) continues its good work as a "network of existing innovative national and regional institutions and organizations, brought together so that they may benefit from one another's experiences and expertise." The NEIDA Coordinating Unit endeavors, through a variety of publications, to share the efforts of the entire network: ***NEIDA Information,*** a quarterly bulletin; ***Inventory of Innovations,*** reporting on innovative projects; ***Innovation and Change,*** a series of in-depth studies on important educational experiences in Africa; a ***Directory of National Coordinating Centers Associated Projects and Associated Regional Networks,*** updated periodically. To request further information about NEIDA's activities and publications, write to the NEIDA Coordinator, B.P. 3111, Dakar, Senegal.

Those of you who wish to broaden your readings in the issues of Women in Development may find a new series from the International Labor Office appealing. ***Women, Work and Development*** is the name of the series that includes, to date, five monographs resulting from ILO research and technical cooperation, dealing with "issues related to the actual and potential roles of women in development—particularly their economic contributions and how these are changing as a result of their own efforts. . . ." and external policies. To request a publications list, U.S. readers may contact the Washington branch of the International Labor Office, 1750 New York Avenue, N.W., Washington, D.C. 20006, USA, while readers abroad may write to ILO Publications, International Labor Office, CH-1211 Geneva 22, Switzerland.

Information management is a concern of many of *DCR's* readers. The issues of technology transfer, information flows, and informatics, are all timely and underlie many development activities. A very worthwhile membership organization, Data for Development (DFD), attempts to give form and order to all these interrelated issues. Data for Development has as its general aim, "to study and evaluate the role of information in economic and social development, and to promote international cooperation and exchange of experience in that field." Some of the efforts in which DFD is involved include assisting governments to plan integrated government information systems; developing information systems specifications for integrated rural development; and planning information systems for environmental management. DFD has begun a series of regional seminars that will coincide with regional pilot projects and regional study groups to promote information systems in public administration. To tie all of these activities together, DFD publishes a quarterly newsletter in English. For information about publications and membership, contact the Secretariat, Data for Development, 343 Boulevard Romain Rolland, 13009 Marseille, France.

Readers who work in the areas of health may want to be reminded about the many good resources available from the Institute of Child Health in London. Their Teaching Aids at Low Cost (TALC) has developed and makes available books, slides, flannelgraphs, charts, and other communication aids for health workers. TALC also acts as distributor for the African Medical and Research Foundation (AMREF) publications.

The Institute coordinates the international CHILD-to-Child program that has developed or reported on a whole series of innovative ways in which older children can become involved in the health care and education of their younger brothers and sisters. A recent issue of the program's ***Newsletter*** evaluates results of the program to date, and includes a chart of the ways in which communications have been used in support of new ideas and practices.

Persons working, or planning to work, in health care delivery in developing countries may wish to investigate the four short courses offered regularly by the Institute. For information about the courses, as well as about the TALC and CHILD-to-Child activities and publications, write to the Institute of Child Health, 30 Guilford Street, London WC1N 1EH, United Kingdom.

DCR readers who know Spanish and who would like to learn more about nontraditional higher education in Latin America will be glad to know of the Center for Studies on Media, Education, and Communication

(continued on page 13)

A Communicator's Checklist

1 *Practical Research in Distance Teaching: A Handbook for Developing Countries,* by Roger Mitton (Cambridge, International Extension College, 1982), 323 pp.

Developers are often impatient and resentful of research. Action oriented, they see that research efforts take valuable resources away from practical and immediate activities. Roger Mitton's practical research manual should go a long way in winning converts to research which supports the tremendous effort, time, and money that go into good development. With missionary zeal he sets out to transform us into believers in research.

He is too modest when he claims the book is "designed primarily for people doing distance teaching in developing countries." It is true that specific examples are drawn from his experience at the Lesotho Distance Teaching Center, and the examples are stronger for it. Because of its approach to practical research and its lucid organization and style, the book should have wide readership among educational and social development workers.

The book is a well-organized manual. In the opening chapters, it links research to action, action that developers have perhaps already decided is important but for which they don't have all the necessary information to insure success. The major portion of the book discusses research methods that are basic to distance teaching and to many other educational projects as well. The next section demonstrates applications of research in distance teaching, but again the applications go far beyond this one educational sphere. The final section of the book, linking action to research, suggests what happens after the research is completed. This organization enables the reader to choose the portions of the book that are most helpful in his or her work without reading the entire book at one sitting.

The major strengths of the book are its clear definitions and superb organization. Each chapter is preceded by a summary which lists and describes the major topics. These statements do not tell you everything you need to know about the subject, but they indicate clearly whether the chapter is useful and practical for the reader's work. Chapter 5, for instance, is about questionnaires, particularly those used by interviewers. The topics include: what goes on the first page; breakdown of general questions into specific ones; closed and open questions; categorizing answers in advance; pre-coding; bad questions (and therefore good ones); branching; the last page; self-completed questionnaires; and translation. Each topic is covered in detail with specific examples that are generalizable to many situations in which questionnaires might elicit needed information. Sample questions and formats are plentiful.

There is an especially good chapter on processing data. The importance of accuracy and detailed record-keeping are explained rather than preached. From my experience, one of the most difficult points to get across to novice researchers is the importance of accuracy. They are often willing to make sweeping generalizations based on imprecise figures and inaccurate records. Without insulting the reader's intelligence or honesty, Mitton is able to explain the importance of accurate data and how to achieve accuracy. This same chapter explains how to make use of a computer in research. It makes enjoyable reading even if you don't have a computer, and it adds to your general understanding of data analysis.

There are many good researchers but few good writers about how to do research. Mitton is an excellent writer-teacher. One set of instructional materials developed at the Lesotho Distance Teaching Center was a cookery book. I suspect that Mitton learned a great deal from this experience. His practical research handbook reads like a well-written cookbook. The ingredients and quantities are carefully described. If alternatives are acceptable, they are mentioned. The order of activities is clearly indicated as well as an explanation of what happens as a result of each activity. There is nothing equivalent to grandmother's recipes: *Bake until done. A little salt. Season with spices to taste.* At each stage of the research, specific examples are given from the author's experience. The descriptions are clear, the examples understandable to anyone working in education and social research, and the style personal and interesting.

Examples of research methodology that have gone wrong are amusingly described. I felt most sympathy for the researcher whose project was modified beyond repair while he was in bed with tick-bite fever.

The author does not make unrealistic claims for research. He suggests throughout the book that some research is a waste of money because it isn't well thought out, or it is badly designed or conducted. Good research, however, can put facts in place of opinions and delusions. He concludes, "Research cannot guarantee that people will adopt the best policies, but it can bring a bit of realism to their thinking." This manual could go a long way toward convincing developers that research is not only practical, it is possible. ■

Available from the International Extension College, 18 Brooklands Avenue, Cambridge CB2 2HN, United Kingdom, for US$28.50. Price for individuals in Third World countries is US$20.50.

Reviewed by Maurice Imhoof, Senior Project Director, Academy for Educational Development, and Project Director for the AID Radio Language Arts Project in Kenya.

2 *The Programme-Maker's Handbook or Goodbye Totter TV,* by Harris Watts, (London, Starstream Books, 1982), 230 pp. Distributed in the USA by Kumerian Press.

The Programme-Maker's Handbook sets out to provide a series of Do's and Don'ts for television production. It incidentally, and perhaps unwittingly, raises the question of whether it is possible to transfer television production skills from one culture to another. Is it possible to isolate purely technical processes from style and substance? Are there television 'arts' which are universal and applicable to every setting? Can one concentrate on technical matters and ignore the vocational environment—career structures, cultural expectations, pay levels, industry status, technical support systems, workloads—or is it reasonable to expect that if one teaches a method of production then these other factors will change and adapt to that method? Is there any point in writing a book of this nature unless it is for a specific broadcasting system in which the environment is propitious or where draconian changes to the system are foreseen?

But first, what is *The Programme-Maker's Handbook* about? It illustrates what not to do through its description of the mythical San Totta Television Corporation, which is the worst of its kind in the world. The introduction states: "The erratic progress of its offerings each evening and its shaky attempts at programme-making soon earned it the

name of "Totter" television." Its staff, General Manager Magnus Vision, Sports Producer Caesar Andante, Current Affairs Producer Eustace Sugar, Commentator Romeo Landmark and Women's Producer Virginia Donna are uniformly awful. Its programs are predictable, superficial and formula-bound.

From using San Totta TV as an illustration of how not to make television programs, Watts then takes the reader through most elements of the process from finding and researching ideas to putting them on film or videotape. He is comprehensive in his approach, clear and concise in his explanations. The second half of the book consists of all the bits he couldn't put in the first half: lighting, sound, legal problems, graphics, finishing with a section called "You want to work in Television?" He writes easily and entertainingly and the illustrations are delightful.

He is very much a BBC product, and worked on prestigious BBC programs. He also worked in Malaysia, Brunei, Nigeria, Libya, and Singapore. He states that a Nigerian broadcaster gave him the idea for the book in the first place. One wonders, therefore, who the book is intended for. It claims on the cover to be a "guide for television producers, universities, colleges and schools, amateur film-makers and video enthusiasts", which suggests a Western readership; but the situation he describes is that of a Third World country. The station has a Latin name. The staff went for training overseas, but, says Watts, these courses do not take account of unreliable program services (such as poor cameramen and editors). "Nor do the courses take into account the biggest handicap which Totta producers start with: they haven't seen many good examples of the sort of programmes they are trying to make."

And this is his biggest conceptual problem. He states elsewhere that San Totta Television follows formulae in its programming, and rightly says that formulae are constantly being replaced by those who developed them, implying that there is no single way to produce a program. But he implies, by referring to "good examples" of television programming, that there *are* "proper" ways to produce programs and that San Totta does not follow those methods. If he is writing for a British reader, then his judgements are appropriate, although his use of San Totta Television as an illustration seems unkind and unnecessary. If his readers are to be Third World practitioners, then one must question his judgements as well.

The values of the book are British. I happen to approve of them because I grew up with the BBC as my model. I agree that programming should be both entertaining and informative, but the most rudimentary surveys of broadcasting overseas show that others do not agree. Most programming in African countries, for example, tends to be either entertaining or informative, and the mixtures vary between 70 percent and 30 percent for either depending on the country. Most Latin American broadcasting opts for more entertainment programming because most stations there are commercial rather than government owned. Similarly, *styles* of broadcasting in Africa favor discussion programs, 'talking heads.' Whether this is because there is a heritage of discussion in some African societies which has long been replaced in Western societies, or because the programs are quicker to produce and therefore meet the exigencies of providing a substantial proportion of production locally out of a single studio, I don't know. If one also accepts that the alternative that is financially feasible is to import old "Lucy Shows," or solemn science programs that extol the technological wizardry of the countries that provided them, then perhaps the local talking heads using local languages are not such a bad idea. I am certain that Watts' judgement that the reasons are laziness, ineptitude, or a lack of imagination (which underlie San Totta) tells only a fraction of the story.

Television is an urban, middle-class phenomenon in most less-developed countries. Watts suggests that these viewers see *Kojak* and complain that indigenous productions lack its polish and verve. He is correct, and while television remains inaccessible to the rural poor, there may be nothing wrong with aiming at *Kojak* or BBC production values. But there is a danger in institutionalizing these values. When television spreads its signals more widely, it may discover that "quick and dirty" production methods are more appropriate to the needs of the country and that more authentic cultural values are demanded. The precedent lies in radio programming: radio programs for farmers astonish Western ears by their apparent dullness and the avidity of the listenership; Indian farmers criticized farm programs for their lack of relevance and truth when producers used actors to boost the entertainment value. The point is not that dullness is a virtue, but that it may not be the vice that those brought up in the British tradition of broadcasting assume.

It should be stressed that there is much in the book that is helpful and practical. Watts' emphasis on planning and research cannot be faulted, although it may not always be feasible. But to say that a jump-cut is bad is to reflect a convention. A jump-cut may not look "bad" to someone visually illiterate in Western conventions, merely incomprehensible. But so may the telescoping of time by the use of cutaways, which seems perfectly acceptable to us.

I wish someone of Mr. Watts' experience and writing ability would undertake research into what *is* universal in television production practice and link it to the critical factors of system organization. Such research would be invaluable since it would prevent the endless process of reinventing the wheel every time a production course is mounted for a new broadcasting institution. ■

Reviewed by Michael Laflin, who worked in radio and television in Kenya, and is currently with the Institute for International Research which is assisting the Government of Liberia to develop a network of rural radio stations.

Available from Kumerian Press, 29 Bishop Road, West Hartford, Connecticut 06119, USA, for US$20.90 hardback, $12.50 softback.

3 ***Women and Development: Guidelines for Programme and Project Planning,*** by Caroline Pezzullo (Santiago de Chile, Comisión Económica para América Latina, CEPAL, 1982), 123 pp.

This book is an indispensable manual for development planners in general and development communicators in particular. It provides an ingenious, step-by-step game plan for women to become involved as "free and equal partners" in the development process. Three interrelated steps are seen as fundamental: 1) *awareness* of the facts of a 'situation'; 2) *assessment* of their causes and desired changes; and 3) *action* (individual and group) to close the gap between the two. Only through these steps can women participate fully in development at the community, national, regional, and international levels, and overcome their historical inequality. Communications, furthermore, is seen as the "lifeline" of the whole process, a mechanism for social change through which people share "information, knowledge, experience, ideas, skills, motivations and aspirations."

Women and Development was originally prepared for the Caribbean Regional Training Workshop in Programme/Project Planning Skills, funded by the Voluntary Fund of the United Nations Decade for Women and held in Barbados from June 14 to June 26, 1981. This volume also includes the many theoretical and practical planning questions discussed at the conference. It is divided into two parts: Programme Planning and Project Planning. In the first, guidelines are given for national organizations, either governmental or voluntary, to organize their program plans. In the second, community-based projects are discussed. National-level projects that may be essential to program objectives, such as those influencing policy, legislation or the mass media, are also suggested. The focus in Part II is on linking women in the community to the broader picture of national development activities. Throughout the book, specific steps for developing program plans and for involving women in the various stages of project identification, implementa-

(continued on page 10)

(**Checklist** continued from page 9)

tion, and evaluation are explored.

Women and Development is intended as a flexible reference manual for national planners and program officers from a variety of governmental, non-governmental, and voluntary organizations. It has multiple uses: besides aiding in program planning, project identification and implementation, and proposal writing, it can help women's organizations create income-generating activities and serve as a management tool or as a practical guide for organizing workshops on any aspect or level of the development process.

The volume is itself an outstanding example of effective communication. It invites participation by including an evaluation sheet of the volume as well as exercises that allow the reader to identify the application of the suggested steps in the planning process. In addition, the book addresses the reader in a personalized, friendly tone. The precise but simple language contributes to the overall impression that development is not just a remote phenomenon decided on by unknown planners, but a process that can be initiated and brought to fruition by women themselves. Finally, appendices provide comprehensive and conveniently organized lists of related reading materials and resource organizations. A so-called Impertinent PERT chart (for Program Evaluation and Review Technique), allows women to break down organizational tasks into easily identifiable categories and simple units.

Caroline Pezzullo has done a formidable job organizing and presenting this material. Although the proof of its utility will be in the programs and projects women design and implement, *Women and Development* is inherently valuable. It suggests a way to forge links between professional women with organizational experience and community women with practical knowledge, facilitating the participation of women at many levels of development. Since communications is seen as crucial to every phase of this process, moreover, the volume is especially useful to development communicators, as well as to developmentalists in general. Indeed, *Women and Development: Guidelines for Programme and Project Planning* ought to be required reading for all those who support the goals of the United Nations Decade for Women: Equality, Development, and Peace. ■

Available for US$6.00 per copy from United Nations Publications, Room A-3315, New York, NY 10017, USA or from the Palais des Nations, 1211 Geneva 10, Switzerland.

Reviewed by Joan Dassin, Assistant Professor of Communications at Fordham University and Research Associate, Institute of Latin American and Iberian Studies, Columbia University.

New Booklet Available

The United Nations Department of Public Information has published a new booklet, illustrated with photographs, drawings, and newspaper articles, entitled "Improving Communications about People with Disabilities." The 18-page booklet grew out of the recommendations of a United Nations Seminar, held in June 1982, on the role of the information media in helping to accomplish the goals of the International Year of Disabled Persons. Seminar participants were disabled and non-disabled specialists in the media and in rehabilitation fields.

The group developed guidelines to help people working in the media to improve public perceptions of people with disabilities. Those guidelines, as well as examples both of constructive and harmful publicity, are included. The booklet is in English, and is available free from the United Nations Division for Economic and Social Information, Department of Public Information, New York, NY 10017, USA; or from Rehabilitation International, 432 Park Avenue South, New York, NY 10016, USA. ■

(**Low-Cost Materials** continued from page 4)

The workshops tried to blend theory with practical work. Discussions were always related to production exercises, and most workshops followed a pattern: on the first day, participants learned how to design a survey instrument, which they then took into the field to discuss and find out learners' needs. From the survey results, the participants planned learning materials. After mastering production skills, they produced the first drafts which they took back to the learners for pretesting. The last few days of the workshop were spent on revision of the learning materials produced and on final production. The highlight of the workshop was the exhibition of the materials the participants produced, which included booklets, picture cards, work cards, syllable cards, posters, and pamphlets.

One year after the pilot project, it was decided the projects should be expanded to cover the whole country. A national trainers' workshop was organized in Mombasa for two weeks in October 1981 to train trainers for the second phase of the project. During the two weeks, participants, who were drawn from all the administrative provinces of Kenya, were taken through the low-cost curriculum. As well as learning a variety of skills in low-cost materials production, they learned how to organize a low-cost training workshop so they could go back and present training workshops in their own districts.

By the end of 1983, it is projected that workshops will have been held in all the districts in the country. The Department has been monitoring the project closely, and it is hoped a major evaluation can be carried out towards the end of 1983.

Observations

There is a lot of evidence which shows that relevant and cost-effective materials can be produced locally. Such materials, if well designed, can make the education being provided more relevant for individual and community development.

Our experience from the low-cost project has shown that low in cost does not necessarily mean low in quality. We have come to realize that a waste biscuit packet can be turned into a beautiful card; a waste detergent carton can be turned into a picture card using charcoal and soil. We have realized there is a lot of talent among our teachers; some are born artists, others are good at writing stories, while some are good at caligraphy. It is this combination we have been looking for at the grassroots level, whereby a supervisor can get together with a few teachers and produce high-quality learning materials locally.

There are signs that the project is having a multiplier effect. Originally, the Department had planned to train only the full-time teachers, but observations in districts where training has already taken place show part-time and self-help teachers have also benefited. Most of them are now designing and producing word and syllable cards.

It is obvious that the success of the low-cost print project will depend very much on the availability of funds which will make it possible to train teachers in the remaining districts. Observations have also revealed the need to train officers who are in charge of the literacy program at the district level to ensure efficient coordination.

Apart from the obvious benefit of training teachers in new approaches to materials' production, the project has taken learning closer to the community, since before they can design materials, teachers have to carry out a learners' survey to find out learners' interests.

There is no doubt that enormous economies can be achieved by simplifying the production of teaching materials. Our experience in the low-cost project has shown that Third World countries do not have to be trapped in the web of modern education technology. There is need for continuous search for a technology which is appropriate both in cost and in meeting local educational needs. Low-cost print can be one way of achieving that technology. ■

Muriithi Kinyua is an Education Officer and Graphic Designer with the Department of Adult Education, P.O. Box 30117, Nairobi, Kenya.

(**RADECO** continued from page 1)

The RADECO program does not require classrooms. Its "capital" is its radio lessons, which can be used repeatedly over many years. The estimated recurrent cost of transmitting RADECO lessons and maintaining the required network of support for 120,000 students is slightly over $3 million yearly.

Community Survey

In designing the RADECO project, it was critically important to assess the actual needs of the unserved communities in the mountains of the Southwest Region of the Dominican Republic. The community outreach effort is particularly crucial in a program of nonformal education. While RADECO's "teacher" is the radio program it broadcasts, a human infrastructure must be created to complement the instruction.

The Project team began by visiting the remote communities and simply talking to the people. The team was surprised to learn that the *campesinos* saw education as their most urgent need. The people living isolated lives in the mountains wanted to be able to write a letter to a friend in a nearby community, to read an obituary notice about a relative in a newspaper, and to shop in the local grocery store without fear of being cheated.

Extensive micro-community research was conducted, using local outreach people trained in data collection by Project staff member Anne Olsen and a part-time consulting anthropologist. The social reality which they explored helped to shape the curriculum and its delivery system. Because children in the region begin work at age five or six, radio lessons would have to be broadcast at the end of their workday, between 4:00 and 5:00 in the afternoon. Health and nutrition information are basic to survival, so the team decided to incorporate health and nutrition content into the radio lessons. The team made the decision to recruit paraprofessionals solely from the communities in which they lived because rains and mud make the communities physically isolated at certain times of year. They tried to recruit primarily women, because many households are headed by single females who have the full responsibility of supporting themselves and their children. In addition, the team found that female paraprofessionals would be much less threatening to students and parents being served by the radio lessons.

After three or more visits, the outreach team asked the communities to help by suggesting candidates to become *radio-auxiliares,* by listing potential students, and by suggesting possible sites for the *enramada* or shelter that would protect the children from the sun and rain as they listened to the radio broadcasts. Thus the communities were involved in the decision-making process and made contributions of goods and labor.

Nonformal Education

Nonformal education, by definition, steps outside the formal structure. The educational message can be delivered in several alternate forms, the most typical of which is by radio. Such nonformal education projects as ACPO in Colombia and Radio Santa María in the Dominican Republic use radio to teach basic literacy and numeracy skills to motivated adults with high rates of success. RADECO differs from such programs in one crucial way: the RADECO student is not an adult, but a child. The unique needs of children require a more specifically aimed program of instructional materials and support services.

RADECO faced the task of incorporating instruction in mathematics, reading, and writing; in social studies and health segments; and in entertainment and physical exercise, for an entire grade-level into a single, daily, hour-long broadcast. The resulting program had to be fast-moving enough to hold the interest of a seven-year-old child and, at the same time, fit a sufficient amount of instruction into each broadcast so that the required skills would be learned. Ostensibly one-half of the program instructs in the skills of mathematics, and the other half in reading and language capabilities. In practice, each portion will contain social studies and science messages incorporated directly into reading and math sequences. Participatory physical exercises and brief entertainment sections (consisting of a song or a joke) will break instruction into segments small enough for a child to assimilate. Each lesson is written according to a schema which focuses on several skills. The radio lessons will emphasize a specific skill until the qualitative and quantitative results of testing prove it well learned.

Desirable Qualities

Their outreach work with the communities involved with the RADECO Project has led the team to identify a number of qualitative characteristics that a nonformal education program should have.

If education is seen as a development intervention rather than simply the linear expansion of the formal school system in some new form, then the Project:

1. Will provide low-cost employment opportunities for the parents of its clients;
2. Will be reasonable enough in its recurrent costs so that it can be broadly disseminated with the available government financial resources;
3. Will be truly participatory in the sense that the communities themselves will determine the management, selecting their *radio-auxiliares,* the location of the services, and their contribution to the Project;
4. Will use the radio not only to instruct in the basic academic skill areas, but will support social development activities that will directly benefit the lives of children and parents;
5. Will base its radio lessons on a knowledge of local circumstances, indigenous experience, cultural strengths to be celebrated, and social problems to be solved;
6. Will consolidate its services with the services of other ministries and other agencies working in the same region on different aspects of the same problems;
7. Will be prepared to expand into new areas such as the intermediate grades to meet needs such as better nutrition, hygiene, and health.

RADECO is one part of the effort to build a productive social and economic infrastructure in the Southwest Region. It is not an "experiment," although it may have innovative components to it; it is not an isolated sectoral program; and it is not an *ad hoc* organization which will disappear at the end of the Project.

Testing and Evaluation

RADECO began broadcasting in January 1983, and is currently serving 1,000 children in 23 communities. The project is using the formative evaluation model developed in Nicaragua for the Radio Mathematics Project by Jamesine Friend.

The process of formative evaluation is crucial to the development of the radio lessons. Rather than stockpiling a year's worth of broadcasts and subsequently testing to determine if children have mastered the required objectives, the developing and testing of lessons go on simultaneously throughout the year. Children in select communities are tested every week in order to determine their grasp of certain skills. If a sufficient percentage of students demonstrates knowledge of those skills, the step to instruction in more sophisticated tasks can be taken. If not, emphasis on the former objectives will be maintained. Thus, in the course of a year, a series of lessons are developed that have already been demonstrated to teach children the objectives set at the beginning of the program.

The Community-Based Radio Assisted Non-Formal Educational Project in the Dominican Republic (RADECO) has discovered an important variable in the course of its base line testing which attests to the effectiveness of another nonformal educational project in the Dominican Republic.

Project staff are pretesting entering first grade students in formal schools as well as in the Project's study centers. The team observed marked behavioral differences from classroom to classroom at different schools. Also, test results appeared to be significantly different.

The coordinator of the Project's evaluation component and his colleagues identified

(continued on page 15)

On File at ERIC

Recent entries in the ERIC (Educational Resources Information Center) files reviewed in this column are concerned with geographic and cultural factors in educating the isolated populations, audiovisual materials, educational radio, school libraries and development, and minicomputers for information handling. All are available on microfiche and in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, USA.

● Broadbent, R. F., Ed. ***Education of the Isolated: Geographic and Cultural Aspects. Selected Papers from the 22nd Annual Conference of the Australian College of Education (Alice Springs and Darwin, Australia, May 14–20, 1981).*** 1981. 123pp. (ED 223 245)

The 11 papers in this collection focus on isolation in education, with emphasis on problems associated with geographical remoteness and with socio-cultural barriers which also give rise to isolation. Five papers concentrate on distance education and possible measures for its use in social and educational processes to deal with isolation; readers are cautioned not to be too optimistic about technological solutions. The establishment of a national center for researching problems and finding solutions to the provision of education in rural Australia is described, and the concept and operation of the Open University and its success in developing distance communication methods are discussed. Other papers consider barriers to education posed by cultural differences, language, social background, and socio-political structures. Four of these papers deal with specific areas of Australian isolation related to Australian Aborigines, in particular, and include reviews of specific programs and research projects. Available from the Australian College of Education, 916 Swanston St., Carlton, Victoria 3053, Australia, for $6.50 plus postage, or from EDRS in microfiche only for 97¢.

● Donoghue, Beverly Emerson. ***Textile Visual Materials: Appropriate Technology in Action.*** 1982. 14pp. (ED 222 188)

An innovative educational medium—screenprinted visual aids on cloth—is one alternative to conventional media in Africa, where visual materials are important communication tools but conventional media and materials are often scarce. A production process for cloth visual aids was developed and evaluated in Ghana and Sudan through the implementation of several experimental projects. Unlike paper and electric/electronic visual media, cloth is familiar and can be locally produced with unskilled labor. Results indicate a preference for this type of cloth-based visual aid over conventional paper ones, and printing was found to be economically feasible if done on a mass-production basis. Since 1972, economic and political stability in Ghana have deteriorated, producing a more urgent need for locally developed products. A feasibility study conducted in 1980 found cloth in short supply and need for visual materials large; however, for educational purposes, a supply of cloth could be provided. In Sudan, the development of textile visual aids is more advanced, with all materials needed available locally. The approach is significant in that, instead of transplanting a Western communications medium, the strategy takes advantage of local materials and resources. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

● Nguchu, Ruth Rukunga. ***The Extent to Which Radio Is Used in Teaching of Home Science in Urban Primary Schools in Kenya. African Studies in Curriculum Development and Evaluation. No. 30.*** 1981. 48pp. (ED 222 193)

This study surveyed parents, headmasters, and home economics (home science) teachers from 12 primary schools in Nairobi to collect information on the extent of radio use in teaching home economics, the reasons for use or non-use, and parental attitudes toward educational radio programs in general. Upper primary (standard 4–7) home economics teachers completed a questionnaire, while information from headmasters and parents was gathered through interviews and discussions. Results based on a small sample show that few schools used home economics radio lessons, and that the subject is not even taught at some schools. Many teachers trained to use radio lessons are not using the programs, and some are unaware that the programs exist. Survey results indicate a need for more broadcast and program materials, slower program pacing, audiotapes of the programs, teacher inservice training, more radio receiving equipment, and more home economics classrooms. Available from EDRS in microfiche for 97¢ or in paper copy for $3.90.

● Beilke, Patricia F. ***School Libraries and Priorities for Development: Selected Comments.*** 1980. 18pp. (ED 222 164)

This paper examines the establishment and development of school libraries within a context of international educational improvement and proposes three discussion questions for the meeting of the Section on Statistics of the Management and Technology Division of the International Federation of Library Associations (IFLA). The paper is divided into nine sections, which discuss: the purpose of school libraries; the improvement of school libraries and education; the familiarization of teachers with school libraries; the training of persons to establish school libraries; the educational program for school librarians; the necessity for joint planning by teachers and school librarians; the need for stimulation of the development of school library materials and equipment; the availability of computer technology to school librarians; and the collection of school library statistics. The paper also identifies three questions for later discussion, including IFLA contributions to the Unesco and World Bank education sector analyses, IFLA guidance of needed experimental projects for education, and IFLA support of a specific proposal to assist Nicaragua to form an association for professional librarians and develop a system of gathering and reporting statistics. A list of 14 references is provided. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

● Griffiths, José-Marie. ***Application of Minicomputers and Microcomputers to Information Handling.*** 1981. 105pp. (ED 222 199)

This Unesco study assesses the application of both minicomputers and microcomputers to information-handling procedures and makes recommendations for automating such procedures, particularly in developing nations. The report is based on a survey of existing uses of small computing equipment in libraries, archives, and information centers which was conducted from October 1979 to May 1980. Following a description of report aims and layout, a discussion of the impact of computer technology on information handling traces the history of the relationship between computers and information systems, and outlines historical changes that have occurred in computer technology. Examples given of small-scale computing equipment usage in information handling deal primarily with microcomputers and include unusual projects. Other chapters clarify terminology and formulate definitions, identify basic components of minicomputer systems in terms of equipment selection criteria, discuss current trends in information systems and services development, and predict changes which will affect information handling. The effect of these changes on information professionals and educators is considered, and recommendations are made for further investigations, education and training requirements, and standards for systems and documentation. Report annexes provide additional information on terminology, minicomputer manufacturers, and microcomputer systems. Available from EDRS in microfiche only for 97¢. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, USA.

(**Brace** continued from page 7)
(CEMEC). The Center plans to collect reports, studies, theses, and other documentation that will be made available to professionals in the fields of educational and social communication. They will also provide a central connection between national distance teaching organizations throughout the hemisphere. A recent issue of their journal (publication frequency is unclear), ***Medio Educación Comunicación,*** contained articles on alternative education, creativity in nonconventional systems of education, an overview of the past decade of educational technology in Latin America, regional cooperation on distance education at the university level, as well as academic research reports. For more information about the Center's activities or to request the journal, write to CEMEC, Casilla 137, Sucursal 2, 1402 Buenos Aires, Argentina.

DCR readers of French may wish to avail themselves of an annual publication of abstracts of French language communication documents: articles, books, research reports, government studies. ***Bibliocom,*** in some two thousand entries, gives coverage to communication theory, research, mass media, telecommunications, interpersonal communications, and provides exhaustive headings and cross references to ensure easy access to the materials. ***Bibliocom,*** published by the Université Laval in Quebec, should be of particular use to academic institutions and researchers, and those who wish to keep abreast of what's being written about communication in French. For information about ***Bibliocom,*** readers may write to INFOGES Inc., P.O. Box 1845, Succursale Place d'Armes, Montreal, Canada H2Y 3L9.

A major reference work from the United Nations is a two-volume ***Directory of United Nations Information Systems.*** To provide access to the information gathered and disseminated by the organizational members of the U.N. family, this ***Directory*** is a carefully revised version of an earlier edition with special attention given to design and organization. The results of this attention are impressive.

Volume I is devoted to "Information Systems and Data Bases," and is available in either English, French, or Spanish. Each of the U.N. member organizations that provide public information is listed and described (35 are included), and all information systems and databases within each of these organizations are profiled on a single page with uniform data. The kinds of information available from the United Nations range from the Fertilizer Advisory, Development, and Information Network for Asia and the Pacific, to the Outer Space Affairs Division Reference Collection, to the Aquatic Sciences and Fisheries Information Service, to the Photo Library of the International Telecommunications Union. The profile of this latter entry reveals that the ITU Photo Library has a collection of 10,000 photographs in black-and-white and in color; that it makes these available to the mass media, training institutes, and the ITU publications service; and that it issues an annual catalog.

Volume II of the ***Directory*** is a tri-lingual listing by country of where "input centers or contact points . . . and depository libraries" are to be found. Because of the complexity of the information contained in this volume, there is careful use of uniform acronyms, International Organization for Standardization (ISO) codes, and special symbols and graphics, to guide the user through the material. This is a resource that no information service should be without. Once received, it should not be shelved and forgotten, but be kept at hand, and the sources tapped. To order the ***Directory of United Nations Information Systems,*** contact the Inter-Organization Board for Information Systems, Palais des Nations, CH-1211 Geneva 10, Switzerland.

In an effort to encourage communication support in projects designed and/or funded by the World Bank, the Bank has issued Heli Perrett's study, ***Using Communication Support in Projects: The World Bank's Experience.*** The best aspect of this study is the acknowledgement that projects whose aim is to motivate human action in a development activity will benefit from the design and incorporation of a communication component. Dr. Perrett has carefully identified benefits and difficulties, especially within the Bank context; she has provided planning frameworks, support functions, Bank sector experiences, and media selection criteria.

Annexes include communication support spending per Bank project; a "problem analysis" to clarify project needs before building in communication support; a table of advantages and disadvantages of different media and their applications; and the outline of a Bank communication support training course. This is a well-balanced presentation, providing development program planners with the kind of information that makes understandable the nature and purposes of sectoral applications of communications. This World Bank Staff Working Paper Number 551 is available for US$3.00 from World Bank Publications, 600 19th Street, N.W., Washington, D.C. 20433, USA.

A serious need to be addressed by a literacy program is that of making available appropriate reading materials to encourage the development of the newly learned skills. The International Reading Association has published, in Spanish, a four-step manual on developing reading materials for the newly literate, ***Cómo Crear Materiales para Neo-Lectores.*** Divided into "working with others," "assessing needs," "making print materials work," and "are the materials doing their job?" the manual can go a long way toward reassuring community organizations that development of print materials for new readers is within their capacity. I suspect that there is perhaps too much text and too few illustrations, as well as a tendency to explicate rather than to get on with production techniques. However, since there is probably very little on this subject available in Spanish, this publication's usefulness will outweigh its somewhat awkward translation from the English, and will provide much-needed guidance to support new readers. ***Cómo Crear Materiales para Neo-Lectores*** is available for US$4.00 from the International Reading Association, P.O. Box 8139, Newark, Delaware 19711, USA.

One of the richest sources of information on distance education is the British Open University. There is a strong commitment there to sharing research and empirical findings, from which we can all benefit. Their Distance Education Research Group (DERG) is putting out a series of papers (DERG Papers) that belong in any serious collection on the subject. The first paper, ***The Credibility of Distance Education,*** addresses all the issues that come up with regard to the acceptance of the notion of successful education at a distance. A fairly technical discussion of ***The Admission System in Distance Teaching Institutions*** constitutes Paper Number 2. Paper Number 3 is in two parts, ***The European Experience of the Use of Mass Media, and Distance Methods for Adult Basic Education,*** Main Report and Appendices. This is a thorough review of the planning, design, and implementation approaches to adult basic education delivered via media and other techniques at a distance.

A very nice case study of the Costa Rican State Distance University is the subject of Paper Number 4. The careful planning and growth of this institution should be considered by any country planning a similar venture. A compact overview of the Open University itself is the subject of Paper Number 6, ***The Open University of the United Kingdom: An Evaluation of an Innovative Experience in the Democratisation of Higher Education.*** Paper Number 7 is a case study of the ***Empire State College/State University of New York Center for Distance Learning.*** All these papers, and information about other publications of the Open University, are available from the Distance Education Research Group, the Open University, Walton Hall, Milton Keynes MK7 6AA, United Kingdom. ■

Judy Brace is the Acting Director and Resource Center Manager of the Clearinghouse on Development Communication.

Radio Formats Offer Choices

by Esta de Fossard

Esta de Fossard's article on Radio Listening Groups in DCR *39, September 1982, was received with enthusiasm by our readers around the world. In this current article, the author discusses the variety of formats available for informational radio programs.*

Drama: A drama is a fictional work in which the actors play the parts of believable people engaged in realistic activities. The story develops through what the characters say to one another. Sometimes sound effects are used to help the audience understand the setting of the play or certain events in the play—for example, the sound effect of fire crackling may be used to help the listeners understand that the drama is dealing with a fire in a village. Drama is a very effective format because it allows the listeners to become personally involved in the lives of the people being portrayed by the actors.

Story: In this type of program, a narrator (or storyteller) tells the story. There are no actors playing the parts of the characters; the narrator is the only person we hear. Sometimes the narrator might alter his or her voice as he reads the speeches of the various characters in the story, but where the drama uses a number of actors, the story uses only the one narrator who reads or tells the story to the audience.

Interview: In this type of program, an announcer or a reporter asks questions of someone—usually someone recognized as an authority in his or her field. The questions are designed to encourage the interviewee (the person being interviewed) to give the listeners the type of information they need to understand the topic. In an interview program, the listener can hear both the interviewer asking the questions and the interviewee giving the answers.

Discussion: This program will use a number of authorities giving their views on a particular topic. It is also called a "panel discussion program." A panel discussion often uses a chairman or a moderator to control the discussion and direct specific questions to the various members of the panel.

This program format is particularly suited to a topic that has more than one acceptable point of view. For example, the question of family planning is a suitable topic for a panel discussion—there are those who will speak in favor of it and those who will speak against it, and there is really no definite right or wrong answer in every situation.

Speech: A speech is a formal presentation by an important authority. It is usually delivered by a person in high position on an important occasion. It is rare that a speech is used as a format for delivering the type of information that would be used by a radio listening group. A more suitable format would be the

Talk: A talk is a less formal version of a speech. It is usually given by someone who is a recognized authority in the field and may contain opinions as well as facts. This makes it very suitable for use by a radio listening group who can air their own feelings about the speaker's opinions.

Magazine: A radio magazine program does much the same things as a printed magazine:

a. it presents a number of different ideas on *one* particular topic, *or*
b. it presents a number of different ideas on a variety of different topics.

A radio magazine program can combine a number of different formats—for example, you might find a short drama, an interview, a news announcement, and a spot (see below) in the same magazine program.

News: As its name indicates, a news program gives information on the latest news—things that are happening *now*.

Documentary Feature: A documentary (or feature) takes an event that has happened *in the past* and makes a special program of it in order to highlight particular points that the producer would like the audience to be more aware of. Sometimes the subject of a feature will be set in the future, in which case the feature is making some suggestions about future possibilities, rather than reporting on some real event that happened in the past.

Spot: A spot is a very short announcement (usually no more than three minutes) that gives only the most important information on a particular topic. The Health Department, for example, might run a series of spots to remind people to have cholera shots.

Jingle: This is similar to a spot, but it is set to music. A jingle is often associated with advertisements, but the use of any message set to music can be a very effective way of catching the audience's attention.

Quiz: A quiz is an interesting way of inviting an audience to find out how much they know on a certain topic. There are two types:

a. the quiz where two or more teams compete against one another in answering a set of questions. Usually a prize is given to the team that answers the most questions correctly.
b. the quiz where one announcer poses the questions . . . then a 10-second pause is left in which the audience can attempt to answer the question in their homes, and then a second announcer gives the right answer.

Question & Answer: This type of program can be done by inviting listeners to send in questions by mail, or to record their questions on tape for a visiting reporter. In either case, the radio program provides an expert or experts to give the answers to the questions posed by the audience. It is important to exercise tight control over a question and answer program, so that people do not abuse the airwaves by using the program to air all sorts of gripes and grievances. ■

Esta de Fossard is an international media consultant specializing in informational radio and television. She is the author of many books and articles.

Housing Finance Software Package

A Housing Finance Software (HFS) package has been developed by the United Nations Centre for Human Settlements (UNCHS/Habitat) to assist small housing and site schemes in financial management and reporting. The HFS package is designed to store a financial database derived from individual account transactions, and to manipulate the database so that organizations are provided with account and management reports. The HFS can handle both loan and savings accounts.

HFS can be used by any housing finance organization to create a loan accounting database; a savings account database; a monitoring schedule for loans; a loan repayment schedule; a loan default notice and list; and a number of management reports regarding the financial status of daily operations. In addition, HFS can generate 15-, 30-, and 60-day management reports.

HFS is intended to run on a 64 Kbyte microcomputer with a minimum of 1,200 Kbytes of disk storage. Up to 7,000 accounts can be in the database using current, widely available disk storage devices. The software is written in CBASIC and is intended to operate with any CP/M operating system (Version 2.2 or later).

HFS is provided free of charge to any nonprofit, parastatal, or government agency. UNCHS will assist in advising on hardware, installing the software and training personnel to operate the system. For further information contact Jerry C. Coiner, Advanced Technology Applications Project, UNCHS (Habitat), P.O. Box 30030, Nairobi, Kenya. ■

(**RADECO** continued from page 11)

the salient variable as participation in the UNICEF preschool program as implemented by the Dominican Ministry of Education in the Southwest Region. The preschool program works with children ages three through six and operates on an expanding basis in the area. It now takes in over 30,000 children in rural areas of the impoverished Southwest.

From the team's observations, children who had attended preschool had no difficulty holding a pencil or using it to mark drawings properly, no difficulty understanding test instructions, little difficulty turning the pages of the test booklet, and were better disciplined than non-graduates. Their test scores, too, were significantly higher than non-preschoolers'. These results are not surprising in the light of the results of the Head Start Program in the United States, and other studies carried out in the Caribbean area.

RADECO has done field-testing of drawings, sounds, and other items to be used in the programs and tests. From student questionnaire forms, staff has found that 70 percent of the students work with their parents picking coffee or doing subsistence farming. Sixty-five percent have had at least one year of formal schooling, and 95 percent listen to the radio (in communities where there are radios; one or two communities without radios have been discovered). All of this field information has helped the team to better design the program.

The evidence continues to point to the fact that a nonformal education program can make a significant contribution towards improving educational services in developing countries.

Conclusion

The RADECO Project addresses two concerns. First, it meets some of the pressing needs of the Dominican Republic's Southwest Region, which has the highest rate of illiteracy and the lowest life expectancy of any part of the country. At the same time, it pursues a cost-effective strategy of education that can be implemented in a variety of settings. The concerns are complementary. If a new strategy of education can be developed successfully in the Dominican Republic, there is no reason why it should not be equally successful in other areas which face the same constraints and concerns. ■

Andrew Hanssen is the RADECO Project's Administrative Coordinator; Steven Kozlow is Coordinator of the Project's Evaluation Component; Anne Olsen was formerly the Deputy Chief-of-Party, RADECO Project.

For further information, contact James Olsen, Chief-of-Party, RADECO, Apartado Postal No. 57, Barahona, República Dominicana; or, Donald Foster-Gross, Project Monitor, S&T/ED, Room 609-J SA-18, Agency for International Development, Department of State, Washington, D.C. 20523, USA.

(**Radio Baha'i** continued from page 16)

and utilization of those services. Radio Baha'i staff discovered that the farmers seldom listened to Ministry announcements broadcast on the government station, did not understand them, and were unable to act upon the information provided in them. In addition, many of the topics being targeted by the Ministry were not perceived as relevant or urgent by the farmers.

On visiting the Ministry, the agricultural program production team from Radio Baha'i was told of the difficulties frequently faced by agents in the field: they live in provincial centers, far from the villages; they visit the villages only occasionally; many experience language barriers; they are viewed with suspicion and distrust. Even under the most favorable circumstances, agents are often solicited to supply the seeds, fertilizers, and equipment that farmers desire but cannot afford.

Given these problems, the radio staff saw an opportunity for the station to serve as an intermediary between the Ministry and the farmers. They wanted to produce a program that both expressed the farmers' needs and provided answers to those needs.

A seventeen-year-old indigenous youth (a graduate of the local agricultural training school) was recruited to serve as the program producer. He enlisted the assistance of two other Otavaleñans, one an older woman, the other an elderly farmer. (Both come from a remote village, are illiterate, and have neither formal training nor previous experience in radio.)

Using a mobil van provided by the CIDA grant, the production team visits villages in the region. Portable tape recorders are taken to homes and fields, and farmers and their families are invited to discuss and record their concerns. In this manner, farmers from a number of different communities are able to express and share their concerns with other farmers in the region. The two older radio staff serve as the moderators for the discussion sessions and provide continuity when the sessions are later edited for inclusion in programs.

Having identified and recorded some of the farmers' major concerns, the staff then visits local Ministry offices and interviews experts about the issues raised by the farmers. Segments recorded on the farms and at the Ministry offices are combined with scripted materials and music into a daily 30-minute program in Quichua entitled "Tarpucpac Yuyay," which roughly translates into English as "The Thought/Knowledge/Opinion of the Farmer." Motivated by the program's innovative approach, one Ministry official has started writing short, informational scripts for inclusion in the broadcast.

The program airs between 5:30 and 6:00 a.m., the period selected as "optimal" by the farmers themselves. Both the farmers and the Ministries have responded enthusiastically. The program provides the farmers with a means of communicating with each other and with the Ministries at the same time that it provides the Ministries with a means by which their assistance can be made more relevant and credible. When first approached by the Radio Baha'i staff, the experts offered information on how to plant wheat and barley. However, discussions with the farmers had revealed that their most pressing concern was the elimination of a plague among their chickens and pigs. When the staff presented this concern to the experts, appropriate and relevant information was provided immediately to the farmers via the radio. In this way, the program is helping to reverse the "vertical" process by which the agriculture development professionals had been addressing rural problems. "Tarpucpac Yuyay" serves as a credible change agent by ensuring that the development messages it broadcasts are appropriate and relevant to the needs of the audience.

Commitment to Indigenous Music

The staff at Radio Baha'i are aware of the station's important role as an educator and disseminator of development messages, but they also are conscious of the need to maintain the station's primary role as the voice of the *campesino*. This role is realized effectively through the use of Quichua, indigenous staff members, and programming that promotes the dignity and value of the indigenous people and their culture. Special emphasis also is given to promoting the role of women in community life and to the education of children. While such policies demonstrate the station's commitment to its audience, the programs' effectiveness is wholly dependent upon the creation and maintenance of a large and loyal listenership. Perhaps the most significant factor thus far contributing to Radio Baha'i's success, and the main reason for its popularity, has been its commitment to playing indigenous music.

A future article will examine the role that Radio Baha'i has played in the revitalization of traditional music among the Indians of the Otavalo region, both through its programming and through its sponsorship of what has become Ecuador's most popular festival of traditional music. ■

For further information contact Marcelo Quinteros, Executive Director, Radio Baha'i, Apartado 14, Otavalo, Ecuador.

Kurt Hein served as the Assistant Director of Canadian International Development Agency's (CIDA's) Rural Radio Development Project in Otavalo. He is currently the Executive Producer of the Academy for Educational Development's Radio Language Arts Project in Nairobi, Kenya.

Community Radio in Ecuador Meeting People's Needs

by Kurt J. Hein

A previous article (See *DCR* 40, December 1982) examined several of the reasons for the popular appeal of Radio Baha'i, a community radio station serving the rural, indigenous farmers *(campesinos)* in the region surrounding Otavalo, Ecuador:

- it broadcasts predominantly in Quichua, the home language of the audience, while other stations broadcast almost exclusively in Spanish;
- most of the staff, including several women, is recruited from among the local people;
- it places a priority on program content over sophisticated broadcast technology; the equipment is a far cry from "state-of-the-art;"
- the staff, many of whom are illiterate, had no prior training in broadcasting.

As a result of these policies, the programs authentically reflect the values, the tastes, and the sounds of the people for whom they are intended. The result is a large, loyal, and responsive audience. This article examines specific programming innovations that have contributed to the station's popular appeal among the *campesinos.*

The Local News Program

One of the programs inspiring listener loyalty is *El Noticiero Local,* The Local News. Because the station's purpose is to serve the rural farmers and to focus on their needs and interests, traditional news stories, such as those provided by the wire services, are avoided. Rather, the station has initiated a twice-daily news broadcast designed to enable villagers to communicate important local events to one another.

Most of the villages are without electricity and are accessible only by footpath, making widespread communication virtually impossible. Therefore, a typical Local News program will include stories about lost children, lost identification papers, lost livestock, community dances, and *mingas,* community work parties. These announcements are broadcast both in Quichua and Spanish and prove to be one of the region's most popular radio programs.

Radio Baha'i broadcasts these messages free of charge; all that is required is that the individual deliver his or her message to the station or to the station's news office in the region's other major town. The most common means of delivering these announcements is in person, meaning that some people may spend half a day or more walking to the station. It is common to see several *campesinos* sitting outside the station offices, having travelled together to deliver their message and to greet the station staff. It is also common to find livestock on the grounds, awaiting the arrival of their rightful owner! In a recent year, more than 2,000 messages were delivered to the station in this manner, representing virtually every community within the station's 50-mile (80 km) broadcast reach.

The news program serves many of the communications needs of the audience and it is also an effective vehicle for the dissemination of development-oriented messages, especially for short-term campaigns. Because of the program's popularity, many civic agencies request to have messages included in it. Short announcements are produced by the station staff for broadcast throughout the day, but the messages achieve their greatest impact when incorporated into *El Noticiero Local:*

- During an outbreak of hoof-and-mouth disease, the Ministry of Agriculture and Livestock asked Radio Baha'i to produce a spot announcing to farmers the nature of the disease and the availability of vaccine. After two weeks, more than 250 head of cattle had been treated, compared to seven during the month prior to the news feature.
- A national campaign was inaugurated to provide identity cards to illiterate *campesinos,* people who previously had been denied this important document. The local Civil Registry reported that the campaign in Otavalo was one of the most successful in the country because it had been promoted on *El Noticero Local.*
- Doctors from a rural health center requested assistance in promoting their offer of free eye care. They returned to the station shortly after the spot began to be aired in the news program to request that the spot be terminated. More than 450 people had come to the clinic the day after the first announcement, more than the clinic could accommodate.

CIDA's Rural Radio Development Project

In 1980, Radio Baha'i was awarded a small matching-funds grant by the Canadian International Development Agency (CIDA). The purpose of the grant was to augment Radio Baha'i's cultural and agricultural programming. Research indicated a disparity between the information and services offered by agencies such as the Ministry of Agriculture and Livestock and the farmers' knowledge about

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1414 22nd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Acting Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Assistant

ISSN 0192-1312

AED
International Division
Academy for Educational Development

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

WCY-83/USTTI; RADECO Project; Botswana Field Research; Puppetry; Information Sources; Radio Outreach

development communication report

1414 22nd Street, N.W.
Washington, D.C.
20037 USA

205-23

September 1983
No. 43

RECEIVED
OCT 19 1983
International Development

Quebral and Middleton: Some Thoughts on Development Communication, Past, Present, and Future

One of the rewards of working in the Clearinghouse is the opportunity to meet and talk with many of the international visitors who come to use the Clearinghouse collection. We were delighted in July to welcome Nora Quebral from the Philippines.

During her stay in Washington, Dr. Quebral, along with John Middleton, then of the Academy's Washington staff, and DCR *editor Heddy Reid, took time to reflect on development communication as a field, discussing its past and speculating on its future. We present excerpts from that discussion here.*

DCR: Could we begin by discussing where development communication came from, and how the discipline got started?

NQ: When I'm asked that, I always talk about development communication Los Baños style, because I think development communication as a field of study may have begun differently in other countries. In Los Baños, where I work, it really came from agricultural communication, which is very much related to agricultural extension. It has broadened out from agriculture, taking in other areas where communication concepts and skills are useful. Areas like population, education, nutrition, health, environmental care, which are the priority problems, really, of any developing country.

JM: One of the interesting aspects of agricultural extension as a parent of development communication was that originally it was used to link the agricultural university research stations with farmers.

There were both sides to the issue—there was an ongoing research program such as the one at Los Baños, and the job of the extension system was to translate research findings into useful information for farmers and to provide feedback from the farmers to the research center. It was a very strongly organized and balanced kind of system.

Other fields in development communication are different—for example, health communication or population communication—because they haven't had a similarly strong research base for generating new knowledge. Therefore they have had rather different sorts of communication formats, and the messages consequently have been simpler. And I think that's part of the reason why the other aspects of development communication have tended to rely more heavily on mass media than on interpersonal communication.

NQ: One thing though, about agricultural university research in many developing countries is this issue of technology transfer and the needs of small farm families. As you know, university agricultural researchers, and maybe other researchers as well, don't always think of user needs when they think up research projects. They think about the gaps in the discipline, their particular disciplines, but not too often about the situation of the small farmers who will use the technology, so this is quite an issue, as far as we're concerned.

JM: In line with the user needs question, I recall when I visited you in Los Baños you were working on getting farmers to identify their needs.

NQ: Was that in 1979? We were developing a radio-based learning system, and our project didn't have field people, and to really link up with farm families you have to have a field base, but we did work with an organization that had field people, so we tried to get information about user needs through them.

We had a board of subject matter specialists that decided what topics would be covered in the radio program and a staff member of that organization sat on the board to feed back the particular information needs of the families in her community as told to her. Farmers don't really write letters, even though we tried to make it easy by having drop boxes in the villages. . . . It's encouraging, though, that many field technicians seem to know the needs of farm families. We compared the responses of farmers and of field technicians on their perception of farm problems and they were quite similar.

JM: I think what you're saying illustrates very well what might be a general principle, that we always think we should combine mass media with the field workers for outreach. Perhaps the most important function of the strong interpersonal component in a development communication program is the feedback it gives the mass media people. You have people in the village who know what you're trying to do with mass media and who know the needs and habits of the villagers, and they can be very effective in providing feedback. A conscious effort has to be made to do that—it's not enough to hope that they'll call you up or send you a letter.

(continued on page 10)

In this issue . . .

Nora Quebral and John Middleton on Development Communication 1
Computers for Education in the Developing World 2
Some African Experiences with Communications for Education . . 3
Villagers Help Create Own "Why-to" Visuals 6
New Publications 7
CIESPAL Contest 7
A Communicator's Checklist 8
On File at ERIC 12
Media Successes in Mexico's Literacy Campaign 16

ANNEE MONDIALE DES COMMUNICATIONS
WORLD COMMUNICATIONS YEAR
AÑO MUNDIAL DE LAS COMUNICACIONES
1983

DCR is honored to be among the publications approved by the U.S. Council for World Communications Year 83 to display the official WCY 83 logo.

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

The Future of Computers in Education in the Developing World

by Jamesine Friend

Although computers are being used more and more widely as an educational tool in the United States and Europe, there has been little use of this technology in the developing world, largely because the costs have been prohibitive for all but the wealthiest nations. However, with the advent of the low-cost microcomputer, the cost deterrent is rapidly being overcome, and it is likely that if the current trend toward lower-cost hardware continues, some educational uses of computers will become feasible in most developing countries.

DCR *asked Jamesine Friend, a well-known specialist in the field of education who has been working in the design and production of computer-assisted instruction for more than ten years, to speculate on the most likely applications of computers for education in the developing world. In this article, Dr. Friend provides a thoughtful review of the uses and history of computer-assisted education in the U.S., and highlights some of the benefits as well as some of the pitfalls that she sees ahead as computers are increasingly transferred to many parts of the developing world.*

In some ways, the future of educational computing in the Third World will parallel what has happened in the United States. The first uses will be in administration and in the teaching of computer science at the university level, and only later will computer-assisted instruction (CAI) be used in other than small experimental projects. In other ways, the Third World is in the position of "leapfrogging": by taking advantage of technological changes that have occurred over the last 20–25 years, the developing world can enter into the field of computing at a more advanced level immediately. Not only hardware, but also software from the industrialized world can be used without going through a lengthy development process. Especially in administration and in computer science departments, ready-made software can be imported and put to use immediately. It is less clear that imported CAI programs can be used in the Third World, though, since the educational needs of developing countries differ from the needs of the countries in which such programs are now available. Before looking more closely at the possible applications of CAI in the developing world, we turn to a brief overview of the history of CAI in the United States.

Computers have been used in the U.S. for teaching for 20 years, providing individualized instruction that is both motivating and effective. The first educational programs were written for large *mainframe* computers which communicated with remote sites by means of telephone lines. One mainframe computer could serve many schools that were as far as several thousand miles from the computer center. Because of the high cost of telephone service, many schools began to acquire their own *minicomputers.* Although minicomputers serve fewer students, the lower cost of smaller computers plus the saving in telephone charges made them a viable alternative to central mainframe computers. The more recent *microcomputer,* with its even lower cost, has given new impetus to computer use in the field of education. There is hardly a school in the United States that cannot now afford at least one microcomputer.

Drill-and-Practice

Many of the educational programs developed for mainframe computers and minicomputers can provide students with daily lessons for months or even years. Some of the programs provide drill-and-practice exercises, which are meant to supplement a regular course of instruction. These programs derive their effectiveness from their ability to provide individualized instruction, offering each student the precise kind of practice needed to fully develop skills previously presented in the classroom. Another kind of program is the tutorial program which provides instruction as well as practice; tutorial programs are intended to provide complete instruction in a given subject, and are most often used by students who do not attend regular classes. One of the most attractive features of the tutorial programs is that students can study at their convenience, working at any time of day, and for any length of time.

A number of research studies have shown that both drill-and-practice programs and tutorial instruction can be very effective for many subjects and for a wide range of students. While drill-and-practice programs have been most common in elementary schools, tutorial programs have been used most often by high school or college students, or by adults who are not regular students. Drill-and-practice programs are characteristically developed for skill subjects such as arithmetic, grammar, spelling, and foreign languages. Tutorial programs have been used for a wider range of subjects: logic, computer programming, algebra, history, geography, statistics, physics, etc.

Several other forms of computerized instruction have also been used, although to a lesser extent. Intelligent computer-assisted instruction, which involves the application of artificial intelligence techniques, is a sophisticated development, promising programs that are more "knowledgeable" about both the subject matter and the individual student. "Artificial intelligence" refers to the capacity of the computer to simulate human intellectual and cognitive behavior, which can include voice recognition and personalized responses. So far it has seen little application outside of a specialized, research environment, and much basic research is needed before intelligent computer-assisted learning replaces the more standard drill-and-practice or tutorial programs. Simulation programs are also very promising; in a few short, interactive sessions, these programs can provide students with experience equivalent to hours spent in the laboratory or field. Flight and driving simulators use a computer to control elaborate simulation equipment and provide training that would otherwise be more costly, more dangerous, and more time-consuming.

Dental and surgical patients have also been simulated by computer for use in training dentists and diagnosticians. These are elaborate constructs that simulate human reactions to drugs, blood loss, etc., in quite a realistic fashion. There are also simpler kinds of simulations which use a simple computer terminal to simulate experiments with rocket trajectories, chemical mixtures, life cycles of organisms, and so on. These simpler simulations are highly verbal, describing outcomes rather than providing realistic simulations, and although they do not provide the same kind of realism as the more complex simulations, they can be quite effective teaching devices.

Most of the kinds of programs mentioned above are implemented on mainframe computers or minicomputers. Some of them can be translated for use on microcomputers, al-

(continued on page 14)

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Africa's Search for Communication Technologies for Education: A Reflection on Problems and Prospects

by K. Ofori-Ansa

For the last quarter of a century, various forms of international aid schemes have supported the search for new strategies and resources to improve the quality and quantity of education in Africa. Through bilateral and multilateral aid programs, many African countries were encouraged to undertake innovative educational projects that relied heavily on the use of modern communication technologies, often transferred from the industrially advanced societies.

Today, with the rapid advances made in the development of communication technologies in the industrialized countries, the demand for educational use of these technologies is likely to increase. Africa, like most developing parts of the world, will continue to be a recipient of these advanced forms of communication technologies. In addition to such earlier mass communication technologies as radio and television, such new ones as video, computers, and satellites will continue to attract the attention of educational planners and policymakers in Africa. The lessons of past efforts at educational use of the mass media, and the problems and prospects of current attempts in Africa are the central issues discussed in this article.

New Strategies and Resources for Educational Expansion

New and more efficient strategies were needed to support educational expansion in post-independence Africa. With political independence came an increased demand for education to meet the growing manpower needs of the emerging nations in Africa. It was considered that education, as a means for human resource development, was a viable capital investment necessary to support social and economic development. Yet, in many African countries, the educational systems and the traditional teaching methods inherited from colonial rule were not adequate to satisfy the increased demand for trained manpower. In response to the need for educational reforms and expansion, many African governments invested heavily in the development of their education systems. Between 1960 and 1968, according to a Unesco report, public expenditure for education doubled in Africa, and as a percentage of gross national product, public expenditure in education grew at an average annual rate of 14 percent. It is estimated that Africa, like most developing areas of the world, spent between 15 and 20 percent of the national budget on education, during the 1970s.

That high level of expenditure on education was justified by the increased demand for education in Africa. The educational expansion efforts also increased shortages of qualified and competent teachers, shortages of instructional materials, and shortages of adequate equipment and physical facilities. New strategies and resources were needed to solve these mounting problems.

The Technological Alternatives

Taking a cue from educational trends in the industrialized nations, many African countries began to experiment with the use of mass communication technologies to support their educational reform efforts. It was generally agreed that the mass media, especially radio and television, had certain qualities that could be exploited either to replace or improve conventional methods of teaching. Through the mass media, it was thought, good teaching could reach a large population of learners who otherwise would have been confined to a narrow and inadequate level of education. Radio and television were therefore used in various ways to deliver both formal and nonformal instruction. Generally termed educational broadcasting, these two mass communication technologies were used for in-school curriculum enrichment, for in-school direct instruction, for an extension of instruction to remote areas where a monitor would do the work of a qualified teacher, and for distance teaching in which the mass media in combination with correspondence courses replaced both teacher and school.

By the late 1960s, at least 16 African countries were using educational broadcasting of one kind or another. International aid agencies, governmental donor agencies, and private foundations in the industrially advanced countries provided the support base for many African countries in their efforts to use radio and television for educational improvement (see Tables). Radio and television, it was believed, could help improve the quality of education, increase access to educational opportunities, reduce educational costs, and reduce the rate of dropout and repetition.

Most of these efforts, however, failed to make any significant impact on educational development in Africa. Some of the projects were discontinued after external aid ended, while others, though they remained in operation, failed to grow as expected.

Educational analysts have generally concluded that post-independence educational reforms in Africa failed to achieve their aims. There is still a high level of illiteracy in most African countries, as well as a rising level of unemployment among school-leavers, and the economic development that was expected as a result of educational expansion is far off the mark. By implication, educational broadcasting, as an aspect of the total educational expansion efforts, has therefore not been fruitful. There are, however, two basic schools of thought with regard to the educational use of the mass media in Africa. One school of thought argues that educational radio and television are too expensive and unnecessary and should, therefore, not be given a priority in educational reform efforts. It argues that without a technological base, educational broadcasting in Africa will continue to face problems and will only end up as cosmetic additions to educational programs.

The other school of thought views the failure of educational broadcasting in Africa not as a failure of the technology, but a failure of planning and implementation. The latter school of thought points out several factors that have, in the past, militated against the success of educational broadcasting and are continuing to do so in current efforts. Among these factors are:

1. Inadequate and defective needs assessment approaches;
2. Minimal consideration for social and cultural norms of recipient countries;
3. Minimal local participation in project planning and execution;
4. Rigid implementation schedule that makes no room for a mutual adaptation.

The first of these factors is discussed here, and possible solutions for the other three are offered at the close of the paper.

Assessing the Real Educational Needs

Often the real educational needs of a recipient country escape the attention of project designers who apply rigid and bookish approaches to project identification appraisals. Results of successful projects in other countries tend to influence decisions of policymakers and project designers. As a result, a technological solution may be selected before a problem is properly assessed. The Tables show how few countries were able to sustain and expand early experiments with educational radio and TV. (See page 4–5.)

As the Tables further illustrate, there are still a few African countries which are using communication technologies of one kind or the other to support their educational development programs. Radio and television, in combination with print materials, are used to provide direct classroom instruction and to enrich curriculum. In general, greater emphasis is now placed on basic education and the training of teachers for elementary, secondary, and vocational schools.

Generally, the current efforts are still con-

(continued on page 4)

(continued from page 3)

fronted with some of the problems that plagued earlier attempts. Most of these problems are still rooted in planning and implementation. If these current efforts will make any significant impact on educational development in Africa, much depends upon the extent to which lessons are learned from past failures and successes. There are still risks, but the prospects are good. Some recommendations are offered here, with the aim of contributing to the ongoing international effort to search for more effective approaches in using communication technologies to support educational development in Africa.

Two-Way Flow of Information

1. Technical assistance programs supporting educational use of modern communication technologies should be perceived in the context of international cooperation, with a two-way flow, rather than in the context of a donor-recipient relationship. Assistance given within the context of cooperation is more likely to attract active involvement of all parties involved. Such active involvement in project generation by all interested parties would reduce apathy and passivity on the part of those who are to receive, and also minimize aggressive cultural imposition on the part of those who are to give. This would have a positive impact on project implementation and therefore promote effectiveness and continuation of the outcomes of educational innovations.

Needs Assessment on a Country-by-Country Basis

2. Greater emphasis needs to be put on thorough country-by-country assessment of educational needs and problems in order to provide an adequate basis for designing project objectives and project contents to satisfy specific needs. Instead of a wholesale transplant of predetermined solutions based on preconceived beliefs about the educational needs of developing countries, solutions should be based on the peculiar needs of a given country. Results of educational technology projects in technologically advanced countries and those in other developing countries can provide useful guides, but cannot be considered as absolute criteria for justifying the planning of projects along similar lines in a different country.

Pragmatism and Flexibility in Needs Assessment

3. Needs assessment should be tempered with pragmatism and flexibility in approach. Rigid, bookish approaches to needs assessment may only succeed in providing artificial information, and glossing over actual needs. The real educational problems and needs may lend themselves to a more pragmatic human-based approach to needs assessment. When assessments are conducted by outside consultants, consultants should have a thorough understanding of the traditional culture

(continued on next page)

Table 1
Development of Educational Radio in Africa

Country	Year of Introduction	Function	Sponsors	Current Status
Algeria	1978	Teacher training	Government of Algeria, the World Bank	Still in operation and being expanded
Botswana	1976	Distance teaching; adult education on agriculture	Government of Botswana, International Extension College (United Kingdom)	Still in operation, but not extensively expanded
Cameroon	1957	Out-of-school formal and informal instruction in literacy campaign	Government of Cameroon, Government of France	Still in operation, but performing below capacity
Dahomey	1969	Nonformal adult education on health and agricultural techniques	Government of Dahomey, Food and Agriculture Organization (FAO)	In progress, not extensively expanded
Ghana	1959	English instruction to primary schools, supplementary instruction in formal school systems	Government of Ghana, Government of Canada, Unesco	Was expanded to middle and secondary schools and teacher training college, but now deteriorated
Kenya	1967	Distance learning for teachers	Government of Kenya, USAID, World Bank (1976)	Still in progress but underutilized
Lesotho	1974	Formal and nonformal distance learning, practical education	Government of Lesotho, International Extension College (UK), World Bank, UNICEF, Danish Government	Ongoing, expanded
Malawi	1963	Supplementary education in secondary schools	Government of Malawi, University of Missouri, West German Government	Expanded in 1978 to cover all secondary schools
Mauritius	1972	Out-of-school education, in-school instruction on agricultural techniques	Government of Mauritius, World Bank (1978), International Extension College (UK)	Still in operation, dropped several courses, added campaign program on trade unions
Niger	1961	Upgrading instruction, adult literacy	Government of Niger, Government of France, Unesco	Still in operation; expanded but still underutilized
Nigeria	1961	Regular in-school education, supplemental	Government of Nigeria, Ford Foundation, USAID	Adversely affected by a decade of political unrest. Still in operation but not fully utilized
Northern Nigeria	1957	In-school instruction in English language	Nigerian Broadcasting Corporation, British Broadcasting Corporation	Initial format was abandoned during political upheavals; revived but not fully utilized
Senegal	1965	Out-of-school formal and informal literacy instruction and health education to urban adult population	Government of Senegal, Government of France, Unesco, Government of Switzerland	Still in operation and run by Senegalese; extended to in-school education
Sierra Leone	1962	In-school instruction, supplemental	Government of Sierra Leone, British Government	Discontinued because of troubled economy
Tanzania	1971	Adult education in health and community development	Government of Tanzania, Swedish International Development Authority, University of Sussex, International Council for Adult Education	Still in progress; progressively expanded and yielding positive results
Togo	1964	Adult education and community development	Government of Togo, Unesco, Governments of France and West Germany	Still in operation, but not extensively expanded
Uganda	1966	In-school supplementary	Government of Uganda, British Government	Abandoned
Zaire	1963	Telestar—formal instruction in languages, health education and science	Government of Zaire, Catholic Church of Zaire, USAID, Government of West Germany	Expanded to include educational television

Source: Compiled from UNESCO, World Bank, USAID, and AED current documentation.

Table 2
Development of Educational Television in Africa

Country	Year of Introduction	Function	Sponsors	Current Status
Algeria	1978	Teacher training	Government of Algeria, the World Bank	Still in operation and being expanded
Egypt	N/A	To supplement in-school instruction	Government of Egypt	Expanded in 1965; still in progress, but operating under capacity
Ghana	1965	To supplement in-school instruction at the primary, secondary, and teacher training college levels	Government of Ghana, British Council, Friedrich-Ebert Foundation	Discontinued due to economic and political problems. Some out-of-school programs in operation
Ivory Coast	1971	Formal education reforms; elementary and secondary levels	Government of the Ivory Coast, Government of France, Government of Canada, Unesco	Was yielding good results; expanded but heavily reliant on external support. Terminated in 1982
Mauritius	1978	In-school instruction, distance learning for secondary school and teacher training college and vocational school students and government employees	Government of Mauritius, World Bank, International Extension College (UK)	Still in operation
Niger	1964	In-school instruction at the elementary school level. French language, math, reading and writing	Government of Niger, Government of France, Unesco	Expanded but still operating below expected level
Nigeria (Northern)	1961	Direct classroom teaching	State Government of Northern Nigeria, USAID, UK companies	Abandoned during political unrests and civil war; revived
Nigeria (West)	1959	In-school instruction	Eastern Regional Government, USAID, British Government, CETO	Terminated during civil war; revived
Morocco	N/A	Farmer education	Government of Morocco, USAID, RTV International	N/A
Senegal	1963	Adult education	Government of Senegal, Government of France, Unesco	N/A
Sierra Leone	1966	Science teaching	Government of Sierra Leone, CETO, British Ministry of Overseas Development	Terminated in 1968
Tunisia	1968	To improve quality of in-school instruction and expand educational opportunities	Government of Tunisia, National Association of Educational Broadcasting (NAEB) for USAID	Still in operation
Uganda	1963	General broadcasting to senior secondary schools and teacher training colleges	Government of Uganda, British Government	Terminated because of political and economic problems
Zaire	1969	Adult education in agriculture civic education, out-of-school youth education, in-school instruction	Government of Zaire, USAID	Still in operation, but has not grown as expected
Zambia	1965	In-school instruction for upper primary and teacher training colleges	Government of Zambia	N/A
Zimbabwe	1962	In-school instruction for white schools only	The then all-white Government of Rhodesia under British colonial rule	Discontinued during liberation war; now being revived and desegregated

Source: Compiled from UNESCO, World Bank, USAID, and AED current documentation.

(continued from page 4)

and contemporary social conditions in the target country. Such an understanding would be a useful asset in adopting a pragmatic and flexible approach to needs assessment.

Training and Orientation for Foreign and Local Experts

4. Greater attention should be given to training local experts in the mechanics of donor agencies' approaches to project planning and management. This would foster reciprocal understanding between local officials and externally sponsored experts, thereby promoting a mutual adoption of project goals and content. It would also encourage recipient countries to take greater control over planning and implementation and thus relieve them of the burden of having to adhere rigidly to bureaucratic and legal requirements imposed by the nature of operations of technical assistance agencies. Such a control will offer recipient countries the opportunity to formulate implementation strategies suitable to their own local conditions. The challenge of having to accept accountability for project outcomes is more likely to induce effectiveness.

With increased awareness of the operational strategies of donor agencies, local experts would be capable of assuming greater responsibilities and therefore release donor agencies' foreign experts to conduct more in-depth implementation monitoring and policy studies. This would enhance the role of a donor agency as a facilitator/partner in an international cooperative venture.

Increased Local Participation

5. Local participation should not be limited to the few government officials who usually share little in common with the majority of the local population who are often the targets of innovative educational projects. Local participation should therefore be broadened to include parents, teachers, and community leadership. This early involvement in project formulation has the advantage of increasing local awareness of the technicalities and ultimate implications of the project. With such an awareness there would be a reduction in the effect of cultural shock that might result from the rapid social and behavioral changes stimulated by the innovation.

Use of Indigenous Channels of Consensus Generation

6. To minimize the negative side effects of extensive local participation in project formulation and implementation (resulting from conflicting group interests), greater use should be made of indigenous channels of social interaction and consensus generation. Most African countries still rely on traditional political leadership to reach the communities and to generate discussion. This indigenous channel should be effectively exploited

(continued on page 13)

On the Horizon

International donor agencies frequently have a publication that represents the particular perspective of the agency to the larger development community. Especially good examples that come quickly to mind are *The IDRC Reports* (from Canada's International Development Research Centre), and *Development Dialogue* (from the Dag Hammarskjöld Foundation in Sweden). In general, these publications provide the reader with a sense of the current issues of concern to the agency as well as an idea of future funding trends.

The latest in a series of informational publications about AID and its development activities is *Horizons,* published by the Office of Public Affairs of the Agency for International Development.

It would be well worthwhile for readers working at the international level of development to learn about the variety of AID-supported projects that *Horizons* presents. In addition to feature articles illustrated with excellent photographs, there are regular sections on books, business, academe, and lessons learned, all useful and in the best tradition of information-sharing.

The editor is to be commended for the attractive layout and design of this monthly publication, as well as for the obvious concern with making it a source of transferable information.

For subscription information, write to *Horizons,* Office of Public Affairs, OPA/DCR, Publications Division, U.S. Agency for International Development, Washington, D.C. 20523, USA.

— Judy Brace

Scriptwriting Help

The Clearinghouse has available a limited supply of a paper which was written as a guide for scriptwriters working on USAID's Kenya Radio Language Arts Project. Specific references are to the radio lessons and scripts developed for that project, but the principles suggested apply equally to instructional radio scriptwriting for other content areas. The manual, entitled "Writing the Instructional Radio Script," was written by Esta de Fossard, a well-known international educational radio consultant and a frequent contributor to *DCR*.

The paper includes 18 pages of text, followed by a 52-page sample radio script. It is available, as long as supplies last, for US$5.00 *prepaid* from the Clearinghouse; free of charge to readers in the developing world. ■

Villagers Teaching Us to Teach Them

by John Siceloff

The photographer squints through the viewfinder, then motions to the woman holding the baby to dunk it in the bath. The baby shrieks. "Click!"

The scene might evoke familiar memories. But here in this Tanzanian village, there is a difference: the subject is a village woman, and so is the photographer. But even more novel than the scene was the assignment the photographer had undertaken: she was taking pictures of a familiar village activity of her own choosing in order to use the result to teach others how that activity could most easily and economically be performed.

The use of graphic illustrations in communicating ideas about development has been extensively researched. The central purpose of much of this research has been to understand how non-literate rural people respond to visual aids such as drawings, photographs, slide sets, and posters. My goal was similarly to enhance that understanding but to do so in a manner that gave the people themselves virtual control of the material that had to be produced and assessed. So I decided to hand over the tool—the camera—to the villagers so that they could film their own activity. Their choice of perspective, "editing," and the subject "frame" would, I felt, yield significant indications of the way they perceived things visually.

Over a two-year period in Peru and then Tanzania, two hundred delegated villagers cooperated enthusiastically in the exercise. Each learned how to use an instant picture camera, then took and explained their picture series on how to hoe, to harvest, to cook, to feed the baby, and many other everyday activities. And it became apparent very quickly how invaluable a tool in village education pictures can be. Again and again I saw photographs spark the interest of villagers and provide them with detailed images of both familiar and unfamiliar things and places.

In the process I learnt a great deal about the effective use of picture series among villagers, especially women, and as well about why villagers were sometimes left confused about the overall story or message of the pictures and films made by "experts." Particularly confusing have been "how-to" films designed to communicate new skills in essential activities. So putting the camera in the hands of villagers was a move back to the basics, to find out how villagers related to their own productive work on the visual plane.

The picture series taken by the villagers could be roughly grouped into two categories. In the first group, the emphasis was on the action; each step was shown in a separate picture. The photographers in this grouping were mostly men. And they were men who lived in villages near major roads or in shanty-towns near urban centers.

Pictures taken by women, and by men in more isolated villages, were very different. Their pictures emphasized people doing the work, not each step of how the work was performed. Large blocks of activity were often shown in a single picture.

These photographers conceived of a "how-to" picture series in a very broad sense. They showed people travelling to work, working, resting, and often drinking. The emphasis was on "how *we* work," not a step-by-step presentation of an activity. It was a style of communicating with pictures that was descriptive, personal and "whole," reflecting how villagers taught and learned from one another in their daily lives.

"Why-to" and Not Just "How-to"

This provided insight into what kind of picture series would be needed to introduce new ideas into village areas. For men in the first grouping, conventional "how-to" pictures, with each step shown in a separate picture, were likely to work. But for nearly all village women, and for men in isolated villages, picture series would need to follow certain guidelines:

- The narration, or written description, that accompanied the pictures would be very important. Pictures in themselves would convey little without highlighting what was seen in the image and why it was important.
- A picture series could not be expected to teach villagers how to perform a specific activity. This could only be done by someone on the spot. "How-to" picture series were unlikely to work.
- Picture series could be very successful in encouraging villagers to adopt new ideas, ranging from improved cropping techniques to better diets for babies. Instead of a "how-to" series, these would be "why-to" pictures.
- A "why-to" picture series would need to be presented in a descriptive, person-to-person style.
- The picture series would need to present experience, not merely information. This would mean showing something which actually happened in a village and worked.

I struggled with different ways to carry out these guidelines. I found it was difficult to script a picture series that would speak on a person-to-person basis to villagers. The problem was the enormous gap between the actual situation of villagers and my own situation—or indeed that of any highly trained communications worker living in an urban

(continued on page 14)

Publications of More than Passing Interest

by Judy Brace

In the past, we have directed readers to the always useful "broadsheets" of the International Extension College. The appearance of a new such publication certainly merits attention. Janet Jenkins has written ***Mass Media for Health Education,*** a monograph developed around the experiences of a number of health project case studies. The publication, illustrated with examples of referenced materials, is intended to encourage developing country health personnel to apply the mass media to extend and support health education. Print materials are featured in several projects, as is radio. Projects using television, film, and cassettes are also mentioned.

With the exception of an example from the contemporary Nicaraguan "Popular Health Days," the project examples presented are old and well established, and probably familiar to readers of *DCR*. Pulling them together, however, and taking the next step by suggesting ways to start a project is a valuable service.

New health projects that use media are being planned and implemented continuously. It should be incumbent on project management to document the process of getting their program—a campaign, or a product—out and accepted by their audience. This would add to the body of knowledge on the subject, and would be another indication of the widespread acceptance of the validity of development communication. It might even indicate that readers of *DCR* are putting into practice what they read in its pages!

Mass Media for Health Education will be a useful book, and should take its place on the health shelf of any development communication practitioner. The broadsheet, Number 18, is available for £4.00 surface, £4.80 air, from the International Extension College, attention Mrs. M. Stirling, 18 Brooklands Avenue, Cambridge BB2 2HN, United Kingdom.

• The organization that has most aggressively tackled the difficult problem of transmitting social service messages to non-readers is PIACT. The Program for the Introduction and Adaptation of Contraceptive Technology has taken the lead in the design, validation, and distribution of visual print materials intended to reinforce interpersonal instruction.

How they have done this in cultures as diverse as those of Mexico, Bangladesh, Thailand, Nepal, and the Philippines; how they have moved to include men in their portrayals of family care; and how they have developed guidelines and a methodology for materials' development, are succinctly set forth in a publication that encourages others to follow their carefully tested path. ***Print Materials for Nonreaders: Experiences in Family Planning and Health*** by Margot L. Zimmerman and Gordon W. Perkin, focuses on the process of developing materials in the field of family planning. Nonetheless this process can, and should, be adapted to other fields.

Media programs, campaigns, extension workers, all could use support materials to reinforce a specific message or behavior. Despite some confusion that could easily be clarified by labeling misunderstood illustrations as such, this attractive and valuable Piact Paper Eight will greatly contribute to the communication process at hand. Available for US$2.50 from PIACT, Canal Place, 130 Nickerson St., Seattle, Washington 98109, USA.

• Two European information resources should be noted. General development and information exchange issues are the concern of "Development Innovations and Networks" located in Geneva. They and their publication, ***IRED Forum,*** encourage the sharing of experiences, technologies, and information among and between NGOs, PVOs, international organizations, and interested governments. Much of their activity is centered around Africa, but they seek to expand their network in Latin America and Asia. To be added to their network and to subscribe to their *IRED Forum* (US$12) contact Fernand Vincent, Case 116-3, rue de Varembé - 1211 Geneva 20, Switzerland. ■

Judy Brace is the Director of the Clearinghouse on Development Communication, as well as the Resource Center Manager.

CIESPAL Anniversary Contest Planned

Preliminary plans have been launched to celebrate the 25th anniversary of the founding of CIESPAL, the International Center of Higher Communication Studies for Latin America, with a Latin American Festival of Educational Radio. The Festival will feature a contest to select the best educational programs in three categories.

This event, planned in collaboration with Radio Netherland, will take place in Quito, Ecuador, October 15-20, 1984, giving well over a year to raise money for awards and develop specific plans for a week of programs, seminars, cultural exchanges, and professional development.

During the Festival, judges will review and evaluate the educational radio programs that have been submitted to the contest. The following guidelines will be used in judging the programs:

a) Programs must be educational in the broadest sense, and encourage an active and full participation in community life by all groups, particularly the disadvantaged;

b) Programs must be specifically Latin American, in subject matter as well as in presentation, with reference to local legends, dress, folklore, and music;

c) Programs must be innovative.

The three categories into which the programs will be divided are:

1) Latin American legends, to reinforce local values and cultures;

2) Local (as opposed to national and international) news, providing clear, objective information and encouraging audience participation;

3) The ongoing programming of a community organization (educational, cooperative, union) presented in a creative, continually effective manner.

CIESPAL is soliciting comments and suggestions with regard to these plans. *DCR* readers are invited to respond, and can request further information (in Spanish) from Antonio Cabezas, who is serving as Executive Secretary of the Festival. Write to him at CIESPAL-RNTC, Apartado 9336 Suc. 7, Quito, Ecuador. ■

Printing Help

No matter how humble the item may be, no question about printing goes unanswered by the Printing Panel of the London-based Intermediate Technology Development Group.

Some of Britain's most experienced professionals are part of the Panel which recently formed four groups to handle specific inquiries. The groups are:

1. Educational Technology—dealing with the preparation of aids to learning.
2. Periodicals and Community Newspapers—covering the production of information and news for rural and urban areas.
3. Screen Process Printing.
4. Illustration and Design—covering all types of illustration and matters affecting the presentation of visual material.

Henry Larken, who heads the Printing Panel, explains that the group includes in the word 'printing' stencil duplicating, the Hecto process, and hand-operated methods of producing multi-copy work.

The Panel gives advice without charge to organizations with limited financial resources. ■

Printing Panel, Intermediate Technology Development Group, 9 King St., London WC2E 8HN, England.

Reprinted from *ACTION, WACC Newsletter,* July 1982.

A Communicator's Checklist

1 *Meeting Learners' Needs through Telecommunications: A Directory and Guide to Programs,* by Raymond J. Lewis (Washington, D.C.: American Association for Higher Education, 1983), 264 pp.

Ray Lewis devoted two years to his investigation of educational applications of telecommunications technologies by postsecondary organizations in the United States. The results of that research are reflected in this excellent and useful book, *Meeting Learners' Needs through Telecommunications: A Directory and Guide to Programs.* As the subtitle indicates, the book is both a directory and a guide: a directory of 70 individual program descriptions, and a guide that illuminates the patterns and trends that emerged from Lewis's analysis of those programs. As Lewis states it, the book has a twofold purpose: first, "to increase the likelihood that when educators use telecommunications technologies to solve educational problems, they will be more aware of the practices of other organizations," and second, "to encourage educators to focus their attention on the educational problem before considering which, if any, electronic technology is appropriate to the problem."

Lewis conducted his research under the auspices of the Center for Learning and Telecommunications, a service that is funded by the Carnegie Corporation of New York and housed in the American Association of Higher Education. The Center also publishes a bimonthly newsletter, *Telescan,* and offers a computer-based inquiry service that comprises a database of the literature in the field and the program-specific information that resulted from Lewis's work.

Lewis based his book on a survey of programs in the United States that met at least one of the following criteria:

- a program with a delivery system or curriculum that is marketed nationally to postsecondary educators;
- a program with features that could be readily adapted to others;
- a noteworthy or unique approach to a specific educational mission;
- a noteworthy or unique application of one or more technologies;
- a noteworthy or unique approach to solving the problems of managing the delivery of education at a distance.

The programs chosen for inclusion also have a special emphasis on addressing the educational needs of learners, rather than administrative needs of the organization; and on the capacity to serve students in off-campus, as well as on-campus, settings. These emphases lead necessarily to a focus on interactive programs.

The book is organized in such a way that the reader or researcher can either spend time with the "Guide to Programs" section, which provides an overview of the patterns and trends in post-secondary telecommunications applications, or go directly to a specific piece of information about a specific program or technology. The analysis of trends reveals, for example, that "when it comes to educational applications of telecommunications technologies, professional continuing education is perhaps the fastest growing and most competitive area." Or that staff members of the 70 programs stress that, for working adults, "convenience is the single most important consideration affecting adult learners' decisions about whether, where, or when to get involved in education." Or (and this will come as no surprise to distance teaching institutions in developing countries) that "one of the biggest problems facing programs that rely on remote learning sites or delivery into students' homes is making adequate print materials available to the students."

The report points to some serious considerations in the area of "problems and possibilities." It discusses several equity issues—for example, the fact that "limited educational services are available for citizens with low levels of prior educational attainment." The survey revealed that "the postsecondary education community is not fully exploiting the capacities of electronic media to change existing patterns of adult participation in education." Another example: "limited educational services are available for special populations" (such as minority language groups, homebound and handicapped persons, prisoners, etc.). "With the exception of rural residents, no one of these populations was served with special programming efforts by any more than 17 percent of the surveyed programs."

The directory of the 70 programs included in the book is very well indexed and cross-referenced, both by educational mission and by telecommunications technologies used. Each program description, which has been checked and approved by the institution being described, includes information on educational mission, telecommunications technologies, curriculum, faculty roles, delivery system, enrollment, administrative structure, finances, and resources available. Useful marginal notes include noteworthy features of the program, problems encountered, observations about distance learning, future plans, and contact persons.

The telecommunications technologies covered in the survey include: open broadcast television, microwave (ITFS), point-to-point microwave, one-way cable television, interactive cable television, slow-scan television, satellite, video teleconferencing, electronic blackboard, radio, telephone, audio teleconferencing, videotape, audiotape, computer-assisted instruction, computer-based instructional management, computer/videotape interface, and computer/cable interface.

Although all of the programs included in this survey are U.S.-based, the volume is nonetheless useful to the development communication audience, in that it is the best compendium I have come across of descriptions of how telecommunications technologies are currently being used in educational institutions in the U.S., particularly for distance education, and the problems and successes of that experience. ■

Reviewed by Sandra Lauffer, Program Officer for Telecommunications with the Academy for Educational Development, and Director of Information, Applications Management, AID Rural Satellite Program. She is also a former editor of *Development Communication Report.*

Available (prepaid) for $45.00 within the United States, $47.50 to all other countries from the American Association for Higher Education, One Dupont Circle, Suite 600, Washington, D.C. 20036, USA.

2 *Education and Training for Library and Information Services in a Predominantly Non-Literate Society,* edited by B. Olabimpe Aboyade (The Hague: Federation Internationale de Documentation (FID) Publication 604, 1981), 108 pp.

This collection of papers records the proceedings of a four-day conference held Ibadan, Nigeria, in May 1981. The book is divided into four sections: first, the background which covers communication and the transfer of information in a non-literate society, and determinants of agricultural productivity among non-literate farmers; second,

the identification of user populations and their needs, which deals with agricultural extension and the documentation and transfer of scientific information for rural communities; the third section focuses on providing information to non-literates; and the last section looks at a special program in library and information education. Most speakers at the conference were Nigerian academics and senior government employees. The papers therefore refer specifically to Nigerian rural systems.

Before discussing particular issues raised by the papers, it has to be said that anyone requiring a broad background in rural communications would find this book of value. It is ironical however, that papers on communications are rarely simply written, and these are no exception. A further irony lies in the fact that speakers at this conference on information systems generally cited studies at least ten years old, and that this review comes two years after the conference was held: so much for timeliness of information. However, the problems have not changed very much over that period, and the solutions arrived at by this conference seem familiar.

The thrust of the conference was to identify training needs for library and information services for rural non-literates. Why a *library service* for non-literates? Two answers emerge. Dr. Aboyade suggests that literacy is more than the ability to read and write. Literacy should be re-defined to account for the learning and wisdom of people who can do neither because, she says, they are 'orally literate.' Unfortunately, widening the definition does not make the printed word any more accessible to those who cannot read, even though it may change perceptions of the capabilities of non-literates.

The second answer is to re-define the concept of libraries for rural information-seekers. This makes a good deal of sense. The provision of information in forms other than print would have immediate benefits for illiterate users, and might have the secondary effect of encouraging them to become literate. Technologies other than print for the retrieval and dissemination of information are spreading through the developing world, and training in their management is becoming increasingly important.

It is disappointing, therefore, that there is a gap between the identification of the problems and the training recipe offered in the last paper. The third section of the conference report describes the information needs of rural women and touches on the corollaries of illiteracy (such as high fertility). Dr. Seeger relates various information strategies to a communications model, but no real attempt is made to detail rural information services and the consequent training needs. The last paper consists of a discussion of rural communities, a paradigm for identifying their information needs, and then a model service. A core curriculum is appended.

One gets the impression that the curriculum had been developed independently and prior to the conference. This is not inherently a problem, but no indication is given of how training objectives and curriculum development were related to the problems and needs cited in earlier papers. And that should have been the heart of the conference.

Perhaps a conference format is not suited to much more than statement and counter-statement, particularly when people read prepared papers. Of course, in non-literate societies they probably know how to manage conference speakers to reach logical and organic outcomes. Pity they can't write about it. ■

Reviewed by Michael Laflin, a Research Scientist with the Institute for International Research. He is currently advising the Liberian Rural Communications Network.

Available from International Federation for Documentation, P.O. Box 90402, 2509 LK, The Hague, Netherlands.

3

Cultural Autonomy in Global Communications, by Cees J. Hamelink (New York, New York: Longman, Inc., 1983), 144 pp.

This book is an excellent critical piece which clarifies the perspective on global communications endorsed by segments of the communications intellectual elite of the Third World.

The book presents a very compelling rationale for the preservation of indigenous cultures, i.e., the potential destruction of survival mechanisms built into the world's diverse cultural patterns may endanger the survival of the societies who have strived to adapt to their unique environments. More important is the explanation that the potential destruction of indigenous cultures is solely for the benefit of global merchants, according to the author.

The book has five chapters, a bibliography, a list of abbreviations, and an index. The first chapter, "Cultural Autonomy Threatened," introduces the reader to the main issues of cultural synchronization and dissociation. Cultural synchronization is conceptualized as a refinement of imperialism, and dissociation as liberation in the realm of culture. This first chapter addresses the interests and implications of transnational advertising and communication technology, and provides the motivation for the book.

The second chapter, "Resistance to Cultural Synchronization: National Initiatives," exemplifies how nations can provide for their independence or dissociation. The case studies detailed are those of Canada, Australia, Cuba, Peru, Mozambique, Tanzania, and the People's Republic of China. However, as the author sees it, these efforts are a mixture of success and failure.

Chapter three, "Resistance to Cultural Synchronization: The International Discussion," is an account of the historical and conceptual development of the "New International Information Order" (sic). The chapter concludes that the discussion has been too narrowly defined, concentrating on news, and that there has been no clear focus toward coherent objectives in the search for a new international information order.

Chapter four concentrates on the concept of "cultural dissociation" and explores the bases for the formulation and planning of national information systems in the Third World. Dissociation is said to be closely linked with horizontal communication structures between developing countries.

The last chapter discusses the issues involved in regional and international cooperation, and like many other recently published materials, it emphasizes the need for the establishment of clear national communication policies and international cooperation guidelines.

The book is enriching and well documented, but biased in the direction of mainly blaming the U.S. for the ills of Third World nations. A more balanced presentation of cultural influences from multiple sources would constitute a better framework for the understanding of the critical issues discussed. However, Hamelink does strongly acknowledge the flaws in national systems which perpetuate a pattern which allows for dependence.

This book makes good reading for those persons involved in communication policy and planning, but the reader should approach the work with an awareness of the author's critical biases. ■

Reviewed by Felipe Korzenny, Associate Professor of Communication at Michigan State University. He has worked in many developing countries, and has written and published widely on communications.

Available from Longman, Inc., 19 West 44th St., New York, NY 10036, USA, for US$15.00.

4

Health Care: Which Way To Go? An Examination of Issues and Alternatives, edited by Abhay Bang, M.D., and Ashvin J. Patel, M.D., D.H.C. (New Delhi: Medico Friend Circle, 1983), 256 pp.

Readers with an interest in alternative health care and low-cost, community-based health services will be interested in a new publication from the Medico Friend Circle in

(continued on page 13)

(**Thoughts** continued from page 1)

NQ: That's true, John. We tend to say that interpersonal communication fills in the gap between mediated types of activities, but I think it's the other way around in the Asian countryside—it is mediated activity that fills in the gaps between interpersonal communication.

JM: One of the things I wanted to ask you about has something to do with the question of the direction of development communication in the very small academic circle concerned with development communication (and I'm afraid it's getting smaller). There had been a significant move towards the idea of integrated planning at a national level across the sectors, the concept being that (as we've observed in various places) if each ministry or each sector goes its own way, using radio, and using field-workers, and using a variety of communication resource systems in various villages, they get in each other's way, and the pressure on the communications system can grow very high, very quickly. If you're working with local radio stations, it's less of a problem; but where you have a centralized national radio, it's significantly high. So people have been asking, can we step back and look at the needs of different areas of development, and the needs of the people for different kinds of information and assistance? Is there a way to plan so that we use our limited communication resources better? How have you reacted to that idea, practically, from your experience in the Philippines?

NQ: What you said is already happening. In a way, governments have taken over development communication because they see the importance of harmonizing the different development sectors by the use of communication, so that now they talk about integrating communication in national development plans—that's fine.

One danger, though, is that some people have started to think that development communication is only government communication and so it becomes associated solely with the promotion of government activities. Or they don't think about what's happening at the community level, and of course it is at that level where the details of development communication should be planned and worked out: using community facilities, local communication resources, localized radio stations to do what national radio wouldn't be able to.

JM: Tell us a little bit about your curriculum now in Los Baños.

NQ: Well, it really hasn't changed very much from when we started it. It has a broad base in general education, on top of which we try to train the students in communication concepts and skills, so that's the communication component. And then, one element that we think is important is what we call the technical subject matter component.

In Los Baños it need not be agriculture. It can be any technical field that is available in the university, like forestry management, human ecology, nutrition, health.

JM: So you feel that the professional development communicator, the kind of person you train in your program, should have a good level of knowledge and applied skills in development sectoral areas; that is, a combination of communication skills and concepts *and* health or agriculture or nutrition or some applied sector of development.

NQ: Yes, plus we require additional social science courses because it is partly in those courses where they get development concepts and a broad picture of what's happening in society. One popular course among students who opt for an agricultural component, for instance, is rural sociology.

We think that the technical courses are important, because they expose students to the basic developmental problems; they discipline the students to think of practical, research-based solutions. Otherwise they would know only about the arts, get into speech and theater arts, which are important too, of course, but which would not be the particular emphasis of development communication at this time. Other communication programs in the university take care of those areas.

HR: What sort of fields do your students go into? Do they work with extension agents, and do they find planning jobs in ministries where they can use their skills?

NQ: Yes, many of them work in development agencies, both government and private. These are agencies which now use communication media as aids in their own work. Not many of our students go into broadcasting or newspaper offices; more of them go into the development agencies. A good number of them work in universities because, at least in the Philippines, the regional universities see the importance of having development communication in their curricula.

HR: We could talk a little bit about how you see the future of development communication; about whether you're optimistic about governments' recognizing the importance of early communication planning in projects, or whether the field will be a victim of further economic cutbacks.

NQ: As a profession, I think it will go on and I think it will get stronger, because administrators know the utility of communication. Of course, there's a danger that these skills and concepts will be used only for promotional purposes by administrators—aims which are also quite legitimate. So we will have to see that our students know this and guard against it, that all of their efforts will not be diverted to promotion, and that they will mainly think of communication as a teaching tool for disadvantaged families. So, as I said, I think as a profession, development communication will continue and become stronger.

Now, as a field of study, that depends very much on university funds. The growth of the field will depend on how much money there is. In Los Baños, the administrators have generally recognized the importance of communication. When it comes to setting priorities, however, we cannot say that development communication is Number 1. There will always be other fields that will have higher priorities.

HR: We've had cutbacks in many of our university communications departments, so it seems that in the U.S. we don't even recognize the field as much as you do in the Philippines.

NQ: Well, perhaps we need it more!

JM: That's sort of true. On the other hand, I think in the U.S., and outside of the U.S. as well, that if you look carefully at what people are doing you find far more development communicators at work than we think there are. They have lots of funny titles: they're the director of public information, they're in charge of outreach services, they're called counselors—a variety of names, but they're all basically concerned with the process of social change and with purposely, consciously creating information and getting it to some people for some reason. Somewhere, in the development communication situation, in my experience, you always find some element of learning. Someone in a development agency believes that it would be a good thing for people to learn something. And then organizational structures are created to assist in that process.

NQ: They don't know they are development communicators.

JM: For example, social workers working in poor urban areas in the United States are essentially field workers, and while they don't often use mass media resources (they can't get at those very easily in the U.S.), they're still running community classes, showing films, seeking to help people control their lives better and to improve their lives. They're development communicators.

I think what development communication has done academically, and in that way has had some impact on the profession, is to draw explicitly on social psychology, learning theory, and communication theory to train students conceptually so that they're able to analyze problems well and to think through the problems in terms of the learning needs.

Then, on the other hand, we've tried to give them practical media training and management and planning skills, so that they can take this conceptual knowledge and apply it to problems and then DO SOMETHING—and that's where it becomes professional rather more than academic.

So it's always seemed to me that the ideal development communicator, say with a mas-

(continued on next page)

(**Thoughts** continued from page 10)
ter's degree from a fine university like yours, knows enough of these different academic disciplines to work with economists and rural sociologists and others to understand the problems of a family or a series of families, or a village or a region, and identify those areas for learning. Then he or she has the practical skills to go and, if necessary, write some radio scripts, do a little questionnaire for needs assessment, write a proposal to get some money to set up a project—a variety of practical capabilities.

NQ: Yes, and so then you agree with the statement that the development communicator is essentially a mediator between people?

JM: It doesn't do much to increase the status of development communicators to be seen as mediators, but I think it is essentially accurate. You know, this touches on part of the fundamental problem of the field of communication. What can you say? Communication is a fundamental human process. Fair enough. Nobody's going to disagree with you. And then you can elaborate that statement academically through research in learning more about this fundamental human process. Essentially, the social psychologist's attitude toward communications. And that's a very important and useful and interesting academic field. Once you move out of that, it almost always becomes communication *for* . . . e.g., communication for development, communication for social integration, communication for political campaigning, communication for advertising, communication for this, communication for that. That to me seems to reflect what you said, that communication is in a mediating position—it's *for something else,* and that something else always has more prestige, unfortunately. Except perhaps in commercial advertising. There people make a lot of money being good communicators. . . .

HR: Dr. Quebral, in your recent study, "Piloting A Distance Learning System for Small Farmers," you note in the introduction, "Economic growth cannot be sustained—nor is it desirable—unless people learn to eat better, become healthier, and achieve a more satisfying family and community life." When you're teaching your students, do you stress the community, show them that one must move from the theoretical level right down to the community level?

NQ: Yes, we have that part of it, although . . . well, we also talk about development communication at national and international levels, so our students get some of that, too, and the information imbalance issues. They like that, because sometimes they think that talking about agriculture alone is limiting. Mainly they like it because they see the part played by development communication in the larger picture, both nationally and internationally. We don't become too parochial.

HR: Is part of your role, as an educator and as a writer, to be an advocate of development communication, to keep the field in the public's attention?

NQ: Yes. There is one thing that development communication has done, too: it has made people more aware of development. And that's why, going back to curricula, the social science courses are important—so that students will know what they should use their skills for, so that they will be working towards something.

JM: I also think that in general the role of the university is to give people a broad perspective on their lives and their work. Also to offer development communication skills training, but it's such a wonderful opportunity to go to a university that I think we ought to enable the students to have as broad an experience as we can. Universities are there for education, not for development communication. When we run our programs, we have to keep that balance in mind.

NQ: Yes, that's part of university education.

JM: In fact, the international communication environmental system or policy can affect the work of a development communicator very directly—it just takes a couple of decisions about satellite access, orbiting, and financing to affect the resources that the communicator has to work with. So the connection's very direct, and it's important for people to understand where they fit into the world system.

HR: Dr. Quebral, could we end our talk by asking you how the field of development communication has changed since you have been working in it?

NQ: The changes have come from new ideas on development and on communication. And when you talk about communication, you go back to all of the social sciences, to nonformal education. When you talk about development, then, of course, the scope is even broader. So all these things impact on development communication. You're not hard up for concepts and insights. It's *applying* all these concepts that people have thought up that becomes a problem. ■

Nora Quebral is chairman of the Department of Communication at the University of the Philippines at Los Baños. She is an international consultant in development communication, and has been involved in several action research projects. She is the author of many publications on development communication.

John Middleton is Vice-President for Academic Affairs and Director of the School for International Training of the Experiment in International Living in Brattleboro, Vermont, USA. From 1980–1983 he was a member of the AED staff, first in Indonesia and later as Director of Technical Planning Services in Washington, D.C. At the East-West Communication Institute in Honolulu from 1972–80, he worked closely with development communicators in Asia, including Nora Quebral.

(**PRONALF** continued from page 15)
recently completed a course. The aim is to build up their confidence and inspire others to take the plunge and enroll. Literacy students and neo-literates are also encouraged to write in to the program; their letters are read out over the air and are an important stimulus to students to practice their new skills.

The program has managed to hit on a formula which combines maximum participation from its audience with a strong local emphasis. The results have been so successful that the program is now being extended to another state, that of Veracruz, where a special radio program in support of literacy among the sugar cane cutters has been started.

Currently in the planning stages, but due to start up soon as a pilot project, is a literacy-through-radio series using a similar format and organizational structure as the literacy-through-television program *Aprendemos Juntos.*

According to figures for 1970, 65 percent of the population owned one or more radio sets per household. And according to a recent survey carried out by PRONALF, over 80 percent of the country's illiterates own and have use of a radio, irrespective of whether or not they have electricity in the home. The question of electricity is extremely important, as only 28 percent of the population had electricity in their homes in 1970. Whereas the transistor radio operates cheaply on batteries, television is the privilege of those rich enough to own one and to have the electricity to use it.

The proposed radio literacy project will use a workbook in combination with classes, supported by the *visitador* and the *orientador,* in the same way as television literacy. The course is based on the generative word method, but there is greater emphasis on local and regional content. Owing to the nature of radio literacy, the course will take longer to complete than either the direct or the television method.

The Importance of Media

At the time of writing this article PRONALF has been in operation for just under 18 months. It began with an ambitious goal and a single option for the illiterate wanting to study. As the program has matured and reflected on its achievements and shortcomings, media such as radio and television are playing an increasingly important role in reaching illiterates who for reasons of time, working hours, distance, or 'shame' are unable to attend the group classes using the direct method. ■

Reprinted by permission from Media in Education and Development, *Vol. 16, No. 1, March 1983, published by the British Council, 10 Spring Gardens, London, SW1A 2BN, U.K.*

On File at ERIC

Reports and papers from the ERIC (Educational Resources Information Center) files reviewed in this column deal with distance education, instructional technology, communication media used in support of development projects, teaching children information-handling skills, and nonformal education and the handicapped. All are available on microfiche and some in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, USA.

- Daniel, John S. and others, Eds. ***Learning at a Distance: A World Perspective.*** 1982. 343pp. (ED 222 635)

The proceedings of the 1982 World Conference of the International Council for Correspondence Education held in Vancouver, British Columbia, this book includes papers or abstracts from more than 120 authors representing some 25 countries. The 118 papers provide a state-of-the-art review of distance education in the early 1980s. They are divided into seven sections, and the first paper in each section gives an introduction to the topic. The topics addressed include (1) important international trends (10 papers); (2) the contribution of distance education to national development (16 papers); (3) recent research and developments in distance learning (18 papers); (4) the difficult relationship between the mass-produced learning package and the diverse student base (13 papers); (5) the process of policy-making and management (22 papers); (6) approaches needed to provide instruction on topics varying from music to affective relationships (19 papers); and (7) the contributions of communications media and computer technology (20 papers). Appended materials include a glossary, a bibliography, notes on contributors, and author and subject indexes. Available from EDRS in microfiche for 97¢ or in paper copy for $24.90.

- Hollaway, Robert E. ***Technology Transfer and Instructional Development.*** 1982. 25pp. (ED 222 185)

This discussion of some of the factors involved in the successful transfer of instructional technology argues that this transfer is the last step in the knowledge cycle, preceded by invention, technical and commercial development, and dissemination. Technology includes both equipment and the practical knowledge needed for application. Industrialized nations package technology; however, little practical knowledge is transferred with the packages. Rather, the knowledge remains with the originator or imported technical staff, maximizing short-term implementation. Without adaptation, however, long-term failure is probable. Instructional development is generally described as a systematic decision-making process. In practice, the process has frequently been an effort to develop a convergent, closed system. Such systems appear clear and unambiguous, appeal to administrators and funding sources, and are efficient in controlled settings. Transferring technology to new settings may require an alternative instructional development process that makes fewer assumptions about outcomes. Such a process would assume that technology will evolve in an open system in a kind of reinvention cycle. Development-as-reinvention appears less exact and is more expensive in implementation. In return, it offers a higher probability for long-term success. Finally, through a gradual socialization of the technology and the recipient, it offers opportunities to examine second-order consequences. It is recommended that funding go to projects designed to build the capacity of people in the recipient country. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- ***Project Profiles. A.I.D. Studies in Educational Technology and Development Communications.*** 1982. 396pp. (ED 225 542; includes English, French, and Spanish versions)

These profiles contain brief case studies showing how communication media are successfully used to support development projects in a variety of fields and international settings. Projects described emphasize agriculture, health, nutrition, population, education (primary and middle grades, adult, and distance), and integrated development. Project descriptions are presented in a uniform, two-page format listing target and audience, objectives, media, donors/sponsors, duration, contacts, project description, results, points of note, and references. The English version contains 72 profiles, while the French and Spanish language versions contain only 45 project profiles each. The index in the English language version is arranged in chart form, listing projects by sector, country, title, media use (audiovisual aids, audiocassettes, correspondence, film, folk media, interpersonal, print, radio, two-way satellite, and television), and sponsor/financing (AID participation, international donors, national government, and self or local financing). Names and addresses have been updated to show current contact data. Available from EDRS in microfiche for 97¢ or in paper copy for $28.40.

- Irving, Ann, Ed. ***Instructional Materials for Developing Information Concepts and Information-Handling Skills in Schoolchildren: An International Study.*** 1981. 69pp. (ED 226 758)

Based on a survey covering 56 countries, this Unesco report lists internationally relevant instructional materials and research aimed at familiarizing school children with information concepts and skills, and also discusses the creation of new instructional materials in this area. The study's aims, methods, and rationale are briefly described, as well as the skills involved in information-handling at a child's level. The partially annotated bibliography which is provided contains 98 items—mostly of European origin—on children's information concepts and their reading, studying, and library skills. Bibliographies and literature reviews, reports of current research, background reading for teachers, and descriptions of teaching methods and materials are among the items included. Slides and films, overhead transparencies, and graphic and textual printed materials are noted as three appropriate formats for student programs. A list of the countries and territories contacted for this study is appended. Available from EDRS in microfiche only for 97¢.

- ***Non-Formal Education and the Handicapped in Developing Countries: A Selected, Annotated Bibliography. Annotated Bibliography #7.*** 1982. 35pp. (ED 225 597)

Compiled from the resource collection of Michigan State University's Non-Formal Education Information Center, this bibliography presents approximately 50 international publications on topics ranging from the education, environment, vocational training, rehabilitation, and health of the disabled to strategies for preventing disabilities, as well as a listing of 26 individuals and organizations worldwide who are interested in non-formal education and the handicapped. Three important themes covered by the citations are noted as: (1) the development of relevant community-based training and rehabilitation programs that reflect local cultural and social contexts and promote the participation and integration of the handicapped in mainstream society; (2) the special needs of handicapped children, including the long-term personal and social benefits attained from receiving education, vocational training, and rehabilitation at an early age; and (3) the need for educating the non-handicapped to change stereotyped attitudes. Titles listed include discussions of many programs in Asia, Latin America, and Africa. Books, pamphlets, directories, reports, journals, newsletters, special issues, and articles are listed, and addresses are provided for individuals, organizations, and sources of cited publications. Annotations indicate the availability of the publications cited in languages other than English. A list of the staff of the Non-Formal Education Information Center from 1976 to 1982 concludes the publication. Available from EDRS in microfiche for 97¢ or in paper copy for $3.90. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, USA.

(**Checklist** continued from page 9)

India. While some of the judgements in "Health Care: Which Way To Go?" may seem harsh (one chapter, for example, is entitled "Doctors in the drug industry's pocket"), the book accurately represents the increasingly widely held view that medicine must be demystified, made preventative as well as curative, and brought within the reach of *all* the people if it is to help in any way the millions of people who will never be able to have access to modern treatment facilities. While this may not reflect the prevailing position of the medical establishment, it is the passionately held view of the physicians and community health experts whose writings make up this interesting and at times provocative book.

Drawn from articles published in the monthly Medico Friend Circle *Bulletin,* the anthology reflects, as the publisher states, "the attempts being made by socially conscious medicos in India to analyse critically their own profession and try to grapple with alternative strategies . . . for a just, rational, and humanitarian medical system."

The collection includes essays on herbal therapy ("Ayurvedic Drugs") with lists of plants and their effects; discusses case histories of the effects of poverty on disease; presents a statistical analysis of malnutrition in pregnant and lactating women; offers an eye-opening article about sexual exploitation of nurses by doctors ("How to motivate doctors to go to rural areas? Appoint beautiful nurses at the Primary Health Centres!"); and considers such diverse health-related topics as community water supplies, the politicizing of health care, oral rehydration therapy, and adverse effects of mass cholera vaccination.

A strength of the book is that instead of merely criticizing existing practices, it makes a point of offering suggestions for alternative ways of doing things. The authors provide many models and examples. In the chapter on training *dais* (traditional birth attendants) to follow aseptic practices and current techniques, for example, the author emphasizes that standard teaching aids are not going to be appropriate without careful testing and appropriate modification. In the case of the illiterate *dai,* who may have 30 years of work experience but no understanding of modern science, he suggests as a training technique "guided gossip-type storytelling sessions" to elicit and build on each *dai's* past experience in a positive way.

The Medico Friend Circle believes that "a fundamental change must occur in the existing health system. Within the new system, people must gain control over their own health; nurses and other paramedics must not be regarded as inferior to doctors; decentralization should occur as much as possible, and traditional forms of medical care must be encouraged. . . ." The urgency of this belief is reflected in the 18 articles in the collection.

The book offers much to think about. Although some people may be put off by the rhetoric, "Health Care: Which Way To Go?" nevertheless performs a valuable service in trying to break traditional barriers and examine old problems of health care in non-traditional (that is, nonWestern) ways. ■

Reviewed by Heddy F. Reid.

Available from Voluntary Health Association of India, C14, Community Centre Safderjang Development Area, New Delhi 110-016, India, for Rs. 10 in India and US$4 elsewhere.

(**Communications** continued from page 5)

to involve the communities and interest groups in decision-making. A thorough understanding of the implications of the project through such channels would generate consensus and attract strong community support for its immediate and long-term objectives.

Educational Innovation as a Non-technological Innovation

7. Educational innovations should be seen more in terms of a non-technological innovation. Educational planners and educational technology practitioners should resist the temptation to apply industry and business-oriented planning and implementation approaches to the management of educational innovations in developing countries. Strategies to implement educational technology should make room for a gradual phase-in. Implementation schedules should be flexible and should have a built-in mechanism for analysis in order to make room for mid-stream corrective measures that would ensure continuity. The process whereby project characteristics are modified to allow for an adaptation to the changing institutional setting, and vice versa, should be encouraged. This can be achieved by formulating projects that have the following characteristics:

a. Project objectives should be such that they can be reduced or modified during implementation.

b. Project implementation schedules should be in phases, simple and flexible enough to allow adaptation and to ensure incorporation into the existing system.

c. Expectations of the outcomes of the project should not be too high and should be based on criteria relevant to circumstances in a given setting.

d. Results should be measured not only in terms of short-term instructional effectiveness but also in terms of long-term social behavioral changes.

e. Implementation monitoring should be consistent and should provide information for midstream changes in schedule and organizational pattern.

Regular Research on Policies and Implementation Strategies

8. Policies and implementation strategies of technical assistance programs supporting educational development in developing countries should be subjected to regular analysis on a case-by-case basis, and findings should be made more open and accessible to the public than the present practice allows.

Conclusion

The search for new resources and strategies to support educational reforms in Africa has had its share of failures and successes. All in all, the picture is not as bright as was expected. Communication technologies were expected to stimulate rapid expansion of educational opportunities in order to produce the needed human resources to support development efforts in post-independence Africa. Because of weak national economies and lack of an adequate local technological base, earlier large-scale efforts to transfer modern educational technologies to Africa had a minimal effect on the quality and quantity of education. Some expansion did occur. But the question is whether it was adequate or appropriate enough to support effectively the development efforts of post-independence Africa.

In Africa generally, there are still serious teacher shortages on all levels of education. The rate of drop-out, repetition, and illiteracy has not decreased significantly. On the economic side, the rate of youth unemployment is increasing, living conditions in most African countries have deteriorated, and national economies are rapidly declining, resulting in political unrest. The educational technology miracle did not happen.

Or was it that technology was 'mis-transfered' and misapplied? In retrospect, it is easy to see how such failures could have been avoided with better planning and implementation. African societies, however, have undergone tremendous political and economic changes. New situations have arisen, bringing about new problems and new challenges to educational development efforts. The search will continue for new strategies and resources to help improve education and satisfy growing manpower needs. Meanwhile the technological and economic gap between the industrialized societies and most African countries continues to widen. If the new and advanced communication technologies are to make any positive impact on Africa's educational development effort, the process of transferring them from the developed nations should be tempered with caution and be guided by the lessons of the last quarter of a century. ■

Dr. Ofori-Ansa is a lecturer in African educational development and culture at Howard University in Washington, D.C. He was formerly a professor of education at Accra Teacher Training College in Ghana.

(**Villages** continued from page 6)

center.

Eventually, I found the best way was to involve villagers directly in the planning and production of picture series.

My method was to choose a village where a development idea had been successfully applied, and then to select a group of villagers and ask them to tell with pictures why they had adopted the idea. They planned the story-line and composed the pictures; I shot them. The narration was written jointly and recorded by the villagers. The final product became a testimonial from one village group to other village groups on why they adopted a particular idea, ranging from ox-ploughs to sanitary latrines.

The final step was to create an effective method of using picture series in villages. I settled on a slide series with a recorded narration as format. I then designed a means of distribution which depended on the villagers themselves. This was an audiovisual kit which can be carried on the back of a bicycle and includes a 12-volt projector and a cassette recorder, both powered by generators fitted to the bicycle. It requires no petrol and no batteries. The advantage of this small kit is that it can be left in the village for weeks at a time. A village worker, paid on a part-time basis, can show the picture and answer questions. Many small showings can be scheduled at times which are convenient for the people in the village.

Reporting on Concrete Results

As a result of producing these picture series with villagers, I found that I also developed a new attitude toward the role of communication workers in development. I began to see specialists in development communications primarily as journalists, not producers. The first requirement of a successful picture series, I found, was a successful village project on which to base it.

This would mean, for instance, that to educate village women about a balanced diet, the first step would be to find a village where this has actually happened. This might be a village where a cooperative had started to raise chickens and a group of women had planted beans. Should a setback have occurred, such as the treasurer running off with the money, this would also be portrayed in the picture series, along with the remedial action taken. The essential characteristic of the village selected for the series would be that the results of the project were visible. Picture series for villagers are effective only if they are based on actual occurrences, not merely on advocacy or promotion.

What this means is that communications workers must be effective journalists if they are to be effective educators. Before snapping the first picture or drawing the first storyboard, they must be able to see how a project is operating in the field. Only then will they be able to make audiovisual or other aids which present concrete, realistic options likely to motivate villagers to reassess their own practices in favor of more productive alternatives. ■

John Siceloff has worked in communications and development in Afghanistan, Peru, and Tanzania, and is working on a book on the subject.

Reprinted by permission from UNICEF News, *Issue 114/1982/4. Further information about UNICEF and its work may be obtained from: UNICEF Headquarters, United Nations, New York 10017, USA.*

(**Computers** continued from page 2)

though the smaller memory and storage space available in microcomputers precludes easy adaptation of the bigger programs.

Teaching programs for microcomputers are usually small efforts, aimed at providing game-like instructional activities to supplement teaching in specific topics. The programs are intended for occasional rather than daily use, and few guidelines exist to help teachers integrate the use of CAI programs into their planned curriculum. Only a knowledgeable and well-trained teacher can successfully select, from the miscellany of available small programs, a mixture that is well integrated with on-going instruction and well suited to the needs of individual students.

Not much research has yet been undertaken on the effectiveness of programs produced for microcomputers. However, one would expect greater variance in quality among the microcomputer programs than among programs for larger machines, primarily because small producers of microcomputer software are not subject to the kind of quality control that has existed in producing programs for mainframes and minicomputers. This works in two ways. On the one hand, some independent entrepreneurs have little interest beyond producing a marketable item which may have much immediate appeal but no enduring educational value. On the other hand, precisely because there is less bureaucratic encumbrance, some truly innovative and educationally knowledgeable people are producing excellent programs.

Although there are teaching programs that are remarkably effective, the decision to use a particular program must be based on its cost as well as effectiveness. This is especially true for the developing countries that cannot afford to purchase expensive systems simply to improve the quality of instruction, much as they would like to. Since much of what is taught by educational computer programs could be taught by other means at lesser cost, no matter how good the computer programs may be, they might not be suitable for use in the developing world. This is not to say that all educational applications of computers are out of the question for poorer countries, but the decision to use them ultimately rests on their cost effectiveness, rather than simple effectiveness. It must also be considered that a program that is cost effective in the United States due to savings in labor costs may not be so in another country where teacher salaries are lower.

Even with cost in mind, there are several possible applications of computer-assisted instruction in the educational systems of developing countries. One of these is for remedial instruction, which has proven one of the most cost-effective applications of computers in U.S. schools. For any country that is now providing small-group instruction for students who are below grade-level, drill-and-practice by computer might, in fact, be quite cost effective. A potential problem with this application, however, is the development of suitable software. Programs that are designed for the United States are probably not suitable for most other countries. The content may not be appropriate; reading and sosial studies programs, for example, are specific to both language and culture. The style of instruction and format of programs may also be inappropriate; many of the programs now available for microcomputers are more concerned with motivation than with teaching, which may be neither acceptable nor appropriate in other countries.

Computers for Advanced Courses

Another cost-effective use of computers in education is in classrooms with low student/teacher ratios. This most often occurs in university classes on such advanced technical subjects as topology, thermodynamics, multivariate analysis, and econometrics. In some countries, there may be very few students for even less advanced topics, such as probability theory, differential equations, and organic chemistry. The cost of providing a qualified instructor for only a few students may well be higher than the cost of providing tutorial instruction via computer, especially if the programs can be used, and the development cost shared, by several countries.

A third, and even more promising, possibility is to prepare instructional programs that teach computer literacy and programming. There will be an ever-increasing demand in the Third World for instruction about computers themselves, and there are now few qualified instructors. Several successful experiments have shown that students can learn programming from instructional programs, even in the absence of a teacher. Here again, there may be only a few students in any one location (at least in the immediate future), so the cost savings would thus derive from sharing development costs.

To sum up, many of the common educational applications of computers in the industrialized world today will be in wide use in the Third World in the near future. Particularly likely to be transferred are microcomputers for drill-and-practice and for remedial in-

(continued on page 15)

(**Computers** continued from page 14)
struction, and specialized technical courses by computer for advanced education.

Cost effectiveness is an issue that needs careful review, with local teacher salaries factored into hardware and software purchasing decisions. As more evaluations of programs and software become available, it will be easier for decision-makers to have a basis on which to judge and compare the merits and relevancy of various systems to their unique situations.

It is hoped that the U.S. experience with CAI over the last 20 years will be of value to developing countries, and that this experience may help such countries to avoid some of the start-up errors that so often go hand-in-hand with the introduction of any new technology. ■

Jamesine Friend has worked in education for 20 years, with over ten years in the design and production of computer-assisted instruction. She was the Overseas Director of the Radio Mathematics Project in Nicaragua.

(**PRONALF** continued from page 16)
course. While newspapers and posters have been amply used for general publicity purposes, PRONALF has employed other more typically Mexican media often in combination with street or community events.

One such use is the *manta,* a printed sheet of canvas which is often strung on buildings or hung across the street to advertise anything from the local dance to the visit of the President. In the case of PRONALF the *manta* was successfully used in combination with street marches designed to call attention to the Program and to recruit *alfabetizadores.* Those taking part in the march are usually *alfabetizadores* or new literates.

Usually accompanying street marches of this kind are mobile sound units giving out information on courses and where to join them. *Volantes* or handouts are also frequently used.

Television

Television was used from the outset by PRONALF as a means of creating public opinion with regard to the illiteracy problem in Mexico. Later it was used to train *alfabetizadores,* but more recently it has come into its own through a television literacy series which has had by far the greatest impact of any of Mexico's educational television programs.

The use of television for calling attention to the importance of adult basic education centered round the theme: *No Hay Desarrollo sin Educación* (Development doesn't happen without education). In the main, these commercials were directed towards an urban audience showing housewives, factory workers, construction site workers, and rural migrants to the city. Messages centered around one of the 14 generative words used in the literacy method.

Although the television was used principally to recruit *alfabetizadores* and to create public opinion, there were some TV spots that were directed to the illiterates. These had a strong emotional appeal; one showed a rural migrant recently arrived in the city trying to find his way about but unable to read street signs or bus numbers; another showed a little girl reading a letter to her grandfather—the letter was from her father working in the United States; another showed a typical Mexican provincial scene, that of the scribe seated on the pavement with his typewriter while a young Mexican girl dictated a loveletter to her boyfriend; another showed a bricklayer—again a recent rural migrant to the city—unsure whether what he was being paid by the boss was what was owed him in wages. The message behind all of these commercials was, learn to read and write so that you can stop depending on others.

By far the most important use of the television in PRONALF, however, has been the television series *Aprendemos Juntos* (Lets Learn Together). *Aprendemos Juntos* combines literacy teaching with a popular drama series something along the lines of Britain's *Coronation Street.* Ten minutes of each 30-minute program is dedicated to the use of the alphabet, and 20 minutes to the lives of six adults who decide to join a literacy group and who all live in the same part of the city. The ten minutes of actual didactic content is dramatized through the participation of the six characters and the *alfabetizador* who is also an actor.

Students following the television series use a specially designed coursebook in combination with the television classes. They receive support from a *visitador,* a tutor who visits them at least once a week at home and an *orientador,* a literate member of the family or a neighbor who provides support and guidance of an informal kind.

The TV series is broadly based on the direct group literacy method. The majority of students study on their own at home. In addition, some study groups have been formed, taking advantage of neighbors who own a television set or community classrooms used by the national system of secondary education through television—*telesecundaria.*

But whereas the direct literacy method uses printed media as a stimulus to the group discussion which precedes learning to read and write, the television literacy method uses dramatized situations. In the series, a study group is formed composed of Doña Chole, a street vendor; El Sonora, an apprentice mechanic; Nacho, an unemployed aspiring boxer; Don Eduardo, a carpenter; Ursula, a servant; and Raquel, a housewife. The *alfabetizador,* Samuel, is a foreman on a building site.

The characters are all played by Mexican actors who to a certain extent have made their fame with the program. The dramatized situations which affect the lives of the characters are those which affect illiterates and the poorer working classes in Mexico in general. Community problems such as lack of drinking water, rubbish collection, transport, etc., are portrayed, as are problems such as being cheated and general corruption.

Aprendemos Juntos surpassed all expectations in the response it has had from the general public, whether illiterate or literate. It owes its success not only to the fact that it manages to combine educational content with an enjoyable dramatized format, but it is also a genuinely Mexican series. The greater part of Mexican television is composed of American films and series; those programs that are produced in Mexico tend to center round passionate dramas of middle and upper middle class Mexican life, little related to the problems and lifestyle of the great majority of Mexicans. *Aprendemos Juntos* sets its characters in a poor working class community; they are true to life and the public identifies with them.

The series is broadcast throughout Mexico on local TV channels. Each course lasts 100 hours of broadcasting time and takes the student four and a half months to complete.

Radio

Radio was perhaps the least used of the media in PRONALF until recently. It is now developing into one of the most important aspects of the program. It offers support for the direct literacy method and develops an alternative literacy-through-radio method similar to the television literacy program. But whereas the TV literacy series has been directed at an essentially urban audience, the radio aims at Mexico's rural population.

The radio support service was set up in July 1982, one year after the start of the program, with the aim of providing publicity for the direct and TV literacy classes, of motivating the adult illiterate to join a study group, and of preventing drop-out, which has been a considerable problem throughout PRONALF's history. At the moment it is in its pilot stage, but results from radio projects set up in three states have been encouraging, and the radio program will be extended to the rest of the country shortly.

The radio program put out by the radio support service is called *Nuestras Palabras* (Our Words), and the emphasis throughout is on the participation of the illiterate, the literacy student, and the neo-literate in the program. The program combines news, chat, and music; the news section gives the latest information on literacy classes and adult education, it puts *alfabetizadores* in contact with each other and answers their queries, while the music is almost always local and regional.

Mexico has a rich and diverse regional musical tradition, which the program *Nuestras Palabras* emphasizes. Pop and western music are frowned upon. An important part of the program is the interviews carried out among adults who are actually studying or who have

(continued on page 11)

Mexico's National Literacy Program

Mexico's Programa Nacional de Alfabetización *was launched in July 1981 with a goal of making literate one million adults in one year. Linda King de Jardón, who works for the program, describes its use of media.*

Census figures have recorded an illiteracy figure of 6.5 million in Mexico for well over half a century; but while in 1930 this represented 63.6 percent of the adult population, the percentage had decreased to 16.8 percent in 1980. Nevertheless, one in six Mexican adults is illiterate, according to the statistics, and recent studies have estimated that over 26 million adults lack basic education, making the number of functional illiterates much higher. Approximately 60 percent of the illiterate population is female and there is a tendency for the proportion of women illiterates to increase as the overall number of illiterates decreases.

The problem is even more serious when one takes into account the fact that probably at least a third of the illiterates in Mexico do not speak Spanish as their first language, while others do not speak it at all. There are over 50 Indian languages in Mexico with strong local differences between the various languages, making the problem extremely complex, especially in the context of the literacy program. Illiteracy is on the whole largely a rural problem in Mexico, but with the growing number of peasants leaving the countryside to look for work in the big cities, it has recently become an urban problem too.

It is in this context that the *Programa Nacional de Alfabetización* (PRONALF) was created: to offer literacy and numeracy to all adults over the age of 15. A year from the outset, PRONALF had made literate 700,000 adults. The goal of one million was reduced owing to initial difficulties in incorporating students and to public spending cuts brought on by Mexico's current financial problems.

But the literacy program itself ceased to have a temporary nature and was incorporated into the recently created National Institute for Adult Education. This covers not only adult literacy but also primary and secondary education for adults and nonformal education based on community centers known as *salas de cultura.*

Initially, PRONALF used one literacy method and one organizational structure; more recently, however, it has been developing ways of diversifying the types of educational alternatives it offers. In the search for developing new ways of reaching and attending the illiterate population, the media, particularly radio and television, are playing an increasingly important role.

Print Media

The printed media have been used in PRONALF in two main ways: first and perhaps most importantly, as part of the literacy method employed, and second, in diverse and sometimes unusual ways as publicity and information about the Program itself.

PRONALF uses what it calls a direct group method of literacy training. This is broadly based on the Paolo Freire method and uses a series of 14 generative words which are discussed and analyzed in the study group before the student learns to read and write and form new words. Each word was chosen for its relevance in the Mexican context and for its syllabic variety. The method demands that the word be broken down into its different syllables in such a way that from the syllables new words may be formed.

Hence from the word pala (spade), the first word which the student learns, are formed the syllables pa pi po pu pe and la li lo lu le; from these new words can be formed such as pipa (pipe) pila (battery) pelo (hair) etc. The words used in the classes cover a variety of situations: pala (space), vacuna (vaccine), basura (rubbish), medicina (medicine), cantina (bar), trabajo (work), guitarra (guitar), familia (family), leche (milk), tortilla (maize pancake), piñata (Mexican toy or game), casa (house), mercado (market), and educación (education).

To support the discussion phase of the literacy class, large-scale black-and-white photographs illustrating the different generative words are presented for decodification and analysis by the students. For the word vaccine, for example, there is a photograph of a farmer injecting his cattle and another of a mother holding her baby while a nurse applies an innoculation. Once the word has been decoded through the use of the photographs, printed strips show the word itself and the syllables it contains.

The printed media also play an important part in the publicity and information for the program on two levels. On the one hand they are used to create awareness of the illiteracy problem among the general public, in the main through newspaper advertisements; on the other, as means of recruiting *alfabetizadores* (literacy teachers) to teach reading and writing.

For obvious reasons, the printed media have been used less than television and radio in inviting illiterates to register for a literacy

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1414 22nd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

Judy Brace, Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Assistant

ISSN 0192-1312

AED
International Division
Academy for Educational Development

Development Communication; Educational Media in Africa; Computers for Education; Literacy

development communication report

1414 22nd Street, N.W.
Washington, D.C.
20037 USA

December 1983
No. 44

From Oral Traditions to Elementary Textbooks: A Description of the Maternal Languages Project in Niger

by Connie L. Stephens

The Sahelian Republic of Niger is one of many African nations working to reform a school curriculum inherited from the colonial experience. Introduction of maternal language (mother tongue) instruction at the primary level is being tried across the continent, especially in French-legacy nations. (British-legacy states often inherited primary maternal language instruction as an element of "indirect rule," but no word of any language but French was sanctioned in French colonial classrooms.) Niger's neighbors, Togo, Upper Volta, and Senegal, are currently developing maternal language instruction, sometimes as a subject matter and sometimes as the medium of instruction.

Multiple advantages, both pedagogical and cultural, are cited for teaching literacy in a child's mother tongue before introducing a foreign language. Maternal language literacy should be easier to retain both because these languages of childhood are constantly used, and because their newly developed spellings remain largely phonetic, making them easy to write. Additionally, teachers find that French is mastered more quickly by students who already read and write their own language. Subjects like arithmetic are covered much more rapidly in the early grades when they can be taught in a familiar, not a foreign-language, vocabulary.

Parents can more readily participate in their children's schooling when they share the language of instruction. An appreciation for the values and skills vital to the rural areas where most students will live is better communicated in the community's indigenous language and oral art forms. Despite economists' concern about the growth of the private as well as the public sector, the goal of most Africans with a French education is to obtain a civil service position. Properly planned, a bilingual curriculum could help to diversify students' expectations and qualifications.

Drop-out rates in Niger's traditional schools are high; less than a third of primary students go on to secondary school, and many leave earlier. The school leavers have mastered only a limited amount of French, and this often atrophies from disuse, especially among village women. They have oral skills in their mother tongue, but their literacy is restricted to inadequate French.

Within a broader context of educational reform, Niger is experimenting with maternal language instruction in grades one to three. In these early grades, some 25 experimental schools distributed throughout the country are using one of five national languages—Hausa, Zarma-Songhai, Fulfulde, Tamajaq or Kanuri—as the language of instruction. French is not introduced until the later grades, when it becomes the medium of instruction and of standardized examinations, as in traditional schools.

The curriculum in these experimental schools for the early grades is also innovative, and favors an interdisciplinary approach. Lessons in various subjects are linked at any given time by a theme selected by teachers and students. The school year progresses through a series of themes related to the children's community. Examples include: the blacksmith, the market, marriage ceremonies, and domestic animals. Practical, manual activities are taught with the goal of presenting applied as well as theoretical training. For almost a decade, teachers have been forced to improvise their own teaching materials since no appropriate textbooks existed.

In this context, INDRAP (Institut National de Documentation, de Recherches, et d'Animation Pedagogiques), Niger's national pedagogical institute, in collaboration with USAID, designed a textbook project which was built around a recorded collection of oral traditions. Once assembled, this collection served as a resource to draw on for production of readers for grades one through three. These readers provide content appropriate to the curriculum described above, and serve as an archive of oral traditions for future use.

The Institute's procedure for producing elementary readers in maternal languages has not only yielded the desired books, but has also facilitated institutional development in several Nigerien organizations committed to producing national language materials. The project has had several phases, including: a) the collection, transcription, and cataloging of oral materials, b) the preselection, adaptation, final editing, and illustration of texts, c) the publication of the textbooks, d) the evaluation of the textbooks.

Over 70 primary school teachers participated in the collection phase during the summer vacation of 1981. Most teachers spend their vacation in the villages where they grew up and were thus able to record oral histo-

(continued on page 2)

In this issue . . .

Nigerien Project Turns Folktales into Textbooks 1
Applying Formative Evaluation to Educational Media 3
Community Radio and Local Music 4
On File at ERIC 5
Guidelines for IEC Planning 6
NFE Center Publications 7
A Communicator's Checklist 8
Keeping Current 9
On Introducing Microcomputers ... 11
New Uses for Pocket Calculators 11
Agricultural Extension and Mass Media 16

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(continued from page 1)

ries, folktales, songs, games, riddles, proverbs, and personal narratives from performers they knew well. For centuries these oral arts have constituted one element of Africa's informal education system.

The 70 teachers were selected to assure a distribution of regions and dialects for each of the five languages. Teachers from experimental schools were given priority, with instructors from traditional schools and four Hausa-speaking adults who had graduated from adult literacy courses making up the rest of the group gathering oral traditions.

Participants were divided between two training centers according to language groups. The Zarma, Tamajaq, and Fulfulde collectors were trained and supervised from INDRAP in the capital city of Niamey, while the Hausa and Kanuri groups worked from the Teachers' College in the departmental seat of Zinder, in central Niger. The two weeks of training in each center included language transcription (the writing down of the oral language), research methods (especially data recording and cataloging), tape recorder use and maintenance, and the appreciation of literature and oral traditions in these languages.

The use of Hausa was notably encouraged by the four adult literacy participants during that group's training. Since, unlike the teachers, they were not francophone, nearly all coursework was conducted in Hausa. Such situations encourage the invention and standardization of technical terminology in national languages, an ongoing need in the maternal language education effort.

Before returning to their villages, trainees were issued small Panasonic RQ 230 9A tape recorders, batteries, and a box of 20 cassettes. Supervisory teams composed of at least one linguist and one pedagogical advisor visited each collector twice during the following two months.

The first supervisory visit involved a careful examination of the collector's transcription and cataloguing methods. Since major transcription difficulties usually stemmed from incorrect word division, the INDRAP staff recognized the need for pedagogical grammars to clarify these rules. The information recorded as research data included the performer's name, gender, and age; the genre and title of the selection; the performance site and audience; and a number corresponding to the pre-established cataloging code. The code indicated both the collector and the dialect area in which he or she recorded.

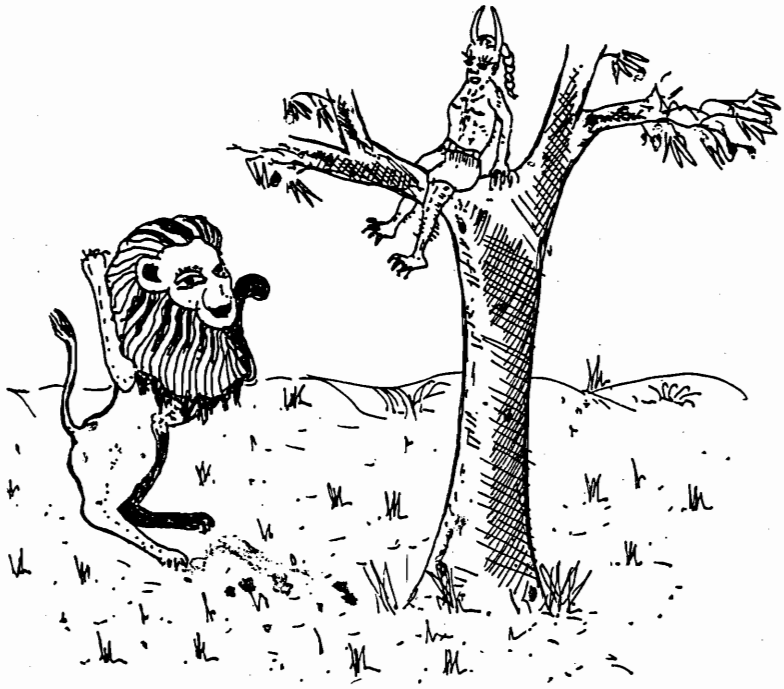
Using such a cataloging system was new to most researchers, but would prove crucial once the tapes were assembled at INDRAP. Without this information, access to the recordings would be impossible and future use for historical or other teaching materials would be jeopardized. We explained to participants that no payment could be made for recorded tapes without accompanying data, since a secondary objective of the summer's work was to amass a recorded archive. Most of them came to understand that their written data for the catalogue was as important as the recordings they collected.

During the second supervisory visit, materials were collected and the field researchers paid. They received four times the amount for transcribing a cassette as they did for recording it. Throughout the project, such piecework payment proved satisfactory for a variety of tasks (recording, transcribing, editing, illustrating). Collectors who had recorded ten or more cassettes were given a small lump sum intended as reimbursement for gifts to performers.

When all the cassettes were assembled at INDRAP, they were labeled and cataloged broadly, by language and dialect, and more specifically, by genre and title. Secondary school leavers were recruited and trained as transcribers to continue this huge task. Paid at the same rate as their teacher predecessors, they were permitted to check out tape recorders, since INDRAP's physical facilities are limited. The best transcriptions resulted when their early work was rigorously reviewed, both for fidelity to the recording and for correct transcription. In addition to advice on word division problems, they often needed guidance on paragraphing and punctuation, since their schooling in French was relatively limited. Some transcriptions had to be redone, but this time and effort invested by INDRAP's staff produced encouraging results. The broader project goal of increasing the number of Nigerien personnel who were literate in national languages was also advanced. Several students enrolled in national language courses at the National Administration School worked on the project as well.

Near the end of the school year, preparations began for a two-week working seminar in August. Seminar participants would review and revise pre-edited texts for final publication. Prior to the seminar, texts for the proposed books were selected on the basis of

(continued on page 10)



A H A R D - A G G - Ǝ S U F

Agg-asuf eraw fal afalla an tadghamt, ahar da, illa daw-as eraw, anta Anaba ira egashek n-ahar a da, inkar s-amaḍal isabbalalaq. As ijawankat ahar, iggad Anaba iftan tadghamt, inkar as tabalulaq nad n-amaḍal, iget ghur

Drawings by local artists illustrate the folktales newly transcribed and written by the Text Preparation Project in Niger. The language shown here is Tamajaq.

Formative Evaluation in Educational Radio and Television: A Fundamental Need in Developing Countries

by Gale R. Adkins

There are many factors which influence Third World countries to fashion their radio and television programming after that of the United States and Western Europe. Increasingly this Western-type programming is being viewed as a mistake, and local audiences are calling for more locally relevant radio and television. Formative evaluation can be a very important corrective tool.

Where radio and television have been used for educational and developmental purposes in Third World nations, voices increasingly call for programs with a more realistic approach, better designed for actual needs, and more appropriate to the interests and psychology of the target audiences. These are rejections of assumptions made by producers who are either acting upon the wrong conclusions about the audience or who have simply overlooked factors of importance. Consider these comments:

From the Director of Audience Research, Sri Lanka Broadcasting Corporation: "It would be useful to find out which goals the target audience would really like to achieve. Equally important is to find out how the listeners are likely to perceive messages. . . . Another aspect which needs attention is knowing which messages appeal and which do not."

From the Director of Farm Programming, Radio Bangladesh: "Radio Bangladesh was particularly keen to establish the characteristics of the target audience, their information needs and what kind of programmes interest them most, what the barriers are in communicating the message through radio, what kind of information is considered most credible. . ."

From an educator at the University of Hyderabad, India: "The most formidable problem . . . is that the majority of programmes are not based on need . . . Programmes on obesity transmitted to hungry labourers, for example, speak for themselves in terms of irrelevance . . . Message factors such as confidence, credibility, and persuasive conclusions are altogether neglected . . . Programmes are produced in isolation from broader social realities . . ."

These are, in fact, calls for formative evaluation, or, as it is also called, formative research. What is formative evaluation? As applied to radio and television programs, the term refers to a broad range of systematic investigations calculated to produce guidelines leading to the program form, content, and manner of presentation that will most effectively accomplish the defined purposes of a program. In the most basic terms, decisions concerning how to reach the audience, what needs to serve, and how best to achieve message understanding and acceptance can be made on the basis of data derived from the intended audience. Materials can be tailored for the actual users instead of being modeled after programs produced elsewhere in the world for people of different backgrounds, needs, and preferences. Assumptions and guesswork are replaced by interpreted data and empirical evidence.

Areas of Formative Evaluation

What kind of undertakings are involved in formative evaluation? What is actually done? A classification of formative evaluation activities will show the range of concern as well as indicate the purposes and functions that formative research can be used to serve.

1. *Context analysis.* An inventory of characteristics of the total environment in which a proposed program series will exist—aspects of culture, language, village life, economy, literacy, traditional information sources, education, politics, and media use patterns. Consideration of what these realities will mean in the use of and response to the programs.

2. *Needs assessment.* Identification of needs the radio or television programs might serve, establishment of priorities, and a decision as to the precise needs they will undertake to serve in view of all conditions. This leads to the formulation of specific goals and objectives.

3. *Problems analysis.* Examination of the root causes of the needs to be served and the problems behind those needs. An attempt to understand more profoundly the origins and dimensions of the needs the programs will address.

4. *Audience characteristics.* The nature of the target audience in terms of age, entry-level knowledge, vocabulary, biases and predispositions, conceptual structures, credibility factors, motivations, interests, value systems, attention span, and other relevant elements of audience profile.

5. *Delivery system constraints.* Recognition of limitations stemming from the medium used; viewing or listening conditions; nature and dependability of receiving equipment; credibility of the medium; need for reinforcing or interacting systems.

6. *Communication content and strategies.* Selection of the design and content that is most appropriate to achieve the designated goals and objectives. Selection of the means and devices for presenting that content. Generating alternative strategies of presentation and testing alternatives to provide bases for decisions. Research-based answers may be sought concerning such matters as choice of program format, program length, segment length, choice of talent or music, amount of entertainment content, amount of new informational content, choice and presentation of visuals, integration of program elements, amount and means of repetition, comprehensibility, attention-holding power, activity-eliciting potential, integration of supporting media materials, and identification of communication barriers.

7. *Input and feedback systems.* Establishment of either short-term or continuing systems to solicit response from audience groups, classroom teachers, or other qualified observers. Such feedback can be useful in the evaluation of such things as audience appeal, fulfillment of needs, and nature and extent of utilization. Results would be fed immediately into the production process as a guide to further planning and decision making.

8. *Utilization factors.* Determining how the program content is really being used. Careful examination should reveal things that work especially well and things that do not. Inspecting the relationships between the radio or TV program, supporting media materials, and other active sources of information and influence. Determining what changes are needed to improve utilization and obtain better results.

Some Guidelines for Formative Evaluation Activities

Set Research Priorities. It may seem that formative evaluation for a broadcast series could become as complicated, time-consuming, and expensive as the production project itself. Is it practical and realistic to employ such methods? Fortunately, the role of research in program preparation need not be a matter of full-scale use or none at all. Obtaining a research-based answer to one key question regarding how a program is to be done is using formative evaluation and reducing the guesswork. Only in an ideal situation not yet known to exist could one expect to have research resolve every dilemma along the path of program planning and production. Research priorities can be established and those questions that seem to be most important can be given the available formative research attention. Moreover, findings obtained in one investigation will often be applicable in future situations, and the stockpile of research-based guidelines begins to grow.

(continued on page 14)

Community Radio in Ecuador Playing Local Music, Strengthening Cultural Ties

by Kurt Hein

Two previous articles (see *DCR* 40, December 1982, and *DCR* 42, June 1983) examined some of the reasons for the success of Radio Baha'i, a community radio station serving the rural, indigenous population in the vicinity of Otavalo, Ecuador:

- it broadcasts predominantly in Quichua, the home language of the audience, while other stations broadcast almost exclusively in Spanish;
- most of the staff, including several women, are recruited from among the local people;
- it places a priority on program content over sophisticated broadcast technology; the equipment is a far cry from "state-of-the-art;"
- the staff, many of whom are illiterate, had no prior training in broadcasting;
- its innovative news programming focuses exclusively on information of interest to the *campesinos* (rural peasants);
- it serves as a credible change agent by ensuring that the development messages it broadcasts are appropriate and relevant to the needs of the audience.

Such policies demonstrate the station's commitment to its audience, but the station's effectiveness is wholly dependent upon the creation and maintenance of a large and loyal listenership. Perhaps the most significant factor thus far contributing to Radio Baha'i's success, and the main reason for its popularity, has been its commitment to playing indigenous music.

Radio Baha'i has played a significant role in revitalizing traditional music through its programming and through its sponsorship of what has become Ecuador's most popular festival of traditional music.

The primary attraction of radio for the *campesinos,* as for listeners everywhere, is unquestionably music. They prefer national and indigenous musical selections to the "pop music" most often identified with Western stars. The most popular tunes among the *campesinos* are the "pasillos," "albazos," and "sanjuanitos," which use a variety of instruments, all of which are associated with Andean music. The stringed instruments are usually the guitar and the *charango,* (often likened to a ukelele, using an armadillo shell as the resonating chamber). Wind instruments include the cane flute and the *rondador,* which is a series of pipes bound together.

At the time Radio Baha'i initiated its broadcasts in 1977, traditional Andean Indian music was experiencing a serious decline. This was largely due to the fact that commercial radio stations, the primary source of music programs, aim at the wealthier white and *mestizo* markets. The powerful Quito stations broadcast predominantly "pop music," which the smaller, rural stations increasingly were imitating. This offered the *campesinos* little opportunity to hear the kinds of indigenous and regional music that most appealed to them.

This lack of air time also had a negative impact on the popularity of indigenous groups and their recordings. By the late 1970s, about the only place one could hear traditional music forms in Ecuador was at major festivals and at tourist-oriented nightclubs.

As part of its conscious attempt to serve the *campesino,* Radio Baha'i decided that it would broadcast traditional music exclusively. This decision has been carried out in two ways. First, the great majority of programming on Radio Baha'i (approximately 60 percent) is music. All music programs on the station are pre-recorded, drawing on the station's extensive, continually expanding library of recordings from the Andean region (including Ecuador, Colombia, Peru, Bolivia, and Chile.)

Second, beginning with the festival celebrating its inauguration, Radio Baha'i has sponsored an annual festival of traditional Andean music, "Nucanchic Tono" ("Our Music"). The first year of the festival, only 13 groups that played traditional Andean music could be located in the Otavalo region and several of these had been formed for the purpose of participating in the competition. Nonetheless, approximately 700 people attended that inaugural festival.

The festival's popularity grew rapidly. In 1982, more than 35 groups registered to participate. This necessitated holding preliminary "elimination rounds" for the festival. The staff decided that the best place to conduct the preliminary rounds was in rural villages. Community leaders were approached by station staff and formal requests were made to conduct "mini-festivals" in the community.

For most of the communities, it was the first time such an event had been brought to their village. On the day of a preliminary festival, portable sound equipment and a stage were loaded onto Radio Baha'i vehicles and transported to the *campo,* where local groups performed in front of members of their own community. Six such festivals were held, with a total attendance exceeding 3,500. Twelve groups were selected to perform in the finale, held in Otavalo. It was attended by more than 7,000 people, the great majority of the *campesinos* from the rural villages. "Nucanchic Tono" has become one of the largest festivals of indigenous music in all of South America.

Additional steps have been taken by Radio Baha'i to promote indigenous music. Each of

(continued on page 6)

The group Inca Llacta *(Land of the Incas), winners of the Fourth Annual festival of indigenous music,* Nucanchic Tono *(Our Music), sponsored by Radio Baha'i, Otavalo, Ecuador. The group, which formed in 1978 to compete in the first festival, now tours professionally throughout the Andean region and has made several recordings.*

On File at ERIC

Recent entries in the ERIC (Educational Resources Information Center) files reviewed in this column are concerned with computerized information services, computer applications in information dissemination, educational uses of mass media, the economic analysis of educational media use, and media material development and exchange. All are available on microfiche and two in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, U.S.A. Be sure to include the ED number.

- Hummel, Eckart. *Computer Communications and New Services. CCITT Achievements.* 1980. 18pp. (ED 228 999)

New non-voice services (sometimes also called information services) and the possibilities of telecommunication networks to support them are described in this state-of-the-art review. It begins with a summary of the various data transmission techniques, which include several types of data transmission over the telephone network: general, telegraph multiplexers, data multiplexers, modems for leased circuit applications, and modems for the switched telephone network. Tables are used to list specific equipment and provide additional technical details. The second section covers data transmission over public data networks and discusses user classes of service (start-stop, synchronous, and packet-operating mode of the terminal), user facilities, and data communication policy. Necessary characteristics of text for communication service (Teletex) are outlined, and features of subscriber facsimile service and videotext service are discussed. This paper was presented at the Regional Seminar on Techniques for Transfer of Scientific and Technological Information in Latin America and the Caribbean which was held in Mexico City, June 11–15, 1979. Available from EDRS in microfiche only for 97¢.

- *Unesco Regional Meeting of Computer Centre Directors in Africa (Arusha, Tanzania, April 14–18, 1980). Final Report.* 1980. 116pp. (ED 227 820)

The main points on the agenda of this meeting attended by eight chief participants from seven Unesco member states in the African region and several observers were (1) presentations by participants on their experiences in the application of informatics (i.e., computer applications in information dissemination) in the region; (2) problems in education and training in informatics; (3) formal education and training in informatics; (4) advanced workshops for existing personnel and education of management and users; (5) computer procurement in the region; (6) hardware and software developments and the establishment of research projects; (7) computer applications with particular relevance to the region; and (8) major issues in informatics in Africa. This report summarizes the planning and conduct of the meetings as well as reports on informatics programs and presentations by the participants, and presents 13 recommendations formulated by the participants. Extensive appended materials include the meeting agenda; addresses delivered at the inauguration ceremony; presentations made by participants (M.N.J. Lambert, Zambia; P.E. Chilambe, Malawi; O. Abass, Nigeria; P. E. Mugambi, Uganda; R.J.P. Scott, Kenya; William D.S. Magambo, Tanzania; and Signate Cheikh Oumar, Senegal); reports on Unesco's informatics program by E.A. Owolabi and the activities of the Organization of African Unity in informatics education by O. Abass; a working document prepared for the meeting; and a participant list. Available from EDRS in microfiche for 97¢ or in paper copy for $9.15.

- Courrier, Kathleen, Ed. *The Educational Use of Mass Media. World Bank Staff Working Paper No. 491.* 1981. 131 pp. (ED 229 002)

This seven-chapter volume presents eleven papers dealing with the issues commonly encountered by educators and decision-makers in less developed countries when they consider the use of mass media to further their country's education and development. Individual topics and their authors are (1) "Marshalling, Managing, and Evaluating the Mass Media for Education and Development," by Shigenari Futagami; (2) "Do Audiovisual Media Possess Unique Teaching Capabilities?" by Janet Jenkins; (3) "The History of Nation-Building and the Future of Local Broadcasting," by Shigenari Futagami; (4) "Networking and Local Broadcasting: A Choice?" by Gloria Feliciano; (5) "Local Broadcasting and Community Media," by Alan Hancock; (6) "Can Mass Media Be Effective in Curriculum Improvement?" by Takashi Sakamoto; (7) "How Can Radio Be Usefully Applied to Education and Development?" by Hilary Perraton; (8) "Choosing Instructional Languages for Educational Radio Broadcasts in Less Developed Countries," by Wallace Lambert and Nelly Sidoti; (9) "What Does Educational Television Offer Us Now?" by Albert Horley; (10) "Photovoltaic Power for Communications," by Gerald Hein; and (11) "Selecting Appropriate Media," by John Tiffin. Available from the World Bank, 1818 H St., NW, Washington, DC 20433 for $5.00, or from EDRS in microfiche only for 97¢.

- Wagner, Leslie. *The Economics of Educational Media.* 1982. 169 pp. (ED 227 833)

This guide to the economic analysis of media use in education reviews the evidence on the costs and benefits of educational media and provides a methodology for future decision-making. It includes chapters on establishing a framework for media choice, evaluating the effectiveness of media use, and analyzing costs. The empirical evidence from past projects is used to illustrate both different types of media projects and different methodological approaches. Among the projects discussed are the Open University in Great Britain, the Telesecundaria project in Mexico, the Nicaraguan Radio Mathematics Project, State University Resources for Graduate Education (SURGE) at Colorado State University, and the PLATO computer-assisted learning project in the United States. The final chapter draws on the evidence of past projects to discuss why many media innovations seem to fail and what is required to make such innovations more effective, thus turning their potential cost and educational benefits into reality. Notes, a five-page reference list, and a topic index are included. Available from St. Martin's Press, Inc., 175 Fifth Ave., New York, NY 10010 (price not given), or from EDRS in microfiche only for 97¢.

- Laborde, Ilia M. and others, Eds. *International Leadership in Educational Technology. 1980 Summary Report.* 1980. 116pp. (ED 230 173)

This compilation of working papers of the Southeastern Regional Media Leadership Conference held in San Juan, Puerto Rico, in March 1980, covers the general session, small group activities, and on-site visits. The objectives of the conference were to define alternatives for systematic curriculum development, provide for the interchange of experiences in determining needs and instructional specifications for material production, and develop a plan for an exchange of media materials and expertise. Preliminary pages list committee members, officers, and conference participants. The main body of the report includes (1) a paper by Hugo F. Sandoval, entitled "Leadership in Educational Technology in Latin America;" (2) the narration for a multiscreen slide presentation entitled "Education and the Collective Goals of a People," which focuses on Puerto Rico; (3) an overview of the Puerto Rico State University system; (4) reports from committees on curriculum innovations, media production, open learning, and Personalized System Instruction; (5) the conference evaluation report; and (6) general comments on the conference. Available from EDRS in microfiche for 97¢ or in paper copy for $9.15. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, USA.

(continued from page 4)

the rural festivals was recorded by station staff. These recordings were later edited and incorporated into the station's regular programming. In addition, the finale was broadcast live over Radio Baha'i. Each year, Radio Baha'i arranges to take the winning group to Quito, where they are given the opportunity to perform on national television.

Evidence of the increasing popularity of the music can be found in several places. As witnessed by the increase in festival participants, many more music groups are performing in the Otavalo region. Several of the groups that were formed in response to the festival have turned professional and have made recordings. Music store owners in the Otavalo region report increased sales of both albums and traditional instruments. Perhaps most telling, many radio stations in Ecuador have increased the amount of air time they devote to indigenous music.

"The festival, originally scheduled for one hour, lasted more than 12 hours."

The broadcasting model developed by the Baha'i community of Ecuador has proved so successful that it is now being replicated in several other countries. Radio Baha'i del Lago Titicaca, in Puno, Peru, initiated broadcasting in November of 1981. The response of the Quichua and Aymara people of the region was so positive that 30 music groups and more than 3,000 *campesinos* were in attendance at that station's inaugural festival. The festival, originally scheduled for one hour's duration, lasted more than 12 hours. Additional stations are being developed to serve *campesinos* in Oruro, Bolivia, and Temuco, Chile.

Perhaps the greatest indicator of the model's success is that, contrary to the typical diffusion pattern of communication models from North to South, the Radio Baha'i model, developed in rural Ecuador, is now being adapted to a recently constructed station in rural South Carolina, in the United States. ■

For further information contact Marcelo Quinteros, Executive Director, Radio Baha'i, Apartado 14, Otavalo, Ecuador.

Kurt Hein served as the Assistant Director of Canadian International Development Agency's (CIDA's) Rural Radio Development Project in Otavalo. He is currently the Executive Producer of the Academy for Educational Development's Radio Language Arts Project in Nairobi, Kenya.

IEC Planning: Eight State-of-the-Art Principles

by John Middleton

While this article specifically addresses IEC projects for family planning, it should be noted that Dr. Middleton's points are equally applicable across sectors, and can serve as a useful planning guide for many kinds of projects devoted to social and economic development.

The central importance of effective information, education, and communication (IEC) as an integral part of population and family planning programs has been recognized since the beginning of the worldwide effort to integrate population and family planning programs into national social and economic development. In the past 20 years, considerable experience and research has been accumulated on the ways in which IEC programs can be effectively designed, implemented, and evaluated. Perhaps more effort has been devoted to population and family planning IEC than to any other sectoral program of development communication.

As the term "information, education, and communication" suggests, the potential scope of a national IEC program is broad. The range of media and program designs which have been brought to bear on population/family planning programs is vast, ranging from small items (such as matchbook covers) to establish symbol recognition, to a long-running television social drama designed to change strongly held values and establish new patterns of behavior. Interpersonal communication components have been established through home visitors, adult literacy classes, village organizations, labor unions, political organizations, and education programs in health clinics. Mass and interpersonal communications have been coordinated in a variety of ways.

A number of principles have emerged from this experience which, taken together, define the state-of-the-art in the field. While these principles are not immutable rules which apply equally in all program contexts, they do provide a framework of experience which can guide the development of comprehensive IEC programs.

1. *Policy and Resource Assessment*

The nature of the national policy base for population and family planning programs will determine the goals and approaches of the IEC program. Strong policies of limitation on population growth lead to equally strong, pervasive IEC efforts designed to directly affect contraceptive behavior. Policies based on concerns for mother and child alone lead to programs of a more educational nature. Policies which emphasize the right of individuals to make informed choices, without explicit goals regarding either population growth or family health, lead to yet other kinds of IEC efforts.

Assessment of existing policy is an essential part of the design of an effective IEC program. Policies establish the rationale and boundaries for action. Resources make action possible. While the population/family planning organization can—and often should—lobby for policy change, the current program must be based on the existing policy. An essential component of preplanning assessment is an analysis of the resources available for planning. Of equal importance are the organizational resources which are, or could be, available to carry out the IEC program. An assessment of organizational capability, including the mass media system, should be an integral part of strategic planning.

2. *Audience Analysis*

One of the principal reasons for the importance of policy assessment is the fact that, one way or another, IEC programs, like all development communication, are intended to change behaviors. The degree to which the behaviors in question are closely held and difficult to change does much to determine the way in which IEC programs are designed and carried out.

Population and family planning programs are concerned with some of the most intimate human behavior. Hence structured and sensitive audience analysis has become an integral part of the design of IEC programs. The practice of contraception takes place in the matrix of behaviors and values associated with children, family life, male/female roles, individual health and sexuality. Religious and cultural values are especially strong in these areas. Open discussion of these subjects is often very difficult.

All successful IEC programs rely on careful analysis of these behaviors, and the knowledge, values, and attitudes which shape them. The policy base determines how, how far, in what form, and on what schedule the IEC program can seek to change behavior in the direction of desired goals. Experience has shown that, over time, careful planning can lead to significant changes in society in these intimate areas of behavior. Experience also shows that success depends on clear understanding of the behaviors themselves and the social/cultural/political context in which they occur and change.

(continued on page 7)

(continued from page 6)

3. *Strategy Design*

Knowledge of population/family planning-related behavior, and associated knowledge, values, and attitudes, is the essential basis for action. This must, however, be combined with an understanding of how people learn and change, knowledge of how information of various kinds can be used to stimulate learning and change, and insight into the ways in which various communication media and channels can be used—singly or in combination—to achieve desired goals.

This is the process of designing communication strategy. It requires clearly stated objectives. Principles of human learning are used to structure information appropriately, whether in the form of simple mass media messages or family life education curricula and learning materials. The use of multiple channels, with consistent and reinforcing messages disseminated in predetermined sequences, has become a model for most programs.

4. *Message Research and Pretesting*

Experience has also shown that while analysis is a prerequisite to effectiveness, it is rarely sufficient. Message research and pretesting have become integral components of the strategy design process. Small-scale research on specific behaviors and objectives is needed to establish the basis for message design. Prototype messages must in turn be tested with representatives of the intended audience to establish their effectiveness and acceptability.

5. *Participation and Feedback*

Message research and pretesting are, fundamentally, a structured and quasi-scientific means of involving audiences in the process of program design. Audience participation and feedback in remaining phases of program development and implementation are equally important. It is only through direct and continuing interaction with program clients that planners and administrators can tell if their programs are providing clients with the appropriate information at the right time.

This is especially true for family planning, where there is continuing risk of loss of credibility through information perceived as inaccurate, or culturally inappropriate. In a more concrete sense, administrators must know if the information is being received and understood.

6. *Management*

It may be that as many programs fail in implementation as in analysis and design. A national IEC program, regardless of the implementing organizational structure, is woven out of a complex set of planning, design, production, utilization, monitoring, and evaluation activities. Large programs combine various mass media with a range of interpersonal channels. Almost invariably more than one organization is involved, leading to complex problems of interorganizational coordination. Resources—human, fiscal, and technological—must be acquired, used effectively, and accounted for. This is an extremely challenging management task, one that requires a specific combination of planning, flexibility, and creativity.

"Taken together, these eight principles can become the fundamental IEC building blocks. . ."

7. *Evaluation*

Mechanisms for message research and pretesting and for participation and feedback go a long way toward building evaluation into the program. More, however, is needed. An organized management information system is needed to enable program administrators to anticipate, identify, and solve problems—and to spot opportunities. An effective management information system is essential to monitoring program outputs. Finally, evaluation of program effects—identification of the degree of change toward stated objectives—is essential to longer-term assessment of the underlying strategy and the identification both of needed corrections and new directions for the future.

8. *Collaboration*

The nature of population/family planning IEC is such that a large number of key individuals and organizations will have a stake in the way the program is designed and carried out. These "stakeholders" can be sources of support, or of opposition, depending upon the degree to which the program meets their expectations and needs. Collaboration with, and involvement of, stakeholders in the design and implementation of a national IEC program does not guarantee support, but it does significantly raise the probability that support, and not opposition, will be forthcoming. Moreover, the information and insight that stakeholders bring to the design and implementation process will be valuable. No IEC director, no matter how large and expert his or her staff, can be fully aware of the many variables which affect the success of the program.

Taken together, these eight principles can become the fundamental building blocks of an effective population/family planning IEC program. ■

John Middleton is Vice-President for Academic Affairs and Director of the School for International Training of the Experiment in International Living in Brattleboro, Vermont, USA. From 1980–1983, he was a member of the staff of the Academy for Educational Development, first in Indonesia and then in Washington, D.C.

NFE Center Publications to Note

by Judy Brace

There are always so many good things issuing from the Non-Formal Education (NFE) Information Center at Michigan State University that any reader with a particular interest in education should be in close contact with the Center. Their program is "designed to facilitate an exchange of ideas and project information on development and non-formal education."

Among the most interesting of their recent publications is a 43-page annotated bibliography on *Non-Formal Education and Radio* (#14). This bibliography includes both theoretical materials and case studies, and although many of the publications may be out of print, there are enough references here to build a very useful and timely library on radio education.

An annotated bibliography on *Non-Formal Education and Agriculture* (#10) has also been recently published by the NFE Information Center. The scope of the study extends to food production, distribution, and consumption, and the role of education in these areas. Issues in agriculture, research, and environmental relationships are covered in separate sections, and sections are devoted to periodicals and to organizations in the field.

Other useful recent bibliographies include *Journals and Newsletters on Non-Formal Education and Development* (#12), and *Evaluation in Non-Formal Education* (#13).

Because Spanish language materials are generally scattered throughout collections on development subjects, it is gratifying to find that the NFE Center has gathered its own materials in Spanish into a publication that lists these materials in such nonformal education subject areas as agriculture, appropriate technology, communication, community development, evaluation, nutrition, women in development, and others. Our Latin American readers will find *Spanish Language Materials in the NFE Library* a wonderful resource.

The NFE Information Center has begun a new Manual Series with two excellent guides to resource center management. Manual Series #1, *A Simple Guide to Managing a Resource Center on Non-Formal Education for Development,* is not only what its name implies, but more. Everything here is transferable to the management of a resource center in any other subject area because it is the *process* of organizing that is so valuable and so clearly defined in this publication. The

(continued on page 11, col. 2)

A Communicator's Checklist

1 *Report of the Regional Workshop on the Role of Mini- and Microcomputers as Tools for Economic and Social Development.* (Economic and Social Commission for Asia and the Pacific, 1982), 27 pp.

The mutual support and participation of international organizations or other outside parties in assisting countries as they grapple with problems of automating in the information age is appropriate and desirable, especially where it facilitates technical cooperation and the sharing of ideas and experiences between nations. A valuable example comes to us from the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). Through its program on Government Information Systems, ESCAP has drawn the attention of its member governments to the need for the systematic organization and coordination of information in the public sector. Agriculture, industry, trade, and population are fields in which such information is critical for development.

Computer Organization Meeting

Because such applications are growing, member governments of ESCAP have increasingly turned to computerization of these functions. However, ESCAP felt that the need to organize the nature and priority of computerized information systems had not been sufficiently recognized. Thus, ESCAP sponsored a series of meetings on the subject of information systems and data processing. One such meeting was devoted to the organization and management of mini- and microcomputers in the context of government information systems policy. The report of this meeting is abstracted here.

The Regional Workshop on the Role of Mini- and Microcomputers as Tools for Economic and Social Development organized by the United Nations Economic and Social Commission for Asia and the Pacific met in Bangkok, November 8–16, 1982. Participants from Bangladesh, Burma, Denmark, India, Indonesia, Japan, Malaysia, Pakistan, the Philippines, Sweden, Sri Lanka, and Thailand; and representatives from the Asia Institute of Technology, the UN Department of Technical Cooperation for Development, the UN Industrial Development Organization, the UN Development Programme, UNESCO, and the World Health Organization attended. The Workshop examined the technological aspects of using small computers and related technical policy issues important in using small computers for managing information. The Workshop was an outgrowth of the Intergovernmental Meeting on Government Information Systems and Data Processing organized by ESCAP in 1981 which had emphasized the crucial need for integrated and coordinated management of information systems in government and their importance for carrying out programs for socio-economic development.

The mini- and microcomputer experiences and knowledge of the governments of ESCAP countries were exchanged on the following topics: (1) use of mini and microcomputers (2) support services (3) training (4) software (5) management (6) technical transfer and (7) policy. The growth pattern for microcomputers was noted to be much higher than the rate of growth of mainframes and minis over the past two years, which was attributed to the continuing decline in the cost of that computer technology and a growing awareness of the benefits of harnessing computing power. Growth, however, had been primarily in the private sector. Virtually all governments were considering the introduction of micros into public sector activities.

Issues of maintenance, repair services, and compatibility in data transfer were cited as problems all faced by member countries. Policies of individual governments on the use of minis and micros were examined, and it was observed that decisive action to set up mechanisms for establishing policy guidelines had yet to be taken, though some countries, such as Malaysia and Pakistan, had undertaken studies.

Software issues also were a major topic of concern noted at the Workshop. Quality, sophistication, cost, and selection of software; the number and variance of microcomputer operating systems; standards for high-level computer languages; and data and program transfer also were acknowledged as problems faced by member countries.

After reviewing the experiences of the member countries and carefully evaluating the technological trends and future prospects for small computer systems, the Workshop made the following recommendations to the member governments:

(1) that a high level national body within each country be formed to coordinate government information systems;
(2) that each government establish an appropriate mechanism to monitor new products, services, and *de facto* industry standards in order to keep abreast of technological developments;
(3) that standards for software, hardware, and data structures be established in order to facilitate exchange of data and software at national and regional levels;
(4) that modular and portable systems be developed to overcome the problem of obsolescence;
(5) that training programs be established for developing skilled manpower;
(6) that facilities be established for in-house development of software for government applications;
(7) that facilities be established for an uninterrupted and regulated power supply.

The Workshop strongly recommended that ESCAP play an important and central role in assisting member countries' use of mini- and microcomputer systems by providing a base for technical assistance. The Workshop suggested participants needed guidelines for coordinating government procurements for the development of an indigenous computer industry; for professional expertise in the computer field available in member countries; and for maintenance, standardization, and training. Other recommendations for ESCAP included:

(1) that workshops on specific issues and for periodic reviews of country experiences be established;
(2) that a working group on information systems in ESCAP be established for in-depth study of problems encountered in the development of information systems;
(3) that periodic reviews on standards in member countries be held; and
(4) that ESCAP should serve as a regional clearinghouse for the transfer of microcomputer technology for government applications. ■

Copies of the full report on the ESCAP meetings are available from ESCAP, United Nations Building, Rajadamnern Avenue, Bangkok 2, Thailand.

Reviewed by Mary M. Kaufman, a reference librarian at American University in Washington, D.C. She is a master's candidate in International Development at that university, and is currently an intern at the Clearinghouse on Development Communication.

Reader Survey

Development Communication Report—January 1984

1. My work is primarily in (check more than one if necessary)
   - ☐ communication
   - ☐ agriculture
   - ☐ education
   - ☐ nutrition
   - ☐ population
   - ☐ health
   - ☐ other (please specify)

2. Most of my time is spent working in
   - ☐ information dissemination
   - ☐ message design/production
   - ☐ research
   - ☐ teaching
   - ☐ project planning
   - ☐ project administration
   - ☐ project evaluation
   - ☐ other (please specify)

3. Do you read *DCR*
   - ☐ In depth? ☐ Selectively? ☐ File for later use?

4. Do you share *DCR*
   - ☐ With students? Approximately how many each issue? _____
   - ☐ With colleagues? Approximately how many each issue? _____

5. How do you use the information from *DCR?*
   - ☐ as a source of information
   - ☐ in project design or evaluation
   - ☐ in meetings or discussions
   - ☐ in class with your students
   - ☐ as reprint material

6. How does *DCR* benefit you?
   - ☐ by keeping you aware of new developments and current thinking
   - ☐ by promoting the use of communications strategies for development
   - ☐ by putting the development issues in your country in perspective
   - ☐ other ways (please specify)

7. Have you ever ordered books or other material mentioned or reviewed in *DCR?*
   - ☐ yes ☐ no

8. How would you rate the overall usefulness of *DCR* to your work?
   - ☐ very useful ☐ somewhat useful ☐ not useful

9. Would you like *DCR* to
   - ☐ have more photos and graphics?
   - ☐ have as much text as possible?
   - ☐ other? (please specify)

10. Please rank the following in order of importance to you
    - ____ articles on major issues of development communication
    - ____ articles on specific sectoral applications (for example, Radio for Health)
    - ____ articles on individual communication technologies and techniques

11. Would you like to see more articles on a particular sector? (please specify)

    On a particular technology? (please specify)

12. Can you suggest articles or authors that you would like to see in *DCR?* (please specify)

Thank you!

The results of the reader survey will be published in a future edition of *DCR*. Your participation is important!

SECOND FOLD

From:

AIR
MAIL

Heddy F. Reid, Editor
Development Communication Report
1414 22nd Street, NW
Washington, D.C. 20037 USA

FIRST FOLD

We welcome your comments and suggestions:

2 *Health Education by Television and Radio: Contributions to an International Conference, with a Selected Bibliography,* edited by Manfred Meyer, Internationales Zentralinstitut für das Jugend-und Bildungsfernsehen (München, K.G. Saur, 1981, 476 pp.)

A very useful publication for field practitioners and academics alike, this 1981 collection of contributions to an international conference by the same name brings together a wide variety of opinions, case studies, and research findings. Unlike many conference publications, it is skillfully edited, well organized, and helps the reader find areas of particular interest. There are major sections on broad thematic issues, and others which report basic research findings. The bulk of the publication, however, focuses on case studies of countries as different as Tanzania, Bavaria, and Hungary.

The subject is health communications, and the book pretty well sticks to that area. But there is such a range of health communication experience reported that anyone interested in communication, particularly development communication, will find something useful. A wide selection of landmark projects are reported: ACPO's health programming, the Xerox-sponsored "Health Minutes," the Stanford Heart Disease Prevention Campaign, and many others. I was particularly struck by some interactive quiz and test experiments in the Federal Republic of Germany. The program directors, in an effort to attract wider media attention, transformed a basic first aid course into a televised First Aid Quiz. The author concludes that the Quiz format "achieved greater attention than conservative education measures because it allowed fewer distractions . . . and widened the broad effect of health education measures because its entertaining form provided greater incentive to join in. . . . In addition, poor scores brought out gaps in knowledge which motivated people to acquire more information."

Most of the articles are substantial enough to be useful. They provoke thought, and even though many are dated, few of the recommendations they suggest are actually being put into practice. So there is plenty to learn even from ten-year-old programs. There is a good bibliography and a subject index, which is rare in this type of publication. ■

Available from International Zentralinstitut für das Jugend-und Bildungsfernsehen, Bayerischer Rundfunk, Postfach 20 05 08 8000, München 2, Federal Republic of Germany, for US$17.50 plus $1.50 postage, or for DM 42.

Reviewed by Bill Smith, a Senior Vice President of the Academy for Educational Development. He has done extensive work in health messages and the mass media.

3 *Diffusion of Innovations* (Third Edition) by Everett M. Rogers (New York, New York: The Free Press, 1983), 453 pp.

Everett Rogers has again done it. The third edition of his internationally known book is an excellent revision and expansion of his previous work in the area of the diffusion of innovations. The third edition is about 50 percent new. It incorporates answers to most criticisms raised against the "classical" diffusion model, although many readers may speculate that the new book dissolves instead of resolving current concerns regarding the role of communication in social change processes, i.e., by placing a new dress over an old body.

The third edition contains 11 chapters: 1. Elements of diffusion; 2. A history of diffusion research; 3. Contributions and criticisms of diffusion research; 4. The generation of innovations; 5. The innovation-decision process; 6. Attributes of innovations and their rate of adoption; 7. Innovativeness and adopter categories; 8. Opinion leadership and diffusion networks; 9. The change agent; 10. Innovation in organizations; and 11. Consequences of innovations.

Chapters 3, 4, 8, 10, and 11, are particularly innovative, although many of the other chapters offer a fresh perspective, incorporating among other factors: a view of communication as a convergence process; a view of diffusion and innovation as an uncertainty reduction process via information and influence; the consideration of communication networks as key structural factors in diffusion; an emphasis on process as opposed to variance research; an emphasis on equity as opposed to the assumed "trickle-down" perspective; an emphasis on pursuing the line of highest resistance in diffusion programs; and, a strong consideration of the consequences of the adoption of innovations.

Chapter 3 is a careful evaluation of what the diffusion perspective has contributed, and the ways in which it has failed, e.g., a pro-innovation bias, an individual blame bias, a lack of consideration of equality.

Chapter 4 introduces a fresh perspective on the "innovation development process," and argues that reinvention often occurs as units adopt innovations.

Chapter 8 provides the reader with a basic conceptual scheme for understanding the logic of communication networks, the roles that units occupy in networks, and the metrics which aid in the prediction of innovativeness.

Chapter 10 considers innovation in organizations as a two-stage process involving initiation and implementation. Initiation is said to consist of agenda setting and symbolic matching. If matching leads to adoption, then implementation consists of redefining, clarifying, and routinizing.

Chapter 11 introduces the concept of "communication effects gaps," and deals with strategies for attempting to raise the level of good in society while at the same time reducing inequality.

The definition of development which permeates the text is: "a widely participatory process of social change in a society, intended to bring about social and material advancement (including greater equality, freedom, and other valued qualities) for the majority of the people through their gaining greater control over their environment."

Practitioners in the field of development communication will certainly benefit from reading this third edition, not only because it includes new concepts, but also because it offers needed tools for change programs which at their core are concerned with equality and participation. ■

Available from The Free Press, McMillan Publishing Co., Front and Brown Streets, Riverside, N.J. 08075, for US$18.95.

Reviewed by Felipe Korzenny, Associate Professor of Communication at Michigan State University.

Keeping Current

• Now in its fourth edition, the ***International Yearbook of Educational and Instructional Technology 1982/1983*** continues its practice of providing an overview of the current state of educational technology throughout the world. The first two sections of the yearbook include a compendium of selected readings on developments and trends taking place in the field on topics such as technology transfer and the educational potential of PRESTEL, a national videotext system in Britain. Section 3 is new to this edition in that it pulls together information on resources of educational technology which was scattered in previous yearbooks. Here a bibliography, journals, conferences, and consultants in the field are listed. The fourth section provides a current directory, by country, of universities and other institutions and associations concerned with educational technology. Section 5 lists producers and distributors of software in the UK and US, while Section 6 provides lists of producers of AV hardware marketed in the UK and US. While the yearbook exhibits a UK/US bias, it still will be extremely useful to practitioners in all nations interested in educational technology and programmed learning.

Available for US$37.50 from Nichols Publishing Company, 155 West 72nd Street, NY 10023, USA. Also available in Great Britain from Kogan Page Ltd., 120 Pentonville Road, London N1 9JN, U.K.

(continued on page 12)

(continued from page 2)

genre and dialect distribution, level of difficulty, and theme. Texts with elements related to themes commonly explored in the experimental classrooms and those with the sorts of courageous characters children find captivating were favored. Staff from INDRAP, the Adult Literacy Service, and graduate students at the School of Education did the required selection and prepared the texts for typing.

Two factors contributed significantly to the impressive success of the seminar workshops. First, all texts reviewed had been pre-edited and duplicated. Participants thus had concrete materials to evaluate and embellish. According to preference, the task could either be done by an individual and then collectively reviewed, or by the entire work group straight away.

Modifications and Additions

The texts were modified in several ways. They were further adapted from an oral to a written medium by eliminating excessive repetitions, or by filling in plot elements a performer had eliminated. At the same time, their tendency toward repetition, characteristic of oral art forms, was useful for early readers needing a controlled, recurring vocabulary. Vocabulary choices were sometimes altered, or more often, annotated to increase students' command of dialectical variations. Questionnaires were created to include exercises in vocabulary, reading comprehension, and elementary grammar. Tongue twisters, riddles, and proverbs were added at the end of the longer texts adapted from folktales, descriptions of a traditional craft, or stories of community life and history. These shorter forms were seen as a means of encouraging an appreciation for figurative language. Specific illustrations were recommended.

The second factor important to the seminar's success as an innovative step for future textbook production was the participation of all Nigerien institutions working on the development of national language materials. No single institution is likely to have enough trained personnel to collect materials, so cooperation and institutional linkages are necessary not only for the production of quality texts, but also to assure their distribution and acceptance by the greatest potential audience.

Linguists, teachers from the experimental schools, the University, the Adult Literacy Service, and the regional OAU (Organization of African Unity) all made their contributions. Spellings were further standardized. University and administrative personnel improved their grasp of teachers' needs and capabilities, and teachers profited from this in-service training. The cooperative atmosphere nurtured a mounting *esprit de corps.* Groups worked long hours, sometimes even on Sunday. At the end of the two-week seminar, nearly all the books were ready for final typing and offset printing.

Local artists were contracted to draw the prescribed illustrations. Their village backgrounds were especially relevant to texts adapted from oral traditions, since clothing, hairstyles, housing, and other illustrated objects vary from one language group to another. Illustrations were needed that would appear realistic to children for teachers to use in lessons about culture.

Focus on Reducing Typos

Establishing proofreading groups was a final innovation. Prior publications in national languages had been criticized for excessive typographical and spelling errors. Recognizing that our clerical staff was largely undertrained, and that no individual was likely to catch all errors, we recommended that three people independently proofread each text before it went to press. As a result, typographical errors were greatly reduced.

The project's final stage will be an evaluation of the books to be coordinated by INDRAP. The Institute does not have its own evaluation unit, but recognizes that evaluation skills will become increasingly important as more materials are produced. Once again, we hope to strengthen collective resources through collaboration, this time with the evaluation offices of the Adult Literacy Service and the School of Education. The evaluation instrument will be tested in a limited number of classrooms during the fall of 1983, and more widely tested during the latter half of the school year. Evaluation issues include how communities have responded to the books, how appropriate their level of difficulty is, how well the spellings convey differences in dialects, and how teachers' training levels affect their use of the books.

Training Sessions Essential

Book production prompted another training effort in July 1983. The need to strengthen teachers' grammar skills in national languages became particularly evident when questionnaires were being appended to the reading texts. Therefore, INDRAP coordinated two weeks of in-service training for teachers and their local education advisors. The two weeks were only enough to lay the groundwork for writing grammars, for defining a classroom curriculum, and for standardizing the required terminology. However, the training prompted INDRAP to schedule follow-up activities for the current school year. This work, in turn, will suggest improvements to be made in future reading books.

Overall, the project design has functioned very well. In the process of producing the first series of Nigerien textbooks, the values and aesthetics of several cultures' oral art forms have been transformed into written form for classroom use, teachers and others have increased their national language skills, and a system that profits from the cooperative efforts of sister institutions has been developed.

One step might well be added to the process. After the texts have been edited and illustrated, but prior to their final publication, they could be duplicated with electronic stencils to permit trial use in several classrooms, and, if appropriate, further revision. While formative evaluation would require more time than our Accelerated Impact Project structure initially permitted, it could improve the match between student skill levels and textbook difficulty as it strengthened the evaluation expertise of textbook producers.

Both project participants and observers have occasionally questioned why INDRAP produced readers before lower level pre-primers were available. In some sense this is a logical criticism. However, as we began the book production process, we realized that pre-primers are actually more complex to write than higher level readers. The progressive introduction of sounds, words, and grammatical structures should be much more rigorously controlled. Pre-primers are now slated for future production, however, partially as an outgrowth of the production experience INDRAP has gained to date. Math books, grammars, and social studies books adapted from texts teachers have composed themselves are also planned. The new reading books produced thus far for the primary grades, with stories drawn from Niger's rich and varied oral tradition, mark an appropriate and memorable entry into Nigerien textbook production. ■

Connie Stephens is the technical assistant on the NIGER/USAID Maternal Languages Text Preparation Project being implemented at INDRAP. Further information about the project can be obtained by writing to her or to George Corinaldi, Human Resources Development Officer, c/o Niamey-USAID, Department of State, Washington D.C. 20520, USA.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Two Thoughts on the Use of Microcomputers in Developing Countries

by Kurt Moses

In those countries in which microcomputer introductions have not been successful, or those in which future attempts to introduce computers of any sort will be unsuccessful, two cardinal considerations have usually been overlooked. These considerations are simple to state, but in the heat of proposals and in the press of day-to-day business, they are frequently forgotten:

1. Is the country or Ministry concerned because the volume of work has increased dramatically in recent times?
2. Is the country or Ministry concerned about the quality of its work?

Lacking an affirmative answer to either of these questions, introduction of any kind of automation device is fraught with peril.

In the developed world and in some less developed countries, computers have been most easily introduced where the volume of work has increased substantially in a fairly short period of time and where the opportunities to increase the size of staff, be it clerical, managerial, or instructional, have not risen as rapidly. Lacking this, computers appear to threaten the current employment of many persons and on a countrywide basis may reduce the opportunities for employment in traditional industries. As a result, unless the volume of work is increasing rapidly in excess of trained manpower's ability to handle it, computers may be seen as a negative factor. Numerous instances of this negative perception of computers' competing for jobs are beginning to appear in the world press.

The second major reason to introduce computers or automation is to improve quality. Quality may be perceived in terms of quality of instruction, as it often is in the United States at present, or it may be seen as quality of service. This frequently means improvement in the service industry such as airlines, hotels, or travel agencies, the improvement being in speed of service as well as its basic accuracy. A lack of concern for quality of service itself does not bode well for the introduction of automation and the attendant problems and crises which occur during the transition phases. Computers themselves cannot overcome a lack of concern for quality either in terms of follow-through, conscientiousness, or support of information to the computer. While new techniques have been developed to reduce the chance for random errors, a systematic lack of concern for quality will almost invariably bring a system down.

Project managers and technical staff who are considering introducing computers need to consider these two cardinal questions. The wrong answers to them could well have a dramatic impact on the success or failure of computerization. ■

Kurt Moses is Director of The Academy for Educational Development's Systems Services Division. He has been dealing with automation worldwide for ten years.

(NFE continued from page 7)

guide takes the reader through the concept of classification, the way in which documents are processed, cards prepared and stored, and how, once this is done, a document is located. It is well understood in the information field that until a manual system is well thought through, tested, and corrected, it should not be transferred to an electronic system. Any resource center that has organized its materials in the manner illustrated in this guide would be able to convert to an electronic version with relative ease should the occasion arise. However, as the quality of the bibliographies that come from the Center attests, this is an effective and appropriate manual system that should satisfy the needs of almost any information center.

The second in the Manual Series is a guide to *Preparing Citations and Annotations.* These instructions are particularly useful for compiling bibliographies, and ensure a standardized format that will include all pertinent information about any publication (title, author, publisher and address, date, number of pages, etc.). This guide will be frequently consulted by anyone wishing to find clear, easy steps to a professional bibliographic product.

Another series of publications from the NFE Center is their Occasional Papers. A recent title is *Training Popular Theater Trainers: A Case Study of Nigeria* (#10).

Information on these publications is available from the Non-Formal Education Information Center, 237 Erickson Hall, Michigan State University, East Lansing, Michigan 48824, USA. ■

Judy Brace is Resource Center Manager and Director of the Clearinghouse on Development Communication.

NOTICE

Over the past year, some people have ordered materials from us without including their name and address. There have been cases where a check or money order was included without any indication of who the person ordering was. Please check your orders to see if they have been filled. Write to us if there are outstanding orders. You may be one of the anonymous orderers.

Numeracy Project Makes New Use of Pocket Calculators

by Mary Dickie

For the majority of Papua New Guineans who live in rural areas (some 85 percent of the population) and who still follow a more or less traditional way of life, the 700 different languages and 250 counting systems present no real problem—as long as they stay in their own villages. But as soon as they step beyond village boundaries, people need to be able to communicate with others and to deal with the changing social and economic environment. Most people in accessible areas do learn and use one of the official languages (English, Pidgin, or Motu) but few have yet come to grips with international counting and measuring systems to enable them to deal with money and numbers.

In the village setting, the requirement for using "western" numbers might seem very basic—as simple as putting a price on the scones baked in a drum oven; but if you cannot add together the price of ingredients and fuel and divide by the number of scones made, you could easily sell them at a loss. And many people do. If you have a small commercial, industrial, or agricultural project, you need greater number skills than that—for working out materials estimates, overheads, prices, stocktaking, bank accounts, etc. And yet the kind of basic arithmetic involved is often beyond the skills of a university student, so for those who have had little or no formal education, these problems seem almost insurmountable. However, 1980 saw the introduction of the liquid crystal display calculator—a remarkably cheap hand-held calculator, with an estimated battery life of some 10,000 hours. This new technology provided a tool which could be used in a village for a very long time, provided that people could learn how to use it to solve their number problems.

So during the last two years, the Department of Commerce in Papua New Guinea has been trying to find out what sorts of problems people encounter with numbers in their daily lives, and to discover a means of teaching people to tackle these for themselves, without the help of an extension officer, by using a calculator.

The range of problems we uncovered was very wide—a man who could not re-roof the community hall because he could not work out how many sheets of iron he should buy; a women who made tapioc parcels to sell at the market and ended up with less money than

(continued on page 13)

(continued from page 9)

• Another yearbook, but of a more theoretical and less practical nature, is the *Mass Communication Review Yearbook* for 1983. Thirty-eight articles, most of them reprinted from other sources, are drawn together in one volume on a variety of topics ranging from Feminism and the Media to New Technology and the Information Age. The yearbook is available for US $32.00 from Sage Publications Inc., 275 South Beverly Drive, Beverly Hills, California 90212, USA.

• The Commonwealth Bureau of Agriculture Economics, part of the Commonwealth Agricultural Bureaux, publishes two abstract journals which are noteworthy. ***Rural Extension, Education, and Training Abstracts (REETA),*** as the name implies, covers nearly all aspects of education for rural development, formal and nonformal education, and rural extension. Subject headings include Educational Radio, Audiovisual Aids, Communication, Mass Media, Diffusion of Information, Evaluation, Vocational Training, among hundreds of others. A sample abstract identified under the communication heading is entitled, "Communication methods to promote grass roots participation for an endogenous development process." Some 1,500 abstracts per year are drawn from over 2,000 serial publications.

• ***Rural Development Abstracts (RDA)*** covers the world literature on physical resources, human situation and resources, economic utilization of resources, public services, and projects and surveys as they apply to rural development, to produce over 2,500 abstracts per year. Both *REETA* and *RDA* have full author, subject, and geographic indexes. While international in terms of subjects and the literature they cover, the abstracts are in English. Subscriptions to each quarterly abstract are approximately US $89.00 per year, but currently a special introductory rate to new subscribers is being offered at US $57.85. The Bureau also offers a Photocopy Service to supply photocopies of items abstracted in their publications. Both publications are obtainable from CAB Central Sales, Farnham House, Farnham Royal, Slough SL2 3BN, U.K.

• The ERIC Clearinghouse on Information Resources has two recent publications in their Information Analysis Product series which readers may want to make note of. The first, ***Information Technology in Education: The Best of ERIC,*** by Donald P. Ely, highlights recent listings in the ERIC database which deal with emerging technologies, such as cable television, electronic mail, satellite communication, and teleconferencing, for the delivery of information in educational settings. (Computers or microcomputers are not included, as the literature on these abounds elsewhere.) The second publication, ***Sources of Information for Instructional Technology*** by Ann L. Wiley, should help practitioners, students, faculty, and researchers in instructional technology locate information quickly and easily. Information services useful to instructional technologists are described, though the comprehensive bibliography of recent materials in the field of instructional technology comprises most of the publication. Both items are available from Information Resources Publications, 130 Huntington Hall, Syracuse University, Syracuse, New York 13210, USA. The prices are US $4.25 and US $4.50 respectively.

• Based on its experience of teaching people about distance education and running distance-teaching institutions, the International Extension College in Cambridge, England, has published three training manuals on writing, research, and administration. The third of these, ***Administration of Distance-Teaching Institutions*** compiled by Tony Dodds, is intended for people who need to know how to organize the activities of such an institution. In three parts, including a volume of case studies and a board game, the manual includes exercises and assignments on units such as choosing media, managing print, the use of broadcasts, student services, internal organization, costs, and budgeting. For those setting up a new college or trying to improve their organization's efficiency, this manual will be useful. The cost for readers in the industrialized world is £18 surface or £24 airmail; for those in developing countries it is £13 surface or £16 airmail. Orders should be directed to International Extension College, 18 Brooklands Avenue, Cambridge, CB2 2HN, U.K.

• Many readers will remember the First Quarter 1981 issue of *The Tribune* entitled ***Women and Media*** which discussed major issues relating to how women use the media. A second issue, ***Women and Media #2,*** has now been dedicated to this subject. In this Second Quarter 1983 issue of *The Tribune,* women's projects in different parts of the world are shown as examples of how issues affecting women have been tackled using media as a tool. Women's Regional Information Networks in Africa, Asia, the Pacific, Latin America, and the Caribbean are also discussed. *The Tribune* is published in English and Spanish. Subscriptions are free to women in developing nations, US$8.00 in North America and $10.00 elsewhere, from the International Women's Tribune Centre, 777 UN Plaza, New York, NY 10017, USA.

• We would like to call our readers' attention to a new publication. The National Council of Development in Karnal, India, has begun to publish ***Interaction.*** The inside cover of Volume 1, No. 1, 1983 states *"Interaction* is a journal designed to integrate, juxtapose, and refocus the conceptual and empirical knowledge on developmental communication." To be published three times per year, the annual subscription is US $18.00 for surface mail. Order from Editor of Circulation, NCDC, Post Box 33, Karnal-132001, India.

• Finally, for our readers who want to keep up with communication materials in Spanish, there are three items to bring to your attention. The first is the Spanish edition of the International Women's Tribune Centre publication mentioned above, ***La Mujer y los Medios de Comunicación #2.*** This is full of resources and networking information. See above for the address.

• From Mexico's Centro de Integración de Medios de Comunicación Alternativa comes a new publication, ***Cuadernos de Comunicación Alternativa.*** They expect this new monograph series (to appear quarterly) to provide a forum for case studies and current thinking from Latin America in particular, and the Third World in general. This issue opens with an essay on the dilemma between creating a new alternative media structure or changing the existing structure to include alternative approaches. There are essays on technology transfer, Bolivian miners' radio, and workers' Super 8 cinema for nonformal education in Nicaragua. For information about the Centro and this new series, contact CIMCA, Apartado 20-617, Delegación A. Obregón, 01000 México, D.F., México.

• The January–June 1983 issue of ***Chasqui,*** from the Centro International de Estudios Superiores de Comunicación para América Latina (CIESPAL), is devoted to the new communication technologies. With the exception of an article on satellites for social services, the articles focus on computer technologies. *Chasqui* has added some new features, including abstracts of the articles in Portuguese and English, and a very useful "News"section that identifies new books, articles, communication activities, conferences, etc. *Chasqui's* subscription rates are US $10.00 per year for Latin America; elsewhere, US $20.00. Write to CIESPAL, Apartado 584, Quito, Ecuador. ■

By Judy Brace and Mary M. Kaufman

Notice: We Are Moving!

After March 15, the new address of the Clearinghouse will be:

Clearinghouse on Development Communication
1255 23rd Street, N.W.
Suite 400
Washington, D.C. 20037, USA

(continued from page 15)
which attempts to teach with the same degree of thoroughness.

Four Conclusions

It is dangerous to draw far-reaching conclusions from two studies, even when these are buttressed by findings from the literature more generally. But four conclusions seem legitimate.

The first is the most obvious: there are more ways of killing a cat than choking it with cream, and there is no single best way of using mass media to support agricultural extension. The evidence suggests that a variety of media, used in various different ways, can be effective in supporting agricultural extension, or in taking over some of its functions.

Second, mass media have been little used for training agricultural extension agents, as opposed to farmers. And yet in many countries, they have received little education and are dealing with an increasingly knowledgeable clientele of farmers. (In contrast, ministries of education have made considerable use of the media for inservice training of primary school teachers.) *INADES-formation* in Cameroon has done some training of extension agents. If the content of its courses can reach far larger numbers of farmers through an extension agent who is enrolled in them, then the benefit/cost ratio is likely to be much more favorable. We could envisage, for example, a radio series which was aimed at both farmers and extension agents, with a printed correspondence support aimed mainly at the agents.

Third, radio is a strikingly cheap and effective way of reaching farmers. We believe there is scope not so much to extend it as to improve it. If more resources went into the production of radio programs and into organizing feedback to guide producers, the programs would be better. And we believe that there is scope for more research on the kind and style of radio program which is most effective. We recognize that there are particular difficulties where there are marked local differences in the area covered by a radio transmitter. These may include differences of climate, soil, and language. Broadcasting also presents particular difficulties to *INADES-formation* as a non-government agency. The value of radio makes it worth struggling with those difficulties.

Finally, *INADES-formation's* philosophy—that farmers need education rather than instruction—determines the way it works, and stands in contrast to the working assumptions of most extension services, which see their role as providing information and instructions to farmers. In consequence there has often been a gulf between adult education and agricultural extension; the former has the theories while the latter has the manpower. *INADES-formation* shows that the gulf can be bridged, to the advantage of both services, and to the benefit of peasant farmers for whom they exist. ■

References

1. She had five sisters. One adopted the idea straight away; two followed a season later and the fourth, laggard, followed behind them. The fifth and cleverest said 'to discover whether this is worthwhile, we must calculate the inputs in terms of labor, camel dung and water, and only then make a decision'. Unfortunately she starved in a famine a few years later, and economics then had to wait a long time to be reborn.
2. See Chambers, R., *Managing rural development,* Uppsala: Scandinavian Institute of African Studies, 1974; and Benor, D., and Harrison, J.Q., *Agricultural extension: the training and visit system,* Washington: World Bank, 1977.
3. Perraton, H., *Mass media, basic education and agricultural extension* (Population and human resources division discussion paper, mimeo) Washington: World Bank, 1982.
4. Jenkins, J., and Perraton, H., *Training farmers by correspondence in Cameroon,* Cambridge: International Extension College, 1982. £2.40 surface mail/£3.20 air mail; and Perraton, H., Jamison, D., and Orivel, F., *Mass media for agricultural extension in Malawi,* Cambridge: International Extension College, 1982. £2.40 surface mail/£3.20 air mail.
5. See Warr, D., 'Evaluation media in Malawi' *Educational broadcasting international* 11 (3) for a fuller account of the research unit's work.
6. Jenkins and Perraton, op. cit., p.2.

Reprinted by permission from Media in Education and Development, *Vol. 15, No. 4, December, 1982, published by the British Council, 10 Spring Gardens, London, SW1A 2BN, U.K.*

Public Education Program on Immunization

The Ministry of Health in Jamaica has launched a massive public education program to focus on a national plan of immunization involving children from 0–12 years old.

Scheduled to be completed by the end of 1983, it is a further development in the Ministry's existing Expanded Program of Immunization (EPI) and is expected to achieve an 80 percent immunization status for children in this age group.

Children in the target groups will be immunized against tetanus, polio, diphtheria, whooping cough, and measles.

The education program, which was preceded by a recently concluded survey on knowledge, attitudes, and practices in relation to immunization, is being funded by UNICEF and PAHO with grants of J$50,000 and J$40,000, respectively.

A local musician, singer Jimmy Cliff, has allowed his hit song "Treat the Youth Right" to be used as a jingle in the immunization program. The Graduate Theatre Company of the Jamaica School of Drama has also used drama to highlight the importance of immunization. *(Source: Jamaica Information Service)* ■

Reprinted from CAJANUS, *The Caribbean Food & Nutrition Institute Quarterly, Vol. 16, No. 2, 1983.*

(continued from page 11)
she started with, after she had sold them all; many tradestore keepers who could not give the right change from a *kina;* farmers who could not work out how many posts and how much wire to buy to fence their coffee blocks. The examples are endless. Collecting all of this information only served to emphasize the extent of the problem we were trying to deal with.

Following this, we have been experimenting with a whole variety of training methods and materials, with village and business groups and government extension workers in five Provinces. We have tried to teach people the basic and essential number skills they need for their own practical purposes, basing all our efforts on the use of a hand-held calculator as the means of learning and the means of solution.

During all this time, the project has focused on certain key facts:

- People in Papua New Guinea have very readily adapted to using new technologies in many spheres of everyday life, so learning the arithmetic they need with the help of a calculator could be appropriate, provided that the calculator itself would not run down.
- To be successful, basic skills training has to be directly related to practical tasks, and teaching has to be aimed at the problems which each individual or group has to deal with. Examples are understanding and using a calendar to calculate gestation periods for pigs or cattle, or adding costs and dividing by quantities produced, for a group making clothes or bread.
- New skills can be learned for new needs, without destroying or changing traditional ways. For example, many people learn Pidgin or English, but do not "forget" how to speak *ples tok,* so they could learn western arithmetic without abandoning their traditional counting systems.
- Developing new concepts is the most difficult problem in education, but learning a routine to deal with a specific task is not; so our training should be aimed at teaching people precisely what to do, when and how, which numbers to use to solve a problem, rather than attempting to achieve an overall understanding of arithmetic.

The project is now aiming to extend its work outside the "business only" boundaries which it has previously emphasized. Preliminary discussions with three major extension departments—Education, Primary Industry, and Community and Family Affairs—have been very encouraging and we hope to be working very closely with them and to produce materials appropriate to their areas of interest.

Further information about the project can be obtained from the Project Director, Allen Edwards, at Laloki College, P.O. Box 1864, Boroko, Papua New Guinea. ■

(continued from page 3)

In a situation where instructional radio and TV are comparatively new, it would seem desirable to devote substantial effort to context and needs assessment, determination of goals and objectives, examination of audience characteristics, and consideration of the media combination to be used. These should come before the pretesting of materials and program attributes.

Work From a Broad Base. Assessment of educational needs should involve input from a representative range of people who know the real needs and nature of that society as well as the specific target audience. The value of responses from members of the intended user group, whatever it may be, should not be underestimated. An inventory of audience characteristics may be accomplished through the careful collection of data from a sample of individuals through personal interviews, careful field observation, or conventional testing. Final decisions as to priority of objectives and suitability of plans may in actuality need to be shared among those in charge of curriculum or development, program design and preparation, and others in the educational or political power structure. In any case the question of exactly what are to be the goals and objectives of a series of programs should be clearly understood and defined as an early step in any instructional design process.

Establish Commitment to a Research Approach. The cooperation of writers and producers is absolutely essential if formative evaluation is to do any good. Since the point of formative research is to show the way to the most effective shaping or improvement of a product, research activities should occur before or during the preparation of scripts. Planners, writers, and producers are then able to make their decisions after examination of collected data or special test results. The professional egos of writers, educators, and production specialists must become adjusted to the possibility that audience-derived data may overrule what they would otherwise do on the basis of prior experience or creative intuition. Matters will proceed much more smoothly if all concerned are deeply committed to the idea that programs should be constructed, not in accordance with familiar stereotypes, but in recognition of social realities and audience characteristics, needs, and interests.

Be Ready to Reshape the Project Schedule. Use of formative evaluation is likely to require a substantial revision of the usual project schedule. Without a formative research approach, preliminary discussions that occur before scripting may be relatively brief. Planners tend to engage in enthusiastic airing of personal convictions about needs and objectives and an exploration of basic points of decision. Everyone is eager to proceed. If formative evaluation is employed, however, some of the most important work may be directed toward an accurate determination of needs. An analysis of detailed audience characteristics may be needed before objectives are laid out and before content and methods are chosen. In other words, important research activities occur well before scripting is started. Other research procedures may be desirable before or during production. It appears to be a safe general rule to allow more time for preparatory research than anyone expects to be necessary.

"It appears to be a safe general rule to allow more time for preparatory research than anyone expects. . ."

Allow for Pilot Testing. Pilot testing of a trial production or of the first one or two programs in a series is probably the most conventional, though not always the most important, application of formative evaluation. Pilot testing determines the extent to which the specific objectives were achieved and exactly which material did or did not contribute to those ends. Such testing should be done before creative commitments become too strong or too complicated. There must still be time and patience to make revisions in scripts, materials, production techniques, and even to do re-testing. Whatever is learned from pilot evaluation is put to use in the revision of still unproduced scripts and in adjustments of performance and production.

Recognize Importance of Question Design. One of the most important skills for those engaged in formative evaluation is question design. The questions used in focused interviews, questionnaires, and other written instruments seem so easy to compose, but all too often they produce responses which are ambiguous, misleading, or extremely difficult to classify. Unfortunately, those inexperienced in research often fail completely to recognize the unreliability of the data collected. The quality of whatever research is undertaken should be maintained through continuous and objective scrutiny of the survey instruments by persons with research expertise.

Evaluation of effectiveness, interest in topics, utility of content, attitude change, and level of comprehension are among the procedures in which question design and careful interpretation of responses are especially sensitive matters. When data is collected from teachers or audience members, great care should be taken to avoid or detect response biases such as a desire to show successful cooperation, enhance self-image, or to say whatever will please those in authority.

Remember the Need to Adapt Instead of Adopt. Caution is essential in Third World use of research techniques and communication models developed in Western nations. The local social or cultural context may require substantial modifications in standard research procedures, or even development of new means of gathering information, sampling attitudes and responses, testing comprehension, measuring credibility, and evaluating effectiveness. Patterns of information dissemination, criteria for credibility, systems of social values, as well as audience needs and interests are likely to be entirely different from what is found in the more developed countries. The importance of reinforcement and change agents, and the role of government in the communication chain, are among the factors that may create attitudes and concepts of communication that are unique to a country.

The discussion here has been directed toward formative evaluation as applied to radio and television used for educational and instructional purposes. It must be observed that formative evaluation can be equally useful in the preparation of books, films, pamphlets, and any other materials to be used for education or information. Formative evaluation is needed to free us from dependence on assumptions and weakly supported conclusions as to the nature of intended audiences and the best way to structure media materials. Third World countries may find that the answer to their particular needs for improved suitability and effectiveness of communication content may lie in formative evaluation. ■

Gale R. Adkins is Professor of Communications and Director of Radio-Television Research, Indiana State University, Terre Haute, Indiana 47809, USA.

Message Testing

For those involved in planning and producing successful public service announcements (PSAs), having some means to measure message effectiveness is essential.

Making PSAs Work, now available from the National Cancer Institute, offers guidelines for producing effective messages and for planning, pretesting, implementing, and evaluating a PSA campaign. The handbook is an outgrowth of research by the Health Message Testing Service (HMTS) which, between 1976 and 1982, tested about 100 radio and television PSAs related to health issues.

Copies of the handbook are available free of charge from: Rose Mary Romano, Office of Cancer Communications, National Cancer Institute, Building 31, Room 4B39, Bethesda, MD 20205, USA.

(continued from page 16)

day by day and week by week, but the largest section of EAB deals with print. They produce a bi-monthly farmers' magazine, *za Ahikumbi,* as well as posters, leaflets, and pamphlets.

Most spectacular are their cinema vans. At the time of our visit they had 17 bright yellow converted land rovers. They were each staffed by a team of two and showed puppet plays on agricultural themes during the day, and a film show during the evening. As they drove round, they were accompanied by the extension agent for the area where they were working that day. The evening cinema shows consist of some agricultural films, made by EAB, some entertainment films, and some government information films from departments other than the ministry of agriculture. In this way, EAB films probably reach about half a million people a year.

Finally, EAB has a well-developed program of research and evaluation of its own work. An Evaluation and Action Research (EAR) unit monitors and measures the rest of the work of the Branch in an attempt to increase its effectiveness, and feeds the results of its findings into the production of print, of radio programs, and of the films and puppet plays.[5]

INADES-formation

INADES-formation is the training section of INADES, the *Institut africain pour le développement économique et social* (African Institute of Economic and Social Development). It was established by the Society of Jesus in the Ivory Coast with the general aim of 'working towards the social and economic development of people, while giving particular importance to their free and responsible participation in the transformation of their society.' Although its headquarters is in Abidjan, it works in 14 different African countries, mainly but not exclusively in francophone Africa. Its main function is to teach peasant farmers and extension agents.

It does this in three ways: through running face-to-face seminars, by publishing a magazine, *Agripromo,* and through correspondence courses. The correspondence courses are written, edited, and printed at the headquarters office but are administered, and adapted, where necessary, at the national offices. A key feature of the courses is that they explain the principles of good agricultural practice and do not limit themselves to teaching narrow techniques. They are aimed both at individual farmers and at extension agents, and *INADES-formation* is adamant that it needs to work with both groups. It needs to work directly with peasant farmers partly to keep itself in touch with the realities of ordinary farming, and with extension agents because that is an important way of raising their effectiveness and so improving peasant agriculture more widely.

Beyond that they argue, 'the institute tries, as part of its training, to put peasant farmers and development agents in touch with each other and to help them establish a dialogue to provide better mutual understanding and greater effectiveness.'[6] In Cameroon they work closely with the government in providing in-service training to extension agents, and success in the correspondence course is a requirement for promotion.

In 1978/79 *INADES-formation* enrolled some 4,500 farmers and extension agents as students, of whom about 600 were in Cameroon and 1,000 in Rwanda. They enrolled for a year at a time. *INADES-formation* courses consist of nine or ten booklets which students study over the course of a year. Most students enroll as individuals and must, therefore, be literate. *INADES-formation* has experimented with group enrollments and group study but has not yet found a satisfactory formula for these. Correspondence students may also attend seminars conducted by *INADES-formation* but do not have to do so. They work through their correspondence lessons and complete an answer sheet at the back of each one, which they send to a national or regional office for marking.

What Sort of Institutions Are They?

The contrasts between the organizations should not blind us to their essential similarity. Both want to teach farmers better techniques of agriculture. Both were established as a response to the fact that agricultural extension agents cannot meet all the farmers in their area. Even with the relatively favorable staffing ratios in the Malawi extension service, it is unlikely that agents can ever see more than half the farmers they are, in theory, serving. The ratio is much less favorable in many parts of the Cameroon.

Despite the similarity of aim, the difference in methods and in philosophy of the institutions are, indeed, striking. The Extension Aids Branch works in a single country; it uses a variety of mass media, with print playing very much a minor role; it is part of the Ministry of Agriculture. *INADES-formation* is an international and non-governmental organization; its use of mass media is almost confined to print; its relationships with government are necessarily subtle.

There is a difference in educational approach, too. EAB is attempting to reach the largest possible audience but, in the past, has assumed that its function was simply to tell them what to do, instruct them in better techniques, rather than teach general principles of agriculture and then their specific application. Although *INADES-formation,* with its printed courses and magazine, could attempt to reach a large audience—though inevitably far smaller than could be reached by radio—it has not attempted to maximize its audience. In part this is because it has tried to link its correspondence work with some face-to-face seminar study, and, for the most part, has itself organized these seminars rather than meshing in with training sessions run by government and extension agencies.

Effects and Costs

What evidence there is confirms that the methods used by both institutions are effective. Farmers have learned from the radio programs and the mobile vans of Malawi and from the correspondence courses of *INADES-formation.* In Malawi, radio appears to be an important source of information for a considerable number of farmers, and already reaches some 30 percent of them directly. Both radio and mobile vans attract audiences of women, who are generally not contacted by extension agents. Studies have shown gains in knowledge for students working on *INADES-formation* courses while the statistics on completion rates show that the courses are so highly valued by participants that they work more assiduously on them than many correspondence students taking examination courses.

We can summarize the results briefly by saying that the Extension Aids Branch makes a significant but probably small change to the knowledge of a very large number of farmers while *INADES-formation* make a very large change in the knowledge of a small number. Of course there are limits to the jobs which can be done by mass media: these encouraging but tentative results do not suggest that mass media can replace traditional extension services, but they do show that they can play an important part beside them.

We look in some detail at the costs of both agencies. In Malawi, we compared the costs of the various media used by EAB with the costs of contact with an extension agent. (This does not, of course, imply that each type of contact is equally effective.) In 1980 US dollars, the costs were of the following order:

Cost per contact hour by radio	$0.004
mobile unit with films	$0.168
mobile unit with puppets	$0.083
extension agent	$10–$30

To put it another way, the mobile van is 44 times as expensive as radio, while extension agents cost 55 to 80 times as much as the mobile unit. Extension services are 2,000 to 3,500 times as expensive as radio.

The costs of teaching a correspondence student for a year—leaving aside the cost of any seminars—appears to lie between $90 and $225, with the lower figure for Rwanda where the population is denser, and enrollments higher, than in Cameroon. High as these figures are, in comparison with those for very much larger numbers in Malawi, they appear to compare favorably with the cost of residential training in agriculture which is the only alternative locally available

(continued on page 13, col. 1)

Agricultural Extension and Mass Media

by Hilary Perraton

The International Extension College (IEC) is particularly interested in the use of distance teaching for non-formal and rural education. Hilary Perraton, one of the IEC's directors, looks at two ways in which media have been used in this area.

Agricultural extension has a long history. It began 11 millenia back when the first cultivator said to her sisters 'you don't have to traipse all over the country at harvest, you know. All you've got to do is sprinkle some of the grain in the earth behind the cave. My friend and I have done this for years. . . .'[1] A more formal extension service existed in India in the 13th century, offering advice and rural credit. In the 19th century the nexus between learning and the land was institutionalized in the United States with the Morrill Act and the establishment of the land grant universities. Today many countries, rich and poor, have extension services. There is so much experience of them, and their organization plays such a big part in the work of many ministries of agriculture, that it ought, by now, to be possible to say how extension services work best, and how they can best be organized. In practice things are much less clear cut. As a result we don't actually know nearly enough about how effective agricultural extension is.

We do know something about its problems, which have been extensively documented and discussed. Often, there are too few agricultural extension agents who can visit a minority of farmers. Inevitably, they tend to visit rich farmers rather than poor, and men rather than women. Often, they are inadequately trained and inadequately supervised. Sometimes they lack the technical information which would make a difference to farming.

As ever, defining the problems is easier than solving them. Two kinds of solutions have found most favor in recent years. First, in some parts of some countries, it has been possible to create much more intensive extension services, with a far more favorable ratio of extension agents to farmers. Second, in schemes like the Kenyan PIM (Programming and Implementation Management) and the World Bank's Training and Visit Program, the stress has been on better organization and control.[2] But both of these solutions have one thing in common: they are labor intensive and therefore pose problems where the expansion of extension services runs up against budgetary limits.

The Role of Mass Media

The cost of orthodox extension, the cost of improving it, therefore provoke an obvious question: can mass media take over any of the functions of extension? On the face of it, they might be able to. For one role for extension is to provide information to farmers—something which can be done by radio, by print, by cinema vans, and the like.

In practice, mass media have, for years, been used by and with extension services. Agricultural broadcasting, for example, goes back to the 1930s and many extension departments also run agricultural information services. But not much is known about their effectiveness. Over the last two years, therefore, we have been looking, on behalf of the World Bank, at some of the questions about using mass media for agricultural extension. Within a broader study[3], we have, with aid from Unesco, looked in detail at the work of two units: *INADES-formation* in West Africa and the Extension Aids Branch of Malawi, and recently published case studies on both of them.[4] The *INADES-formation* study is mainly about Cameroon but looks also at their work in Rwanda and the Ivory Coast. The two organizations are very different, but some general conclusions do emerge from a comparison between them.

Extension Aids Branch, Malawi

Malawi has an extension service, with extension agents throughout the country, which reaches farmers in three ways—through extension agents, through farmer training centers, and through mass media. The Extension Aids Branch (EAB), which is part of the extension service, is responsible for its media work. It has a staff of about 100 who work on radio programs, on producing printed material, on running a cinema van service, and on evaluation and research.

EAB broadcasts four and a half hours of radio each week and has six regular radio programs. They include a general program which makes extensive use of interviews with farmers, a music request program in which the music is interspersed with farming advice, a farming family serial, and a daily broadcast of agricultural news and information. The radio programs are, in a sense, the most popular work of EAB, as they must go out

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1414 22nd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

Judy Brace, Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Assistant

ISSN 0192-1312

AED
International Division
Academy for Educational Development

Folktales to Texts; Formative Evaluation; IEC; Ag. Extension; Computer Cautions

development communication report

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

March 1984
No. 45

The Radio Mathematics Project: New Examples of Technology Transfer

by Klaus Galda

In 1974, the Bureau for Science and Technology of the Agency for International Development established the Radio Mathematics Project (RMP) in Nicaragua. The project was to be administered jointly by the Ministry of Education of the Nicaraguan government and by the Institute for Mathematical Studies in the Social Sciences (IMSSS) at Stanford University. The goal of the RMP was to bring high quality, low cost mathematics instruction to Nicaraguan primary schools, particularly the more remote and more disadvantaged rural schools. The use of daily radio mathematics lessons was seen by AID and the Nicaraguan government as a way of overcoming the two main problems in rural schools—insufficiently trained teachers and lack of textbooks or other educational materials.

Although the RMP was specifically set up within a single country and within the formal school system, the possibilities of transferring this work were clearly seen at the outset. In fact, the project was only a first step in a larger AID effort to use development communications to help solve educational problems in the Third World. There are several levels at which the work of the RMP could be expanded. The first level is to simply adapt (or if possible use in exactly the same form) the mathematics programs produced in Nicaragua for use in primary schools in other developing countries. Another level is to adapt the programs to use in educating out-of-school children in a nonformal education setting. Yet another level is to adapt the content of the mathematics lessons, and change some of the style of the programs so that they would be suitable for adult literacy/numeracy projects. And finally, it was hoped that the methods of research, evaluation, and production which evolved in the course of five years of work in the RMP in Nicaragua would prove to be useful in other educational projects not concerned with (or at least not solely concerned with) the teaching of mathematics. We will give examples from different countries of each of these levels of application.

Much has been written about the RMP (most of which is available from the Clearinghouse on Development Communication), and the purpose of the present report is not to give another description of the project, so I will limit myself to a short paragraph summarizing the results of the RMP. The project was operating in Nicaragua from 1974–1978 with assistance from AID and IMSSS, and continued by the Nicaraguan Ministry of Education without external assistance until all activities were disrupted by the revolution in Nicaragua in mid-1979. Although the mathematics programs were not revived after the revolution, staff trained by RMP produced nonformal educational programs using many of the same techniques. The RMP produced a complete set of radio mathematics programs and auxiliary print materials for the first four grades of primary school. Each lesson is a combination of a 25–30 minute radio program and a 15–20 minute session of teacher-led activities. The radio programs, which combine mathematics instruction with some entertainment, are generally in the form of a dialogue between the radio teachers and students in the classroom. The students are

(continued on page 3)

In this issue . . .

Radio Mathematics Around the World 1
Planning Instructional Radio 1
Teaching Development Communication to African Journalists 2
Innovative Electronic Teaching in Lesotho 4
On File at ERIC 5
New Thoughts on Radio Classrooms 6
A Communicator's Checklist 8
Nutrition Communication in the Caribbean 16

An Overview and Guide: Planning Instructional Radio

by Maurice Imhoof

Instructional radio projects fail if they are inadequately planned. They are poor radio, and they don't educate. Successful radio projects require comprehensive and complex planning. The instructional radio planning team must have knowledge and capabilities in a number of technical, social, and educational areas. Among other skills, the team must understand radio, curriculum design, the subject matter being taught, research and evaluation, and the environment in which the project operates.

Radio as a Medium

The decision to use radio as an instructional medium usually follows the larger educational planning strategy. Once a basic approach to educational planning has been selected and broad educational goals set, radio may be chosen as a cost-effective means of meeting some of the goals.

Facilities and personnel. Assuming radio has been wisely chosen, there are still a number of factors which need to be analyzed by a team member who is a radio specialist. The most obvious consideration is the inventory and evaluation of the facilities: studios; broadcast, recording, and transmission equipment; classroom radios; and so on.

The capabilities of broadcast personnel are another consideration. Personnel trained to make use of radio in a manner similar to that of the project design is essential. If such experienced radio broadcasters are not available, training of personnel must be implemented as a part of the project aims and design.

Users' experience. Initial radio lessons must teach the learners how to listen to the radio if they have no previous experience in listening to instructional radio broadcasts. Although the period of time required for such skill development may be brief, scripts written for

(continued on page 11)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Nyegezi School of Journalism Spearheads Training of Development Communicators

by William M. F. Shija

The Journalism Department at Nyegezi Social Training Institute in Mwanza, Tanzania, was started by Catholic missionaries in 1963. When, in 1981, a faculty committee reviewed the curriculum of the two-year diploma course in journalism, they came to the conclusion that the skills being taught were not relevant to local needs. They decided to change the traditional curriculum in order to emphasize communication for development.

The faculty concluded that, up to then, the traditional journalism instruction had been taught from a Western, urbanized perspective, an approach which they found inadequate and inappropriate to local East African conditions and demand for news.

This article, by the former head of the Journalism Department at Nyegezi, chronicles the changes made in that journalism curriculum, the reasons for those changes, and the effects of the new community-based approach to teaching journalism in a rural setting.

After the decision to restructure the curriculum in the Nyegezi Journalism School was made, the entire course of study was revised. We re-examined our curriculum and our student population, and we began to teach such subjects as News Reporting with the clear understanding that we were teaching reporting *from rural areas for rural consumption.*

Emphasis moved, therefore, from reporting mere "newness" to the communication of ideas and values for the purpose of developing our society. If it were to be useful, we decided, this kind of reporting should focus on agricultural activities, health projects, government services, and people's self-help schemes. To further the general knowledge of our trainees, the curriculum was expanded to include such subjects as development communication, economics, sociology and research methods, international communication, and management principles.

Our major addition was the subject of development communication. In teaching this subject, we had two objectives to accomplish. First, we wanted to impart practical knowledge about problems of communication for development purposes in a way that would assure the trainees' involvement; and, second, we wanted our training programs to get out to the masses in the rural areas we could reach.

As part of their preparation for community service, and as part of the training in development communication, students were required to plan, write, compile, and test a multi-media information campaign. Some of the campaigns carried out in nearby villages proved effective in influencing the people towards better agricultural productivity, improvements in health and sanitation, and improvement in childcare.

Clearly, our direction and efforts toward development communication did not end with a curriculum review. We launched a three-month specialized course in Rural Communication, first held from May through July 1982. This was the first course of its kind in East Africa, and our objective was to provide basic communication training to people who served communities in various rural settings.

New Emphasis on Fieldwork

Our initial training course was directed toward agricultural extension workers, rural health and nutrition workers, cooperative officers, adult education coordinators, rural newspaper personnel, mass media personnel, publishing house personnel, and church workers. The three-month program included at least one week of practical training in a field setting chosen by the trainee. The course participant had to go into the field and carry out a mini-research project on the importance of the mass and other media in daily life, and to identify the popular programs in the village, as well as the dominant medium there.

After this week in the field, the trainees were required to explore the possibilities of using the media to improve the daily lives of the villagers. Since journalism in a rural setting focuses on print material, the trainees encouraged the villagers to start some kind of newspaper for themselves, even if it meant a handwritten paper. Such a handwritten paper could be placed at a village center for the dissemination of information from within and without the village.

As part of the journalism school outreach, during the training of rural communicators, we visited nearby villages and we found that there were a number of youths who had the potential talents to start rural papers for their villages. Some of them had good enough handwriting, drawing, and art abilities to be able to undertake such projects.

At one village called Buhongwa, recognized as the best village in Mwanza District in 1981 in terms of agricultural production, political organization, health attention, and village education programs, the village leaders accepted our suggestion that some of their youths could be trained at our Institute to be village communicators.

At the end of the three-month rural communication course, the faculty and the trainees assessed and recognized the achievements of both the trainees and the communities involved. The evaluation exercise included a critical report by the trainees, guest lecturers' evaluation reports, and a departmental evaluation meeting.

While the course in general was rated to be highly successful, the most prevalent problems during the training centered around the lack of sufficient facilities, such as transportation, radios and radio cassettes, photographic and printing materials. However, it was clear from the evaluation of our objectives that we could integrate our training program into the overall development objectives of the country. The new directions in the curriculum were shown to be meaningful, to the regions involved as well as to the individual students. The Journalism Department and the Institute as a whole has now registered the Rural Communication Course to be a regular course, running from May to July every year. For more information write to: The Head, Journalism Department, Nyegezi Social Training Institute, P.O. Box 307, Mwanza, Tanzania; or to William M. F. Shija, 1223 Fairmont St. NW, Washington, D.C. 20009, USA. ■

William Shija was formerly the head of the Journalism Development Department at Nyegezi Institute in Tanzania. He is currently studying for a graduate degree in communications at Howard University, Washington, D.C.

Publications to Note

The Center for International Education at the University of Massachusetts is publishing a new series of technical field notes that many readers will find useful. An initial set of Technical Notes resulted from the landmark U-Mass Nonformal Education Project in Ecuador a few years ago. These new Notes (16-22) have been developed under the U-Mass Indonesia Nonformal Education Project, and are how-to booklets on such subjects as "using consultants for materials development," "designing and using simulations for training," ". . . a needs assessment technique," and "field training through case studies."

Health educators will be pleased to know of another Technical Note, on a "game of childhood diseases" that has been carefully developed so as to be both educational and playable. Technical Notes are not the only publications that the Center produces. A detailed implementation study of the Indonesian Nonformal Education Project is available, as is an excellent selection of in-depth studies, curriculum aids, and issue papers.

The publications list is available from Publications Coordinator, Center for International Education, 285 Hills House South, University of Massachusetts, Amherst, Massachusetts 01003, USA. ■

By Judy Brace

The School Classroom and the Radio Classroom

by Esta de Fossard

Radio is a very effective medium for communication. In some places of the world, it is the only medium of education for children who live in very remote areas. In these cases, radio must become the school; the radio program must become the class.

It is important for the instructional radio script writers to be aware that they are primarily writing good lessons that will be delivered by radio, not *radio programs that are going to teach lessons. It can be helpful, therefore, to start by considering the components of a good classroom and then thinking about how these can be transferred to radio. The script writer who has not had experience as a classroom teacher would do well to watch a good teacher at work before undertaking the scripting—paying particular attention to the organization of the class and the lessons, and to the way the teacher interacts with the children.*

The following is a suggestion of how the various components of a good class can be reproduced on radio.

Attributes of a good classroom:

1. Organization
2. Discipline
3. Motivation
4. Care and concern

The radio classroom must seek to provide an environment like this. Some suggestions for how this can be done:

Regular Classroom	Radio Classroom
The teacher is in front. The children watch him/her for direction.	The radio is in front. Children focus their attention on radio. Blackboard can be beside radio, if possible. Children must have a point of focus.
2. The facilities and materials that children use are organized in shelves, boxes, cupboards etc.	Radio must provide the same type of "classroom" organization by creating segments marked with clear, distinct sound cues.
3. Classroom teacher requires silence while children work. Noise is seen as distracting.	The radio must provide periods of silence for work and for oral responses. While it is true that normal radio programs abhor "dead air," we must remember we are creating a class, not an entertainment. If pauses are to be long, then very soft, non-disruptive music can be used to fill them. If the same music is used in all work periods, it will not be so distracting.
4. The teacher uses *visual* cues to alert the children to what is going on. For example, while talking about using the math book, the teacher will hold it up.	The radio must replace visual cues with aural cues to assist children to anticipate and understand what is going on. For example—if children are required to use worksheets or exercise books, they can be given a short sound cue every time they are asked to use them.
5. The classroom uses one teacher only, sometimes assisted by an aide.	The radio should not confuse children by using too many different voices. Ideally there should be only two teachers in any one segment—so that modeling can take place and so that one teacher can give the questions; another give the answers—thus providing a further aural cue for the children.

(continued on page 10)

(**Galda** continued from page 1)

extremely active during the program, with a combination of frequent oral, written, and physical responses. A minimum of printed support material is used; in the first grade students receive individual worksheets, but after that there are no student materials to be distributed, with higher grades relying only on a teacher's guide, the blackboard, and student notebooks. The programs are designed to be used by even the most inexperienced and untrained teachers, and only a short one-day training course is necessary.

The project evaluation showed that the programs were quite successful in Nicaragua. Student achievement tests were given to those students using the radio programs and to a comparable control group. At every grade level the RMP students learned more mathematics than students in the regular schools. The programs were very popular with the students as well as most of the teachers. Although no attempt was made to attract out-of-school listeners, the RMP programs also had a sizable audience among adults and out-of-school children.

After IMSSS participation in Nicaragua stopped at the end of 1978, AID supported RMP dissemination activities for an additional two-and-a-half years until July 1981. During that time, IMSSS worked with the Ministry of Education in Thailand to adapt RMP programs, and also gave numerous seminars on the RMP in many countries.

Adaptation in Thailand

In Thailand we have an example of the first level of adaptation of the RMP programs. The programs are being used in primary schools in a country which is at a similar level of development (particularly in the rural areas) to Nicaragua, although the cultural traditions are very different. The World Bank, through its Fifth Education Project in Thailand, is supporting a massive effort to improve and expand educational radio. Among other aspects, this project is constructing a complete network of educational radio stations, which will cover more than 90 percent of Thailand. As part of this effort IMSSS worked with the Centre for Educational Technology (CET), a part of the Thai Ministry of Education, to develop primary school mathematics programs. This work began in July 1979. In the 1980–1981 school year, CET produced programs for second grade, and first grade programs were produced in 1981–1982, with a revision of the original second grade programs done in 1982–1983. During this time the programs were broadcast on an experimental basis only, in a total of 32 schools, half of which were in Bangkok and the other half in two remote provinces in the Northeast of Thailand. During the 1983–1984 school year CET is developing the programs for third

(continued on page 14)

Innovations in Education: Hand-Held Electronic Aids in Lesotho

by Stephen Anzalone

What the transistor did for radio, the microchip did for the computer. In developing countries, these innovations opened new possibilities for accessing and transmitting information essential for education and development.

Microchips have made possible the compact, battery-powered, and relatively inexpensive electronic learning aid. The use of the electronic aid in education in developing countries may in time make it the first cousin of the transistor radio.

The kinship between the two technologies is striking. Just as more developed countries did not fully exploit the potential of radio for instruction, largely because of the attractiveness of television, so too have the possibilities of microprocessor-driven learning aids been ignored by schools in these countries because of the greater capabilities offered by larger microcomputers.

Yet developing countries have found radio to be an effective means of instruction—better suited to their needs and budgets than television. The same may prove true for the less complicated and less costly learning aid that delivers an interactive medium for practice in skills necessary for literacy, numeracy, and learning a second language.

The Center for International Education at the University of Massachusetts has begun to investigate the possibilities offered by hand-held electronic learning aids to support literacy instruction in developing countries. The Center, with a grant from AID's Office of Education and a donation of equipment from Texas Instruments, Inc., has established the Electronic Aids for Literacy Project to examine the effects of using electronic aids in literacy instruction.

The project will collaborate with the Lesotho Distance Teaching Centre and the Lesotho National Curriculum Development Centre in conducting a field test of electronic learning aids in five primary schools and in an activity for young people unable to attend school. The field experiment began during the end of August 1983 and ran for 12 weeks. The devices being tested are the small, hand-held Speak & Read and Speak & Math learning aids manufactured by Texas Instruments.

The learning aids offer opportunities to improve skills in English and arithmetic. The Speak & Math can present 100,000 different arithmetic problems through a variety of instructional routines. The Speak & Read provides practice with letter-sound relationships, word patterns, word recognition, and vocabulary in English. The words instructed by the device can be expanded by insertion of one of eight plastic modules, which permits a total capacity of about 1500 words. The aids are designed to link synthetic speech to a visual display of words and numbers. In other words, they "talk." As the user proceeds through a drill, the device responds to both correct and incorrect answers and for many routines keeps score of correct and incorrect responses to a set of problems or questions.

In the Lesotho school experiment, pupils in Standards (grades) Three, Four, and Six are using the aids in groups of four for three to five hours per week during appropriate times in the school day. Pupils are tested weekly on arithmetic and English word recognition, depending on the aid used by their class. In the out-of-school activity, a group of about forty shepherd boys is using the Speak & Math in an attempt to strengthen arithmetic skills.

The field test in Lesotho hopes to answer the following questions:

- Do pupils adjust to the electronic voice of the aids?
- Can the voice be heard in what are sometimes noisy classrooms?
- How well do the electronic aids withstand the conditions found in a developing country?
- What would be the cost of the aids and batteries for a given unit of instruction?
- What age and ability groups might the aids serve?
- How do teachers and pupils react to the electronic aids over time?
- Does use of the aids contribute to improvement in arithmetic and recognition of English words?

The experience in Lesotho will try to discover what adaptations to existing models of the electronic aids and what locally specific supporting materials may be required for effective use of electronic aids in a developing country. And although the aids are being used as a general supplement to the existing instructional program, the experiment will explore with teachers how and where the aids might be used to reinforce specific parts of the curriculum.

At this writing, it is too early to report definite results. The first six weeks of the field test in Lesotho showed, however, a high degree of acceptance and involvement on the part of teachers and pupils. As with any potential innovation in education, what must be demonstrated is whether initial enthusiasm can be sustained and translated into real learning effects.

Even before the results are obtained and something is learned about what electronic aids can contribute as a supplement to instruction, it is difficult not to speculate about what effect the electronic aids would have if used in combination with their technological cousin, the transistor radio. Radio's rich environment for introducing new concepts and ideas and for exploring new meanings, together with the capabilities of electronic aids for providing an interesting way to practice skills with immediate and individual feedback, suggests an impressive potential that deserves to be further explored. ■

Stephen Anzalone is a senior researcher at the Center for International Education, University of Massachusetts, Amherst, MA 01003, USA.

Telecommunications Link Workshops in Africa, Asia, Latin America

Three regional workshops on the research management needs of food industries held simultaneously in Africa, Asia, and Latin America in May were linked together via computerized telecommunications. Sponsored jointly by the (U.N.) University and Canada's International Development Research Centre (IDRC), the workshops in Bogotá, Nairobi, and Singapore were able to communicate with one another on a daily basis the information and recommendations arising from each one's discussions.

The far-flung, virtually instantaneous exchange concentrated in particular on the research management needs of small-scale food industries and of research and development institutions. It is interesting to note that, while a number of recommendations were common to all three workshops, there were also differing approaches to various problems. The Latin American meeting laid a great deal of emphasis on contract research and on working closely with large corporations as well as seeking funds from governments. In Africa, greater stress was laid on governmentally supported research. In the Asian workshop, a mixed approach was advocated, with emphasis on the development of small and medium-scale industries that give due attention to traditional technologies.

All three workshops recognized the importance of regional and interregional cooperation. The proceedings will be combined, edited and published by the IDRC. ■

Reprinted from the
U.N. University Newsletter
November 1983

Notice/Notice/Notice

We are moving! As of April 1st, 1984 our new address will be:

Development Communication Report
c/o Clearinghouse on Development Communication
Academy for Educational Development
1255 23rd Street, NW
Washington, D.C. 20037, USA

On File at ERIC

Recent entries in the ERIC (Educational Resources Information Center) files reviewed in this column are concerned with the use of radio for teaching English, drama in nonformal education, technical cooperation among countries, communication policy-making and planning, and computer conferencing. All five are available on microfiche and four in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, USA. Be sure to include the ED number.

- Christensen, Philip R. and Mugiri, Ephantus M. *The Intensive Use of Radio for Teaching English in Kenyan Rural Primary Schools. Exploring a Cost Effective Application of Educational Technology.* 1983. 24pp. (ED 228 837)

This paper explores the Radio Language Arts Project (RLAP), an application of instructional radio technology to the teaching of English as a foreign language. The advantages and disadvantages of the use of radio in education are noted, and successful realizations of radio's potential in Kenya and Nicaragua are described. The subject matter, English, is analyzed from the perspective of Kenyan curriculum and the radio medium. The most significant instructional design principles used by the RLAP are enumerated, i.e., more intensive use of radio and for longer periods, cost control, systematic instructional development, provision for distributed learning and immediate reinforcement, and the teacher/radio partnership. The formative and summative evaluation strategies for the RLAP are also described, and the implications of the project are considered. This paper, presented at the Unesco/BREDA International Seminar on the Use of Appropriate Technologies in Education (Nairobi, Kenya, March 21–26, 1983), is available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- Gerace, Frank A. and Carkin, Gary. *Drama in Development: Its Integration in Non-Formal Education. Occasional Paper #4.* 1978. 20pp. (ED 232 830)

With their links to real life, drama and nonformal education (NFE) can be effective partners in achieving developmental goals. NFE's freedom from some of the structural features of formal schooling presents a dramatic opportunity for the arts, with their affective characteristics, to help in achieving [illegible]tive goals of education and development. For example, education for socioeconomic development, a principal area of NFE, includes attitude change as a principal objective. If dramatic production is to be an effective element in NFE, it must be good theater and it must allow audiences to identify with the characters, situations, and dialogue of the presentation. To use drama for developmental purposes, national planners should collaborate with dramatic artists, educators, and existing governmental agencies in developing training programs and producing materials for the mass media to stimulate awareness of national problems and motivate action for change. Such action could be supported by formal education and other services. The results of such an integrated approach to national development could stimulate the work of artists and relate their work to the development process, ignite and unite the national spirit for purposes of development, and support the goals of formal educators through use of a nonformal educational strategy. Available from the NFE Information Center, Michigan State University, 237 Erickson Hall, East Lansing, MI 48824, USA (while the supply lasts), or from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- *The Network of Educational Systems for Development in Central America and Panama Project, 1975–1979. An Experiment in Technical Cooperation among Countries.* 1980. 22pp. (ED 230 453)

The historical development and future goals of a Unesco project to establish a network of educational systems throughout Central America are described. This project began to search for solutions to regional social, economic, and educational development problems in 1975. The objectives of the project were to conduct a critical analysis of the socioeconomic situation in relation to educational needs in each subregion; provide support for renewal of formal and nonformal learning processes by developing curricular innovation; and train technical, administrative, and teaching personnel according to new educational and administrative trends. The project sought to organize technical and human resources within the formal educational systems, design entry points within the systems that would emphasize the role of decision-making centers, train national specialists, and make available the resources of the system to solve rural underdevelopment and underemployment. Other activities included curriculum development, identification of socioeconomic indicators for educational planning, and research on the position of organized groups in Central America regarding educational systems. In its next phase, the project will focus on putting results of research and program development into practice. This Unesco report is available from EDRS in microfiche only for 97¢.

- Rahim, Syed A, and others. *Planning Methods, Models, and Organization: A Review Study for Communication Policy Making and Planning.* 1978. 270pp. (ED 233 423)

Intended for researchers, policy-makers, and planners, the studies in this volume examine issues in communication policy and planning in developing nations. The five studies discuss (1) the organizational and methodological aspects of communication planning, including structure and organization, methods, and models; (2) the economics of communication, including the limitations of economic theory and inhibiting influences and innovations; (3) long-range communication policy and planning, including futures research and use of the Delphi technique in policy and planning; (4) lessons for communication planning in urban and regional planning methodology, including the planning process as it applies to communication planning; and (5) lessons for communication planning in educational planning, including educational planning models and indicators of effectiveness. This report from the East-West Center in Honolulu, Hawaii, which was prepared for Unesco, is available from EDRS in microfiche for 97¢ or in paper copy for $19.65.

- Mills, Miriam K. *Computer Conferencing for the Third World: Roadmap for the Future.* 1983. 17pp. (ED 233 682)

This paper presented at the April 1983 conference of the International Studies Association in Mexico City considers the potential utility of computer conferencing for the Third World. A brief description is provided of a computer conferencing system, the Electronic Information Exchange System (EIES), which is based at the New Jersey (USA) Institute of Technology. International discussions on telecommunications and some of the activities of multinational organizations which affect the extension of technology to developing nations are noted, as well as technical constraints on the extension of telecommunications technology. Applications of computer conferencing to education, employment, and information transfer are described, and the social consequences of the introduction of such a program are considered. General guidelines for the future implementation of computer conferencing are also given. A 26-item bibliography is provided. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15 ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210 USA.

Ithiel de Sola Pool

We at the Clearinghouse on Development Communication were profoundly sorry to learn of the death of Ithiel de Sola Pool on March 11, 1984. He was a pioneering researcher in the use of quantitative measures in communications theory and research. Widely published, widely read, and widely admired, Dr. Pool will be missed by all who know and respect his work.

—H.F.R.

Radio Training: Who For What?

by Michael Laflin

While some people would argue that good radio producers are born and not made, there *are* nevertheless skills in radio production that can be identified and for which training programs can be developed. This article addresses recruitment of radio production workers in developing countries, and discusses courses and curriculum appropriate for trainees who will be working in educational radio.

It is important to realize that, while general principles of recruitment apply, radio in many developing countries has a comparatively limited pool from which to draw recruits. Highly educated and widely read applicants tend to be few in number. Many radio stations are government organizations and can pay only limited salaries, so that the best communicators join private agencies. Available training may be associated with a project, in which case one has to recruit large numbers of people very quickly, and train them in a limited time. All these factors may militate against finding and training the best people. But when an organization exists and trained people are needed, training is not only possible, it is imperative.

Whom to Select for Training

The Institute for International Research is providing technical assistance to the Government of Liberia and the United States Agency for International Development to establish a network of five radio stations in Liberia. Many of my examples refer to this project, and also to the Educational Media Service in Kenya where I worked for several years.

The groups from which recruitment should be made often appear to be self-defined. The Liberian network, for example, is designed to serve education and information needs of local communities in their own languages. Therefore, linguistic criteria, a previous history of rural service, and educational qualifications of a particular level seemed to define the pool. However, in Liberia, these criteria proved to be too narrow. Too few female candidates applied, and the educational level cited suggested that salaries would be too small to attract more highly qualified candidates. In Kenya, the Educational Media Service, a system of distance teaching by radio, generally recruited from schools and teacher training colleges, on the assumption that educators should make educational programs. The programming was largely for primary schools, but most primary school teachers were felt to be underqualified to produce radio programs. Recruitment was therefore from among secondary teachers or teacher trainers, few of whom had had any primary school teaching experience. However, imaginative and effective programs often came from producers who were recruited from outside the education system.

In both cases, there were instances when the criteria ruled out people who were qualified, and failed to exclude those who were unqualified.

Whatever criteria are used to define the group from whom selection is to be made, the selection process itself is difficult. What indicators will be used to spot the talented and well-motivated producer? Creative and accurate use of language is evidently important. Furthermore, some objective tests of vocabulary correlate highly with general intelligence. But will the applicant exploit those skills? Will he or she persevere, show initiative, display a sense of humor? How can these qualities be assessed in a meeting as short and artificial as an interview? In addition to objective tests and interviews, two techniques provide useful indications of future performance. One is to send the applicant away with a tape recorder to record an interview and certain sound effects; the second is to find out what he or she reads and how he responds to books. Recording an interview and sound effects gives an indication of how the applicant reacts to people, to stress, to ideas. It gives an inkling of his or her initiative and determination, and his or her ability to structure a dialogue. Talking about books gives an insight into the candidate's capacity to discuss ideas, verbal dexterity, and personality. The choice of books, even if the interviewer has not read them, is revealing.

Such subjective selection methods assume that the interviewer knows the job requirements and is a sound judge of character. However, it can be argued that the job is more idiosyncratic than most. There is no stereotypical radio producer. Finally, even if objective tests are applied, they are based on assumptions, and nobody has proved that these assumptions select potential radio producers any better than the judgement of an experienced radio professional.

One further factor complicates the selection of radio producers. When a broadcasting organization is part of a government service, it generally operates under civil service rules. Does one therefore select the person who will operate well in the civil service milieu, or the person who may chafe against the regulations but produce good programs? The civil service reward-system is often such that the hardworking, meticulous, imaginative producer receives an extra production load as the only recognition of good performance. This not only encourages mediocrity, but often virtually guarantees it. There are thus factors to consider in recruitment quite separate from production capabilities.

What to Teach?

Most radio training courses go through the process of assessing job needs and developing responsive training objectives. I would argue, however, that in many cases the needs assessment is limited in its vision. A task analysis of radio production would reveal daily decisions and skills beyond what is provided by many courses. The producer of nonformal education programs should ideally be a researcher, planner, and manager; a writer, a sociologist; he or she must develop communities, curricula, and human resources; he or she must know something of child psychology, social psychology, translation from lingua franca to mother tongue; he or she must be an evaluator and statistician; a knowledge of development would help, as would technical knowledge of a field like agriculture or health; and all of this over and above a knowledge of studio operations. Can so much be included, and still be taught effectively? In what time period? To further complicate matters, we have to recognize that many of these skills are acquired through the on-going educational process, not specific job-centered training.

In the course that we are conducting for a group of 21 Liberians, which will last for 12 months and be followed by a further period of practical experience, heaviest emphasis is placed on a module called "Broadcasting Arts." This covers virtually everything that takes place in the control room: direction, editing, use of music and sound effects, and operation of equipment. It also includes skills such as interviewing, hosting discussions, microphone placement, and is little different from a conventional radio production course. Considerable time has also been spent on writing skills, from both a creative and a grammatical standpoint. Participants are learning the function of many program formats, and how to create them.

What is less usual, possibly because most courses last only a few months rather than for a year, is the emphasis placed on the educational and social context of broadcasting. We would argue that in order to respond to the educational needs of a society in terms that it understands and can make use of, the producer must first understand the society he or she serves.

An understanding of the social context of radio for development requires social survey skills, an understanding of community organization and of development processes, a knowledge of the organizations that radio will serve and of other communications systems, and the rudiments of social psychology. Whether one regards communications for development as a technical process of diffusion of knowledge, evangelism, or government propaganda, the radio producer must know the limits of his or her credibility and how to stay within those limits. Pro-

(continued on next page)

(**Laflin** continued from page 6)
ducers must know how to analyze the society in which they operate, and the individuals who constitute it.

To produce educational programs requires skills in planning, research, and evaluation; and a knowledge of educational psychology. Since the Liberian Rural Communications Network (LRCN) will produce printed support materials, producers are also being taught audiovisual techniques.

LRCN rural stations will have the services of a group of outreach personnel at each station. They will function as links between the stations, other government services, and the communities, and will provide feedback to producers.

Management Courses Important

Every LRCN professional, whether a producer, administrator, researcher, or community fieldworker is taking a course in management. There are several reasons: first, each person has to manage affairs that involve several people, and one cannot assume that anyone instinctively possesses all necessary skills to do so; second, most LRCN personnel were formerly in positions where they may not have been exposed to the urgency of meeting production deadlines; third, we believe that an understanding of the functions and problems of management promotes a more positive relationship between managers and subordinates. In a new institution, where procedures are being developed and new problems arise daily, an atmosphere of cooperation is essential.

It is, perhaps, impossible to teach so much, even in a year, to people with no prior knowledge of broadcasting. No assumptions are being made that the practice of radio is a mystery that is completely solved in a fixed time, even if a person's status formally changes from trainee to producer when a period of time has elapsed or the last page of the curriculum completed. One never stops learning, least of all in radio production. To suggest one 'knows radio production' signifies a mental rigidity that is anathema to good radio, and is perhaps the flaw to which radio trainers are most prone.

The question of evaluating the progress of trainees is too large to include in this short article. Because the process of assessment is in many ways a fluid and subjective one, rigidity on the part of those doing the evaluation may be a problem. We are experimenting with systems of self-assessment on the grounds that more is likely to be learned by trainees from assessing their own progress than from external evaluations. Even the process of identifying appropriate criteria for judgements of progress is illuminating to trainees. Group work and group evaluation is also being used. One reality of evaluating training in the developing world is the economic cost of failure; few failures can be afforded by organizations with limited resources, so that passing and failing ceases to be an issue once the totally unsuitable candidates have been weeded out. The onus becomes that of making evaluation a useful learning process in itself, and of modifying and supplementing the training in the light of an evaluation of the program. Hence, evaluation focuses as much on the trainer as the trainee.

A weakness of project-related training is that it ends with the project. Institutions, on the other hand, are intended to endure. Consequently, part of the curriculum in Liberia is devoted to preparing trainees to staff a continuing Training Department with the LRCN.

I have enumerated the major elements of the course because I believe that training radio producers is too often seen in purely technical terms. Radio producers serve human beings in social and educational ways. Educational producers trained only in instructional systems design and to operate a studio have been shown only part of the whole process.

Any reader interested in further details of the course, for which a manual is being prepared and will be revised during 1984, should write to: Michael Laflin, Institute for International Research, 6715 Whittier Avenue, McLean, Virginia 22101, USA. Equally, I would like to hear from other organizations involved in training for radio, to exchange views, experience, and materials. ■

Michael Laflin has worked in radio and television in Kenya, and is currently with the Institute for International Research, under an AID contract to help the Government of Liberia to develop a network of rural radio stations.

McLuhan Prize Awarded

Luis Ramiro Beltran, Bolivian-born journalist and communication scholar, has won the first $50,000 McLuhan Teleglobe Canada award, the Canadian Commission for Unesco has announced.

The award was set up last year in honor of the late University of Toronto philosopher Marshall McLuhan, author of *Understanding The Media* and other works.

Its purpose is to encourage exceptional contributions to better understand the influence of communications media and technology on society in general, and on its cultural, artistic and scientific activities.

Beltran, who lives in Bogotá, has written extensively on communication research and techniques for rural development in Latin America.

Editor's Note: Dr. Beltran is a member of *DCR's* Editorial Advisory Board.

Reprinted from the International Council for Adult Education Newsletter, *December 1983.*

Good Things from Unesco

Reviewed by Judy Brace

In case some of our readers are not familiar with the Unesco series, *The Economics of New Educational Media,* there are now three volumes available. The first volume, published in 1977, deals with cost analysis, and contains such things as standard tables for cost measurement in media systems, institutions and experts in the field, a bibliography on instructional media, and several case studies. The second volume, published in 1980, goes into "results and problems" of determining whether media are cost effective, and for the first time introduces the concept of communication technology in other than formal educational settings. Here, too, are case studies, and project abstracts.

The newest volume, number three, published in 1982, gives a comprehensive overview of the issues involved in planning the use of educational media. Beginning with the "fundamental question" of whether technology increases the cost-effectiveness of education, various chapters cover twentieth century concepts, financial and institutional constraints in education systems, measurement methodologies, technology's effects, and a very nice summary chapter on the future of technology in education. The bibliography is particularly good.

These publications are available from Unesco booksellers worldwide, or from the Division of Methods, Materials and Techniques, Unesco, 7 place de Fontenoy, 75700 Paris, France.

Another Unesco series that our readers should know about is "Communication and Society." These monographs now number 13 (11 in English, 2 in French), and are grouped around themes such as historical development, communication indicators, and socio-economic aspects of national systems. Under this latter rubric, three publications review radio broadcasting in Austria, Venezuela, and Czechoslovakia. Number 13, *Traditional Forms of Communication and the Mass Media in India,* provides a comprehensive look at the variety of folk media available to carry development messages in India. India has institutionalized folk media in the Song and Drama Division of the Ministry of Information and Broadcasting and in the Department of Traditional Media in the Indian Institute of Mass Communications, and many seminars and workshops have been held on the subject. The purpose of this monograph is to develop the relationship between folk and mass media, to look at cases where they have been integrated, and to move this integration forward.

For information concerning the titles that

(continued on page 10)

A Communicator's Checklist

1 *Communication Economics and Development,* edited by Meheroo Jussawalla and D.M. Lamberton (Elmsford, New York, Pergamon Policy Studies, Pergamon Press, 1982), 345 pp.

Is it possible to link communications, development, politics, planning, and economics in a meaningful way so that consumers of the products of these linkages can decide which ones have potential for them? The East-West Communications Institute has a consistent and persistent history of studying the role of communication in the development process. Their ambitious endeavors in this instance resulted in an edited collection of presentations from a 1980 workshop on the economics of communication. This mixture of conceptual and practical analyses reflects the work of an impressive group of workshop contributors. Whether the results of their efforts impress the reader of this edition depends in part upon the readers' perspective and expectations. Those searching for impressive and persuasive evidence of the impact of economic analysis on development communication planning will likely be disappointed. Those seeking considered insight into the complexities of policy planning, telecommunications, politics, and economics will become much better informed. Add to this a concern for practical application of these concepts and processes in developing countries, particularly in rural development, and you have a fair description of the focus of this collection.

Workshop participants representing the fields of economics, information science, communication studies, and development were requested by the Institute to relate their areas of interest and expertise to concepts, techniques and problems represented in other areas. This is obviously no simple assignment, particularly when our requirements for clarity, simplicity, and universal truth are added to the evaluative criteria. What we find is a substantive, relatively academic integration of communications and economics. The case studies and analyses of case studies provide valuable insights into the formal and more often informal applications of economic principles and analytical procedures in communication planning. The considerable expanse between the theory and practice perspective is represented by chapters devoted to descriptions of predictive models, constraints on development, and concerns about the practicality of studying and eventually describing the relationships between communication and economics.

Although you would be hard pressed to state that there is something for everybody in this collection, theory builders, evaluators, planners, funders, and researchers from many fields can likely find relevant chapters and ideas. For example, John Middleton, George Beal, and Melina Pugne's chapter analyzing the reported use of economic concepts in communication planning supports a strong personal, but thus far empirically unsupported, bias towards cost-effectiveness methods rather than the strongly advocated (by economists) cost-benefit approach. Whether current practice by six agencies in five countries constitutes sufficient support for what should be done is still debatable . . . Another chapter by Heather Hudson on the generation of a model for predicting development benefits from telecommunications investment provides useful guidance for planners, evaluators, and researchers, particularly those interested in rural development and communications planning.

It will be interesting to see whether this publication is selected to serve as a textbook in college courses. The considerable range of perspectives and fields represented, while making it unique and useful, will also present a challenge for professors. Perhaps the generally cosmopolitan and integrative posture of most development communications professionals will make the selection decision an easy one. Or they may choose to use it as a personal reference text recommending specific chapters to selected colleagues and students. Either way, it will likely be judged useful and substantive. ■

Reviewed by Philip L. Doughty, an Associate Professor in the Graduate School of Education at Syracuse University in the area of Instructional Design, Development, and Evaluation.

Available from Pergamon Press, Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, USA, for US$30.00, hardcover only.

2 *Telecommunications and Economic Development,* by Robert J. Saunders, Jeremy J. Warford, and Bjorn Wellenius (Baltimore, MD, The Johns Hopkins University Press, 1983), 395 pp.

3 *Telecommunications for Development. Synthesis Report.* (Geneva, International Telecommunications Union, 1984), 94 pp.

The debates which have taken place over calls for a New World Information Order (NWIO), at least to the degree that they have attracted significant public attention, have tended to center around a few highly controversial topics on the international agenda. The developed and developing countries have confronted each other over questions of national sovereignty and the free flow of information, cultural autonomy and cultural dependence, news management and freedom of the press. On these and related issues, the rhetoric has been heated and abundant, and the competing claims of the participants have been set out in such a way that, for the immediate future at any rate, there appears little possibility of reconciliation or meaningful compromise. Yet these admittedly contentious and highly politicized issues do not define the terms of the debate in themselves. There are other, equally important and perhaps more basic, issues involved which may show a better prospect for cooperation and substantive progress.

At bottom, the NWIO phenomenon is another aspect of the North/South cleavage between the rich and poor nations of the earth; which is to say that the discussion is fundamentally about disparity, in this case disparity in information and communications resources. As the world moves further and faster into the "information age," the nations of the Third World, lacking infrastructures, expertise and funds, see themselves being left behind while the developed nations reap the increasing bounties of the new information and communication technologies. They see the creation of yet a new kind of poverty, a poverty of information, which, taken with the extremes of material poverty they already face, portends a grim future. The NWIO debates have tended to center around the more obvious *results* of the global imbalance in communications resources. The deeper problem for the Third World, like so many of the others they face, is one of development, of building the basic communication infrastructures which will allow them to begin to benefit from the capacities of the new technologies.

Cast in this light, many of the difficulties surrounding NWIO present a rather different face and need not provoke such inflexible responses. Indeed, the creation of basic communications infrastructures as a tool in development in the Third World is something which the developed countries have pledged themselves to assist in principle and, to some degree, have already begun in substance.

Encouraging as such promises may be, translating them into action is another matter. Daily reality in the Third World is grim and always complex. The developing countries are beset by a host of problems—unemployment on a mass scale, inadequate health and educational facilities, poor transportation, burgeoning urban centers, to

(continued on next page)

name but a few—which make insistent demands on the limited resources available to deal with them. In the face of such immediate demands, which touch directly on the day-to-day condition of their peoples, these countries find it difficult to justify allocation of their meager resources to investments in telecommunications systems. There may be wide agreement that such investments will be beneficial in promoting overall development, but how to measure this tangibly and directly is difficult at best.

The benefits of an expanded telephone system are not apparent in the way that building a new public health clinic or a new school is. The paucity of research materials on communications in the development process makes it difficult for planners, economists and politicians to make decisions, to gauge priorities. Thus, though there may be a certain level of intuitive agreement on the importance of communications in terms of Third World development, the degree of that importance, the nature of the contribution to the whole, is difficult to judge.

Two new publications—one from the World Bank and the other prepared by the ITU with help from the Organization for Economic Cooperation and Development (OECD)—make a timely contribution to this discussion. Both are devoted to the role of telecommunications—largely telephone systems—in economic development. Each offers a valuable review of existing research in the field—the first time that this material has been gathered together in such compact, generally usable forms—and attempts to give to the issues involved the sort of perspective that has often been lacking. The Bank study is more in the nature of an overall review and does not make any firm recommendations for action. The ITU/OECD report, on the other hand, proposes the creation of a new global system called "GLODOM" to meet the needs of telecommunications in the developing world.

Taken together and on their individual merits, these two studies make a significant contribution to the discussion of a problem that is going to loom large in the years ahead. It is already clear that full participation in the life of the information age requires access to the technologies of communication beginning at the basic levels. That an imbalance between the rich and the poor nations exists in the availability of these resources is beyond question. As this disparity comes more and more to be felt, there will be a growing and insistent demand that it be redressed. Among other things, this will mean that we are going to have to try to understand more clearly than we do now the benefits, costs, complexities and risks involved in building basic communications infrastructures in the Third World. Both of these studies will enhance our understanding and provide provocative indications of the directions in which we ought to be heading. While each is careful to avoid touting panaceas or quick fixes, both (one guardedly, the other openly) offer the prospect of a world information order that is not static, but capable of adaptation, adjustment and more equitable application through cooperative effort.

Three Major Viewpoints

In the World Bank's study, *Telecommunications and Economic Development,* the authors identify three major viewpoints. The first argues that "the expansion of telecommunications services does not deserve priority in resource allocation, partly because it has too little measurable economic effect and partly because in some countries rapid two-way communication among the population could occasionally facilitate political instability." The underlying assumption in this view is that "this service is used for the most part for economically and socially worthless purposes."

The second, less restrictive opinion is "that at least the demonstrated market demand for telecommunications should be met and that new technical applications should be provided when they are the most cost-effective way to meet registered demand and to provide minimum telephone access to rural areas." This, in general, is the position which has been taken by the ITU Consultative Committee on Telephone and Telegraph (CCITT). The third viewpoint is a good deal more activist, more optimistic about the potential of new technologies, and "promotes rapidly advancing telecommunications technology as a prime means to achieve a wide range of social and economic goals in numerous socially oriented sectors, including the delivery of education and health services."

The importance of determining which of these views is correct is something that, as the book notes, "can scarcely be exaggerated." On the one hand, if a sound telecommunications infrastructure is in fact "essential for rapid and efficient development," its neglect may hinder development in other areas. If, on the other hand, existing levels of and expansion of such systems are more or less appropriate, "then massive investment in the premature expansion of a major infrastructure system would be not only a misdirection of resources, but would create a serious burden of unnecessary administration, training, and maintenance." Having acknowledged as much, however, the authors decline to attempt to provide any specific answers because of the "paucity of sound analytical material and relevant empirical data on which to base policy decisions about investment in telecommunications."

What this book does provide is a comprehensive review of the materials available in this field. It is divided into six sections. The first is introductory, designed to lay necessary groundwork and to provide perspective. The second is devoted to macroeconomic analysis of benefits following "highly aggregative approaches," which the authors conclude are descriptively useful, but of little assistance in decision-making. Part III addresses microeconomic approaches to benefit analysis, concluding that these are "in almost all instances unsatisfactory" and that it is usually necessary to "make decisions on qualitative grounds." The fourth section examines various usage and user patterns in telecommunications drawn from surveys taken throughout the world. The fifth part discusses tariffs and investment decision-making, while the concluding section briefly discusses the "potential for some fundamental organizational change." The book contains three appendices and there are numerous illustrative tables and charts throughout.

In setting out their aims, the authors are very modest, saying that they chiefly want to provide "policymakers with food for thought on ways to use economic analysis to improve resource allocation on policies for sector organization, management and tariffs." They have certainly succeeded in this, and they have done a good deal more. The thorough, careful and judicious review of research which they provide is a first rate, major compilation. In providing this, the authors have done a real service and have produced a reference book for all who have a serious interest in communications and development.

Telecommunications has never been high on the Bank's list of development assistance priorities. As the book says, the policy has been "to limit its involvement in the telecommunications sector to that of lender of last resort." Since 1960, the Bank has approved $2.6 billion in telecommunications loans and credits in 42 countries, which amounts to less than three percent of its lending in that period. Yet even though the Bank's role has been thus limited as a matter of policy, it is nonetheless "the principal multilateral source of finance for telecommunications in developing countries," a role that it will likely continue to play in the future. It remains to be seen whether this study signals any shift in priorities by the World Bank towards a more active role in promoting telecommunications development. Any such changes will undoubtedly be gradual and, like the approach of this book, cautious.

Joint ITU-OECD Report

Telecommunications for Development is a report prepared jointly by the ITU and the OECD. In subject and scope it is similar to the World Bank's study, but its approach is quite different. The purpose of this document is, in the authors' words, "to pave the way for development of inexpensive and reliable telecommunications services in the countries which need them most of all, namely the developing countries, and in particular their

(continued on page 13)

(**Brace** continued from page 7)

have appeared in this series readers may contact the Division of Free Flow of Information and Communication Policies, Unesco, 7 place de Fontenoy, 75700 Paris, France.

Readers who are concerned with information management, or with communication research, may wish to obtain a copy from Unesco of their recently revised *Thesaurus of Mass Communication*. A thesaurus is intended to be an aid to bibliographic storage and retrieval, used as widely as possible so as to encourage consistent information management throughout data networks by means of a list of terms to be applied uniformly to subject areas. To compile this revision on mass communication, a number of international centers of communication study collaborated, "establishing a basis for exchanges of information between countries and regions," that "will allow national and international networks (see below) to operate in a fully satisfactory, consistent manner." The *Thesaurus* is arranged in three parts, each of them trilingual (English, French, and Spanish). The first is an alphabetical list of descriptors. These are the terms assigned to indexed documents with which databases can be searched and documents retrieved. The second part is the classification system, developed by Unesco, of the groups of descriptors. By assigning a document the classification number to which its subject area belongs, the document can be shelved and retrieved in an organized fashion. The third part, the "permuted descriptors index" simply lists the various subject areas under which a single term/descriptor might appear. "Analysis," for example, carries 25 modifiers under which it can be found, such as "comparative analysis," "economic analysis," "systems analysis."

Despite the fact that there are too few "scope notes" to define the scope of the descriptors, and an uneven selection of terms chosen for inclusion ("networks" is not included), this is a major contribution to communications information management.

The *Thesaurus* is available through Unesco booksellers, or from the Communication Documentation Center, Division of Free Flow of Information, Unesco, 7 place de Fontenoy, 75700 Paris, France. ■

Reader Survey Update

To those readers who have returned Reader Survey Questionnaires, mailed out in *DCR* 44, our sincere thanks. If you have not sent yours in, it is not too late! We want to hear from you.

Early returns show readers' professional interest as follows (some people checked several): communication, 60%; education, 28%, agriculture, 25%; health, 21%; nutrition, 16%; population, 10%. A full tabulation of results will be published later.

(**Radio Classroom** continued from page 4)

6. The classroom teacher demonstrates the task to be performed by: • writing on the blackboard • demonstrating on a worksheet.	The radio class must demonstrate (model) what it requires the children to do through clear directions and dialogue.
7. The classroom teacher works to a set curriculum that has been devised to cover the whole year.	The radio lessons must work to a curriculum that has been developed in advance.
From this, the teacher creates discrete lessons plans for each day's work.	From this, there must be lesson plans for each broadcast.
8. The good teacher follows an efficient teaching strategy: • introduce the topic • demonstrate • allow practice • give reinforcement of right answers • summarize.	A good radio lesson must follow the same format.
9. A classroom lesson is paced so that children do not get tired. Periods of relaxation are provided throughout the school day.	The radio lesson must be similarly paced, giving children time for breaks in which they have brief periods of physical activity.
10. The classroom teacher writes on the blackboard the day, the date, and the subject being taught.	The radio must provide the same information, where possible. Sometimes it is not wise to include the day and the date because broadcast schedules have a way of changing without notice! However, children should be clearly told what subject is being taught at any part of the program.
11. The teacher develops a series of commands that the children learn to follow. The teacher trains the students to respond to certain commands automatically—in order to save time and avoid confusion.	The radio class must develop a series of commands, accompanied by clear sound cues that will assist the children to follow the lesson.
12. Classroom students get to know their teacher as a person.	Radio students must be given the same opportunity to "know" their teachers even if they never see them. This can be accomplished by talking "to" the children, rather than "at" them, and by allowing the teachers to model the lesson, and by involving teachers in songs and games rather than using commercial recordings of songs and games.
13. The teacher can give individual attention to children having difficulties.	The radio class must make allowance for children who cannot keep up with the radio class. This is best done by inviting such children to stay after the lesson to go through it with the helper in the classroom.

Twenty Hints for Making the Radio into a Classroom

1. Provide an opening theme song that radio teachers and children sing together. This should be an original song created just for the program and about the program. (This song becomes the lesson "entry"—rather than walking into the classroom.)
2. Greet the children. If there is more than one radio teacher, they should greet one another and greet the children. If a number of teachers will be used throughout a long program, they can all be introduced at the beginning of the program and give a collective greeting.
   If there is doubt about the time of day the program will be broadcast, use a general greeting, rather than Good Morning or Good Evening.

(continued on next page)

(continued from page 10)

3. Use some sort of involvement exercise *early* in the program, so that the attention of the students is caught at the outset. Do not spend a lot of time giving instructions to the off-air teacher or assistant. Do that within the body of the program.
4. Use theme music to introduce each portion of the lesson, so children can anticipate what is coming and adjust their "mind-set" to it.
5. Use sound effects (gong, whistle, etc.) to alert children to often-repeated instructions, such as "Stand Up; Sit Down;" "Turn over your worksheets;" "Pick up your pencils."
6. Announce the various segments of the lesson clearly. Do not rely on the music cue alone and do not leave the children guessing about what they're supposed to be doing. Err on the side of too much instruction, rather than too little.
7. Always demonstrate (model) what the children are supposed to do.
8. Have *one* teacher in charge of each instructional segment. Use an assistant if necessary, but make it clear to the children that there is *one* voice giving the actual instruction.
9. Make all instructions clear and simple to follow. Use the same instructions every time the same behavior is required. Where the children are required to perform an action, try to make the action verb the last word in the sentence. For example: "Children, write."
10. Where there is a sequence of instructions to be followed, establish a pattern and stick to it.
    Example: "Children, look at the blackboard as your teacher writes the word "soap."
    PAUSE - 10 seconds
    Children, read the word with me — "soap."
    Children, look at your worksheets.
    Put your finger on the square with the dog.
    You are going to write the word soap on the line in that square.
    Children, write."
11. Where possible, have worksheets put out of the way when they're not in use. If the children do not have desks, they can be told to turn the worksheets face down—and the instruction should be followed by a sound cue. Worksheets are very distracting if the children have them visible in front of them all the time.
12. Keep the pace *up* within a teaching segment. Allowing too much time also allows young minds to wander. Observe the classroom carefully to determine the length of the pauses needed for student responses.
13. Don't be afraid to tell the children you're going to have drill practise. Drill can be an important part of radio learning. If the children know that's what it is, they will enter into it more willingly than if you don't tell them, and try to motivate them to drill in a round about way.
14. Create a working atmosphere during a working segment. This means order and *quiet*.
15. Summarize the lesson briefly when it is over and tell the students it is over.
16. Establish a bank of short relaxation segments—songs and games—that can be performed by children in cramped quarters. Frequently the children cannot get out of their desks or move around.
    These relaxation segments do not need to be more than a minute or so long. Balance learning segments with relaxation segments.
17. If you are teaching more than one subject within the radio lesson, establish different formats for the various subjects. This makes it easier for the children to identify the subject they're working on, and it also provides the variety that is necessary to maintain their interest.
18. Make sure that the children are taught to listen. Do not assume that they know how to listen. If they are not accustomed to radio and they are not accustomed to having stories told to them, it is likely they will not know how to listen attentively for a period of time.
    An important part of the success of any radio school depends on how well it trains its students to listen.
19. Make sure that the personality of the radio teacher is allowed to come through, but without swamping the program or taking up too much program time. Simple greetings, modeling, and joining the children in songs and games are first steps that can be taken in this regard. Writers should attend studio recording sessions so they can gain an understanding of the character of the teachers they're writing for and allow for this in their scripts.
20. End each day's lesson in a standard fashion—perhaps with the theme song again—to indicate to the children that the day's lesson is over. ■

Esta de Fossard is an international consultant in Radio Education. She is currently based at the Academy for Educational Development.

(Imhoof continued from page 1)

new listeners require different writing and production techniques than subject matter prepared for experienced listeners.

Captive vs. noncaptive. A captive, in-school audience ready to listen to radio instruction requires a different use of the medium than a noncaptive audience. With the noncaptive audience, the educational broadcaster has to compete perhaps with entertaining choices from other media as well as popular activities and pastimes of the community. The techniques used to capture and hold an audience, as well as instruct it, are quite different from those of in-school broadcasts. This does not mean instructional programs for the captive school audience should be dull or colorless, but more attention can be given to motivation and instruction rather than to gaining attention.

Instructional content. The most complex knowledge and analysis required in planning instructional radio concerns the relationship of the content to the medium. Shaping listeners' attitudes toward the outstanding events in their history requires a different use of the medium than teaching mathematical skills, for example. Teaching a language by radio is different from teaching an appreciation of music by radio. The subject matter and objectives influence the way in which radio is used.

A recognition of the constraints—what radio cannot do effectively—is also important. Although these are probably not as severe as we often think, it is important to recognize them and to plan other strategies to compensate for any instructional areas that cannot be covered by the radio.

Environment

It is a commonplace that environmental factors are important in planning educational programs. The effective introduction of radio into the educational experience requires still another look at the environment in which the learners gain their experience.

Physical. The physical environment may present a number of constraints on the learning experience and the use of radio. The most obvious is the effect of climate and terrain on the quality of radio reception. The answers to questions about reception are generally rather straightforward—either reception is good or it isn't. On-site observation, rather than second-hand reports, is the surest method of getting an adequate assessment of reception, however.

The physical environment as it affects learners and learners' needs is more complex. Observation and interpretation are required in order to answer questions related to the classroom: Can the children hear the radio during a rain on the tin roof? Can they hear over traffic noise in the city? Equally important environmental questions relate to the

(continued on page 12)

Nonformal Education Conference

Nonformal Education Study Conference at Michigan State University, June 4–22, 1984. The Sixth Annual Institute for Studies in Nonformal Education has been announced. It will be held in East Lansing, Michigan. For information contact Ted Ward, 518 Erickson Hall, MSU, East Lansing, MI 48824-1034, USA.

The Idea of Visual Literacy

Visual literacy—an aspect of literacy often ignored until Wiseman and others began to draw attention to it—is often an important first step towards gaining other literacy skills. By "visual literacy" is meant the individual's capacity to extract information from a photo or illustration. The famous expression: "One picture is worth a thousand words" is only true if people have the perceptual abilities to absorb a thousand words' worth of knowledge from the picture.

For most Westerners the memory of learning visual perception is lost in the obscurity of childhood, and their daily absorption of visual knowledge continues to be largely unconscious. Few are aware, for instance, that their capacity to understand many subjects comes mainly from constant exposure to television, films, and book or magazine pictures.

In the homesteads and villages of Africa there are virtually no pictures to look at. The research that has been done in East Africa shows that in rural areas, where the bulk of the population lives, visual literacy levels are low. Due to lack of exposure to visuals and any form of education connected with interpreting them, people have difficulty in understanding pictures, and may even fail to realize that there is anything to understand.

—George McBean. *UNICEF News*, Issue 114.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

(Imhoof continued from page 11)

learner's ability to make use of instruction: How far do children have to walk to school? Are children warm and comfortable?

The physical environment is easily studied through experience in the target area, but this knowledge plays a significant role in designing effective learning materials for specific learners.

Social. Social activities employed in broadcasts which are contrary to the learners' experience will at best seem strange and at worst be incomprehensible. Study and analysis of the social environment is also critical if instructional radio is to be relevant in a particular setting.

One complex social dimension is the relationships between groups of people in the culture. What is the nature of male-female relations, adult-child, teacher-student, and so on? What is "acceptable" behavior by any group? For example, what is school behavior?

Another social area is the role of radio itself in the social setting. How is radio normally received? What are the attitudes toward radio? If it is seen only as entertainment, for example, it will be the task of the educational radio project to change this perception.

Political. There are a number of political concerns in any educational plan and these are always sensitive issues. Who normally receives instruction in a society? Who makes decisions about the project? Does the project favor one group over another in a way that is contrary to acceptable political practice?

Ignoring political realities can lead to the failure of educational projects. Even worse, it may endanger some of the very people the project attempts to train or educate.

Curriculum

Curriculum development in an instructional radio project adds still more complexity to the task of the planner.

Origin. The most important information required by the educational radio planner is whether a new curriculum is to be developed or whether the existing curriculum is to be adapted for radio. In either case a number of questions have to be answered: Where does the curriculum come from? What is its philosophical or theoretical framework? What does it cover? How is it approved? Even if the curriculum has already been written and tested using another medium, these issues are significant in translating the conventional curriculum into a radio curriculum.

Medium. Another major analysis task is relating the curriculum to the medium. It is expected that the educational radio team will have as a major strength the ability to analyze the curriculum and decide how to teach it by radio. Some effects of the medium are obvious. For instance it is probably easier to teach general science by radio through stories, dramas, games, and so on, than it is to teach physics, since physical principles can perhaps best be understood with a visual component in the instruction. This doesn't mean radio cannot be used to teach physics, but the subject matter will require a different use of radio and supporting visual materials.

"Can the children hear the radio during a rain on the tin roof? Can they hear over the traffic in the city?"

Research and Evaluation

The project planning team must understand the research aims and evaluation methods in instructional radio projects.

Design. Sometimes an outside evaluation specialist or team is employed, but in many instructional radio projects the planning team itself is responsible for implementing the research design, carrying out the development activities, gathering data, and evaluating the project.

The team needs to be able to answer authoritatively questions like: What do we want to prove? How much and what kind of data do we need? How do we know if we've succeeded? Who will evaluate?

Testing. One frequent method of judging the success of an instructional program is testing student achievement. Subject-matter testing is yet another technical area of expertise needed by the project team. What achievement tests can be used? How can they be developed (if they don't exist)? What sample of students should be tested? Testing is a highly specialized field. It is too much to expect the radio planning team to have this skill, but the team should at least have an understanding of the relation of instruction to learner achievement.

Conclusion

The tasks involved in creating a successful instructional radio project are numerous and complicated. Unfortunately, they are often assigned to too few people with too little time for planning and thoughtful analysis of the various components that make up a project. Education authorities considering the use of radio should realize that quality education is a result of more than the choice of a medium.

We don't read much about instructional radio projects that fail. It is not likely that failures are caused by the limitations of the radio medium. Rather, they are the result of inadequate planning for the complex interrelations in radio education. Money, time and effort spent on the best information available during the planning stages gives the best assurance that education will improve. ■

Maurice Imhoof is Senior Project Director, Academy for Educational Development, and Project Director for the AID Radio Language Arts Project in Kenya.

(**Communicator's Checklist** from pg. 9)
rural areas." It responds to questions posed in the World Bank study, and begins with the assumption that "good communications are at the same time a cause, a consequence and a manifestation of development." While acknowledging that many of the benefits of investment in telecommunications—again, telephone systems—are indirect and not always apparent, the authors conclude that those benefits are real, substantial, crucial to development and obtainable in the short term. The goal they set for themselves is to seek to identify and measure these benefits to demonstrate the intimate relationship which they believe exists between telecommunications development and economic and social development in general.

While acknowledging that the subject is "understudied" and that there is a "near complete absence of a general theory on the contribution of telecommunications to socioeconomic development," the report points out that there is a literature, chiefly in the form of case studies, which shows "some of the indirect benefits of investment in telecommunications." The authors then proceed to review that literature, microeconomic and macroeconomic, and to apply the findings to the problems of telecommunications development. Their conclusion from this examination of the evidence is definite and clearcut:

"The studies carried out within the framework of the ITU-OECD project have clearly demonstrated that investments in telecommunications and notably in rural telecommunications, are extremely profitable from an economic and social point of view, and contribute in a subtle but important way to improving both the quality of life in the rural areas and the overall efficiency of rural economies. Investments in telecommunications are one of the 'causes' of, or contributing factors to, 'development' just like investments in education, public health, roads or agricultural extension services, and the evidence accumulated in the course of the ITU-OECD project confirms the intuitive perception of a few planners and development experts about the importance of telecommunications in the development process."

For the authors of this report, the evidence is plain and the point is proved. Having said this, however, they turn to the complex problem of how the demonstrated need can be filled and telecommunications benefits brought to rural areas.

This can be done, the report says, and it can be done relatively inexpensively by using new communications technologies to build high quality networks that extend to even the most remote areas. What the report proposes is the creation a a system called "GLODOM," an acronym combining "global" and "domestic." The system would be based on four satellites providing global coverage and a network of highly efficient earth stations located in the participating countries. The satellites would be regionally directed and all of the countries participating would share in their ownership. This system, the report estimates, could be built for a total investment of $1.26 billion, thus bringing "telephone service to all the rural regions of the developing world, even the most remote, for an initial investment cost which is practically similar to that of telephone service in the industrialized countries."

In this brief paper, the ITU and the OECD have opened exciting prospects. It is compact, crisply written, makes skillful use of the available research and is thoroughly plausible if not completely convincing. This document carries the argument about the role of telecommunications in development well beyond the World Bank's position. Telecommunications do have a vital role to play in the development process, this report concludes, and GLODOM provides a way of building necessary infrastructures without stinting on investments in other sectors. It is a system, says the report, that "is a sound economic proposition and it will benefit first of all the people living in the rural areas of the developing world, who have been almost totally left out of the development process." ■

Telecommunications and Economic Development *is available from The Johns Hopkins University Press, Baltimore, MD 21218, USA, for US$32.50 hardcover, $14.95 paper cover.*

Telecommunications for Development *is available from the International Telecommunications Union, Place des Nations, CH-1211 Geneva 20, Switzerland, paper cover, for 45 Swiss francs.*

This review reprinted by permission from The Chronicle of International Communication, *September 1983, Volume IV, Number 7. The* Chronicle's *address is P.O. Box 2596, Washington, D.C. 20013, USA.*

Reviewed by John A. Swenson, formerly with the United States Information Agency, and currently working with Catholic Relief Services in Washington, D.C.

4 *Microcomputers in Development: A Manager's Guide,* by Marcus D. Ingle, Noel Berge, and Marcia Hamilton (Hartford, Connecticut, Kumarian Press, 1983), 174 pp.

There used to be a Catch-22 about microcomputers in developing country settings. From the first moment microcomputers were popularly introduced, pundits remarked that their application would be revolutionary, yet they also gave a thousand and one reasons why they couldn't be installed efficiently. Hindsight and experience has shown these skeptics to be premature. Most of the so-called inhibiting factors to successful installation and operation of microcomputers have been ingeniously overcome, proving once more that where there's a will, there's a way.

This exceedingly useful handbook, written by three recognized pioneers in introducing microcomputers in developing country settings, will persuade any doubters still around and give valuable new tips to old hands wanting to be more adventuresome in their applications.

Microcomputers in Development: A Manager's Guide is a thoughtful, practical guide, full of excellent and timely advice. Its merits go far beyond Third World applications, and the book is recommended to anyone contemplating adopting microcomputer technology in their work or home. It is written in clear, easily understood English that avoids jargon and computer doubletalk while plainly defining certain terms that anyone learning the technology must know if they're to understand the medium properly.

The only criticism I have is the choice and format of the charts inserted into the text. They serve no useful purpose that I can see. They are confusing and appear to be inserted because someone thought the book needed charts. They serve to complicate the message, rather than clarify.

Written from a manager's viewpoint, the book's underlying theme is the installation of micros "to get a particular task done efficiently and profitably." *Microcomputers in Development* gets *its* task done admirably by sticking to particulars rather than generalities. Unlike most other books on the subject which talk in global terms about philosophical impressions of what the technology can or should do, or what they've been told they do, this book speaks from hands-on experience and illustrates successful adoption. It is organized into five chapters: The Management Potential of User-Friendly Microcomputers; Hardware and Software: Keys to Maintaining Utility and Diversity; Choosing a Microcomputer for Use in Development Projects and Institutions; Installing, Using, and Maintaining Microcomputers in Development Project and Institutional Settings; and Representative Applications in Development Projects and Institutions. Perhaps the most useful information is provided in the Appendices, which include: How to Provide 110 Volts for Apple Operation, Survey of Microcomputers in Developing Countries, Major Manufacturers and Houses of Hardware and Software, Bibliography, and Glossary.

If one could obtain only one guide, this should be the one to select. ■

Available from Kumarian Press, 29 Bishop Road, W. Hartford, Connecticut 06119, USA, for US$12.75, paper cover.

Reviewed by Arlene Horowitz, Program Associate and in-house computer expert at the Clearinghouse.

(**Galda** continued from page 3)

grade, as well as beginning a national expansion of the mathematics programs and a set of radio programs for teaching language arts, which are being developed at the same time as the mathematics programs. The radio programs are being used this year in more than 500 schools all over Thailand. With World Bank funds, CET is purchasing about 50,000 radio receivers which will be distributed to most of Thailand's 30,000 primary schools in anticipation of further expansion.

Evaluations Favorable

Constant evaluation of the mathematics programs in Thailand has been carried out since 1981. Although this evaluation was done in a small number of schools (32 experimental and 32 control schools) in only two of Thailand's five geographical regions, these preliminary results have been very encouraging. In both first and second grade, in Bangkok as well as the Northeast, radio students have scored much higher on mathematics achievement tests than students in the corresponding control groups. In fact, the results were quite similar to those obtained in Nicaragua. As was also the case in Nicaragua, the difference between the radio group and the control group was much greater in rural areas than in urban areas. The radio students in the Northeast performed much better than the control students in the same region and almost as well as the control students in Bangkok. This result is exceptionally important, since the Thai Ministry of Education's first priority in primary education is the reduction of great regional inequities in the educational system.

There have been surprisingly few problems in adapting the RMP programs to the Thai schools. The chief problem has been to make the curriculum used in RMP programs completely compatible with the official curriculum in Thailand. Although the differences are not great, a large number of changes had to be made. The implications of these changes are usually minor. For example, in Thailand, addition of fractions is not introduced until third grade, whereas in the Nicaraguan lessons this topic was begun in the last half of second grade. The style of the programs in Thailand is quite similar to the original RMP programs, except, of course, that Thai music is used instead of Nicaraguan music, etc. At the outset, a number of Thai educators had listened to the Nicaraguan programs, and some of them had said that the approach used in Nicaragua would not work in Thailand, as Thai children are very shy and would not be comfortable responding to the radio teachers. Fortunately, these fears have proved groundless; if anything, Thai children respond with even greater enthusiasm.

An example of the second level of adaptation, teaching mathematics to primary school age children in a nonformal education setting, can be found in the Dominican Republic. The RMP programs are being currently adapted as part of the AID-sponsored RADECO *(Radio Educativo Communitario)* project in Barahona, a small town in the southwest. RADECO was described in *Development Communication Report* (*DCR* #42, June 1983), so I will limit myself to only a few comments about the adaptation of RMP programs to RADECO.

The RMP programs have been designed for use by all kinds of teachers. In Nicaragua some of our teachers had no more than a primary school education, and little or no teacher training. These teachers are comparable to most of the RADECO monitors (called *radioauxiliares*) who generally have not had much more than a primary school education, although some have finished secondary school, and a few have advanced education. The main problems have been in *adapting* the programs to a very primitive physical environment. RADECO centers typically consist of only a thatched roof with a long bench (but no desks) for the students. The centers have only a very small blackboard. Although the RMP curriculum is different in a few respects from the official Dominican curriculum, we have been given freedom by the Dominican government to differ somewhat from the official curriculum because of the nonformal context in which RADECO is working. In 1983 RADECO broadcast a complete set of first grade programs to about 25 centers. Although evaluation results are not yet available, continuous monitoring of the programs indicates that the mathematics programs have been well accepted and that students are learning successfully from the programs. Planning for second grade has been completed and these programs will be produced in 1984.

At the third level of adaptation, using RMP programs for adult audiences, we have very little information. As mentioned above, the RMP programs attracted an adult audience in Nicaragua, but we did not distribute printed materials to this audience, and we did not have the resources to find out how adults were using the programs or whether they were really learning from them. The third and fourth grade radio programs were explicitly designed so that they could be used without teachers and require no printed materials. In theory, these programs could be adapted to an adult audience studying at home. The Guatemalan Ministry of Education has expressed interest in adapting these programs for adults as part of the Guatemalan literacy campaign. They have received the scripts for these programs, but it is uncertain whether anything has been done with them.

Fourth Level Working in Kenya

Finally we come to the fourth level, using methodology from the RMP programs for designing radio programs in other subject areas. An example of this type of application is the AID-sponsored Radio Language Arts Project in Kenya, which is successfully using radio to teach English as a second language in Kenyan primary schools. This project was modelled on the RMP, and there are many similarities in pedagogical approach and style of program between the two projects. In particular, the method of "feedforward," or incorporating formative evaluation results into future programs, developed by the RMP, is also being used in Kenya.

As we have seen in these pages, the work of the RMP has been adapted successfully in several ways. The advantages of adapting work from a previous project rather than starting an entirely new project are obvious: much lower development costs, no need for having a large staff of trained researchers, and a chance to solve problems much faster. However, in spite of these advantages of technology transfer there have been many problems in setting up such programs in other countries. Some of these are specific to the RMP, such as the fact that many developing countries are still emphasizing abstract "new math," and they perceive the RMP programs as archaic. Other problems reflect the decreasing emphasis on education in AID in the 1980s and the reluctance of AID Missions to undertake education projects designed centrally, rather than locally. Still other problems are quite general. Nationalism, for example, sometimes inhibits acceptance of work developed in another country, even if it is in a relatively culture-free subject like mathematics. The demonstrated success of the RMP adaptations, however, make a strong case for putting radio programs of proven worth into new settings. ■

Klaus Galda, who was the director of the Radio Math Project in Nicaragua, is now consulting for Unesco in the Thai Fifth World Bank Education Project, and for the RADECO Project in the Dominican Republic.

Spanish Glossary Available

The Clearinghouse, through the generosity of the Organization of American States' Multinational Project of Educational Technology, has a limited number of copies of its *Glosario de Tecnología Educativa* available to our Spanish-speaking readers. The *Glosario* was developed to provide educators, technicians, students, and professionals with definitions of terms used in the field of educational technology, covering training, communications, instructional design, evaluation, media production, and systems theory.

While copies last, this attractive and useful publication, in Spanish only, may be requested from the Clearinghouse. ■

(**Nutrition** continued from page 16)

of some of the numerous problems which women face in dealing with the many dimensions of their existence. It showed that without in-depth social reform to support breastfeeding, all attempts at breastfeeding promotion will be attacking the symptoms, not the real cause of the problem.

An investigation into selected demographic, dietary, and health-related factors was conducted among pre-schoolers in the Central American mainland territories of Belize in the context of a nutrition status survey in 1979.

Several factors responsible for the prevalence of malnutrition and overall poor growth were cited, among which were: the decline in breastfeeding—a perennial problem, late introduction of solid foods, frequency of diarrhea, and too many children in the household.

In relation to the decline in breastfeeding and incorrect weaning practices, mass media was implicated as the chief culprit in luring mothers away from natural and culturally-specific feeding methods towards the use of expensive imported products. Bottle-feeding and the use of imported baby weaning foods and cereals offered these poor Belizean women the chance to give their babies what they thought was the best money could buy. When asked why they had abandoned breastfeeding, many claimed that they had insufficient milk, were too tired, or that the milk was too salty. Nurses had to be sensitive to the real reason for not breastfeeding, which was the powerful social pressure imposed by the commercial advertisements to which many were exposed through mass media.

Among the strategies for improvement suggested in the survey was the need for greater awareness among medical personnel of the profound influences exerted by the promotion of high-status imported foods on the food preferences of mothers. While the techniques employed by the "hard-sell" advertisements were in some cases repugnant, there was no denying that the method did lead to significant changes in attitude and behavior, as demonstrated by the mothers' overwhelming response to the ads. This finding presented a challenge to health workers to adopt approaches which were less traditional and conventional, and more stimulating in their efforts to protect the health of mothers and babies.

The same survey also showed that by making a recommended practice easy to implement using familiar cultural methods, the chances of its acceptance would be greatly increased. While it might have been difficult and expensive for a poor developing nation like Belize to simultaneously improve sanitation, water, and personal and domestic hygiene, it was found that the worst effects of diarrhea could be effectively lessened by employing community-based rehydration methods. Treatment with herbal teas is a well-established cultural practice in all ethnic groups surveyed, so it was recommended that mothers could be taught to add certain ingredients to herbal teas of known empirical value instead of replacing the tea by the oral rehydration solution. So the rehydration salts were added to the tea along with sugar and salt in the right proportions, and the tea fed to dehydrated babies. The nurses also suggested to mothers that they use milk instead of water when preparing the cassava starch gruel, thereby increasing its nutritional value. Instead of denigrating an ethnic food of great emotional significance, these wise nurses were able to effect measurable improvements. Nearly half of all mothers in Belize using cassava starch gruel now add milk.

Role of Mass Media

I have mentioned that mass media in Belize were implicated in the spread of a great deal of nutritional misinformation, chiefly inaccurate, misleading fallacies which contradicted the correct facts received from more reliable channels. This is one of the chief reasons for the "cold war" that has waged relentlessly for several years between nutritionists, on the one hand, and the media on the other.

In 1976, CFNI conducted an important meeting on "Nutrition and the Mass Media"—which I was very privileged to organize—which was a bold attempt to reduce the conflict and confrontation that had developed between the two groups.

Hazel Brown, who represents the Trinidad and Tobago Housewives Association, will tell you that this meeting was not the first time that these two opposing camps had come together. Her organization had in fact mounted a Breastfeeding Campaign in 1974 which showed that mass media could play a positive role in nutrition education efforts. In this six-week campaign, a local advertising agency and media professionals worked alongside medical and nutrition personnel in designing, developing, and implementing breastfeeding messages which were aired on radio and TV and published in national news media and in advertisements. CFNI's "Nutrition and the Mass Media" meeting offered further scope for strengthening this collaboration which had been established between mass media and nutrition professionals.

This meeting represented an important preparatory activity for the Jamaica Nutrition Education Program. The strong linkages established between mass media and nutrition personnel was the factor most responsible for the selection of an advertising/marketing approach as the chief component of the mass media strategy. The Program hired a commercial advertising agency to produce press advertisements, posters, radio spot announcements, radio dramas, bumper stickers, bus shelters, and billboards, using the same techniques used to sell consumer goods, with only slight modifications. Evaluation found the media produced to be the most outstanding aspect of the campaign and it was recommended that in the revised phase of the Program no new media need be produced.

Lessons Learned

It is clear that there is more to communication than mere information transmission. Information alone cannot make people change, but effective communication can produce/create the right climate for change to occur.

1. The nature of the message is an important determining factor in attitude and behavior change. Change will occur naturally and easily if the message is clearly conveyed, simply and directly expressed, and consistent with other messages being disseminated by other media, e.g. field workers. Change will also occur if there are no barriers to change—if the infrastructure is in place and if the necessary resources and facilities to support the change exist.
2. The message must fit the audience for which it is intended. Messages should be extensively pretested on a representative sample of the potential audience to determine if there are any lifestyle factors which could affect their acceptance or rejection. The messages must then be redeveloped on the basis of the "feedback" received.
3. The medium which is chosen as the vehicle for conveying the message must be appropriate, culturally relevant, familiar, and liked.

Numerous cases exist in the Caribbean of the difficulty audiences experience in carrying out instructions. This is because instructions are often given without due regard to social and cultural circumstances and constraints which may cause either unwillingness or outright inability to adopt the desired innovations.

For communication to be truly effective, messages need to be designed and developed in relation to the cultural and ethnic backgrounds, lifestyles, tastes, preferences, and communication consciousness of the audience. The way in which the message is presented—the media which are used as the vehicle for disseminating the information—also has a strong bearing on its potential acceptance or rejection. ■

This article is adapted from a paper presented in a course on "Communication Planning and Strategy" held at Cornell University in July 1983.

Andrea Okwesa is Media Officer/Editor at the Caribbean Food and Nutrition Institute, an office of the Pan American Health Organization (PAHO/WHO), at CFNI's Jamaica Centre.

Perspectives on Communication Problems in the English-Speaking Caribbean

by B. A. Okwesa

The Caribbean is fraught with a host of serious socio-economic problems which prevent the majority of people from achieving and maintaining a satisfactory standard of living.

Food and Nutrition Surveys of some countries have identified lack of information on health, food, and nutrition as one of the chief reasons for the prevalence of malnutrition, infectious diseases like gastroenteritis, and nutrition-related diseases like obesity, hypertension, diabetes, and stroke, which are among the leading causes of death in the region. Ignorance and misinformation also make it difficult, if not impossible, for the majority of consumers to make intelligent decisions about food, and to improve their nutritional behavior on the basis of correct, reliable information. The "misinformation" syndrome creates an often unsurmountable barrier to effective communication between source and receiver, in this case the health, food, and nutrition sector and the wider community. Misinformation occurs when the message is either incorrect, incomplete, inconsistent with other messages in the same program, or contradictory, resulting in confusion, bewilderment, and misunderstanding. I would like to suggest that this element of "misinformation" can negate the effectiveness not only of the message, but also of an entire communication program.

I shall cite some examples from the area in which I work which show that in programs aimed at effecting change in attitude or behavior it is very important to ensure two things: (1) the messages are clearly communicated to avoid misunderstanding; and (2) the right infrastructure is in place for the innovation proposed by the message to be carried out, or in other words, for change to occur.

In the Jamaica Nutrition Education Program (JNEP) three strategies were used to communicate the messages—seminars, mass media, and interpersonal communication between field workers and the community. Seminars were planned for all categories of field staff to prepare them for face-to-face contact with the audience. However, evaluation revealed that health staff—in obstetric wards particularly—were giving incorrect and contradictory advice about breastfeeding, which showed that they lacked basic information on the subject. Community health aides and other field staff who were in direct contact with the community at grassroots levels also lost their credibility soon after the campaign had begun. They were unable to answer questions about the program or explain the nutrition information presented in the carefully prepared materials. This aspect of the program was one of its main weaknesses. It indicated a need for more thorough technical updating and advance briefing for all levels of participants on all aspects of a communication program before the start of the program.

In Barbados, the National Nutrition Centre conducted a survey on breastfeeding practices between 1969 and 1981 as part of the country's National Nutrition Survey. Despite an intensified health education campaign, face-to-face instruction in the clinics and extensive use of the Caribbean Food and Nutrition Institute (CFNI) Breastfeeding Package as well as other locally developed materials, a dramatic decline in breastfeeding was recorded over the 12-year period.

Misinformation and misunderstanding among mothers were identified as the chief reasons for the failure of breastfeeding. This was evident in the startling increase in the number of babies being bottle-fed as early as one month or who were completely weaned off the breast by three months. This "misinformation" syndrome also included giving mothers a type of information on which they were unable to act for various social, cultural, domestic, emotional, or psychological reasons. For example, mothers were urged to "breastfeed baby whenever he is hungry." This is a nutritionally sound message, but could they do this even if they wanted to? Was there a strong social support system to help them translate intent into action? The answer to both questions is a resounding NO. Instead:

- There was strong social objection to breastfeeding in buses and other public places.
- Many mothers had to work outside the home and had to leave their tiny babies at day-care centers during the work-day.
- Breastmilk could not be expressed and stored as refrigerators were not widely available.
- When they got home in the evenings, mothers were expected to cook dinner and look after the other children as well as perform other "wifely" duties, so were too tired to breastfeed.

The survey opened up a real hornet's nest

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

Judy Brace, Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Associate

ISSN 0192-1312

AED
International Division
Academy for Educational Development

Instructional Radio;
Teaching Journalists; Electronic
Learning Aids; Nutrition Communication

development communication report

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

Summer 1984
No. 46

Policy Considerations in Global Telecommunications

by Sandra Lauffer

Telecommunication and information technologies have been steadily accumulating over recent years an unprecedented—and to some extent unanticipated—political and economic status in countries all over the world. This heightened status is due at least in part to the introduction of new technologies that are changing the contours of the telecommunication and information landscape, blurring distinctions and erasing boundaries that have neatly separated the fields for years.

A major question to be addressed in mapping the future is whether the advanced communication and information technologies can provide the impetus to development that is desperately needed in so many countries. Can these technologies, if carefully planned and applied, help countries to accelerate the development process to any significant degree? Or will they instead be detrimental to national development when all of the implications are taken into consideration? For example, many of the new technologies require fewer workers than traditional systems, albeit those few must be highly skilled. Will this mean fewer jobs? Will it mean different levels of jobs with vastly different training requirements? Will it mean that the scarce supply of trained manpower can be spread more widely over other sectors, eventually advancing the whole society to another level of development? The answers are not yet clear, but they are being pursued on a number of fronts and need to be taken into account in the planning process as they emerge.

The Changing Technologies

It is generally acknowledged that the most prominent characteristic of the new technologies is digitalization, which essentially provides a single language for handling all information, whether that information be voice, data, or graphics. As a result of digitalization, transmission media are expanding in both capacity and speed; voice, data, telex, and facsimile can all be integrated to travel in a uniform format. Data processing and message carrying are thus increasingly becoming intertwined and even virtually the same process. The computer and telecommunications industries are converging, and the competition within and between these traditional industries is intense and obvious, particularly in the industrialized nations.

Another area where radical change can be anticipated is optical fiber technology, which holds promise to be more competitive with satellites than today's analog cables. Optical fiber cables should prove to be highly economical for certain kinds of transmissions and network configurations; one network is planned for the North American/Western European route before the end of this century. Optical fibers are high-purity glass, each strand thinner than a human hair. Two strands can carry 2,000 telephone calls. Optical fibers also make it possible for telephone cables to carry broadband video signals. Optical fiber technology may be significant for developing countries for several reasons: the fibers can be installed in narrower ducts than

(continued on page 2)

In this issue . . .

Policy and Planning Issues in Global Telecommunications 1
Information Resources for Rehabilitation in the Third World 1
Baseline Survey Informs Media Campaign 3
On File at ERIC 5
Statistics: Radio Coverage in Less-Developed Countries 7
A Communicator's Checklist 8
Appropriate Technology Library Available on Microfiche 12
Micros and Health Management in Developing Countries 16

Sharing Information for Rehabilitation in the Third World

by M. Miles

People with disabilities in the rural Third World may be characterized as an economically weak and largely voiceless oppressed minority numbering up to 300 million. Since the early 1970s there have been a few stirrings of interest in their situation, but the difficulties of reaching and programming for this neglected section of the world's population were so great, and the perceived priorities so low, that little work was done. Whatever was done was not replicated or even communicated very widely.

The International Year of the Child (IYC) (1979) and the International Year of Disabled Persons (IYDP) (1981) turned the world's attention to the needs, and soon aid agencies were hunting for suitable projects to fund. The major shortages revealed in the search have been of *practical information* and of *trained experienced personnel.* Some progress has been made in the past five years towards meeting these deficiencies, and it is worthwhile to attempt a sketch of rehabilitation in the Third World from the point of view of information and know-how.

During the past 100 years there has been an exponential increase in the art and science of rehabilitating people with disabilities, in economically developed countries. In the past 15 years this body of knowledge, which had largely been the preserve of medical and educational professionals, has increasingly been made public through the efforts of disabled persons themselves and families with disabled members who wished to engage in home, self-help rehabilitative action. At the same time, and by interaction with this public dissemination of knowledge, there has been a revolution in aims and objectives of rehabilitation and of attitudes towards disabled persons. In the past five years there have been moves to export and adapt this knowledge and experience to the more developed parts

(continued on page 6)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(**Telecommunications** cont'd from page 1)
previous cables; they are immune to most interference; and calls travel further, in contrast to other terrestrial systems, before the signal needs boosting, thus fewer repeaters are required. Because there is yet little experience with fiber optic technology in tropical environments, little is known about the effects of heat, humidity, and other tropical conditions on the technology.

Policy Implications

The implications of such changes are extensive for both developed and developing countries. For example, the use of microprocessors as universal components in industrial processes results in increased productivity potential that can affect virtually all areas of economic activity. Microprocessors are programmed to be self-monitoring, self-adjusting, and self-diagnosing, thus they can provide automatic detection of breakdowns and damage. It therefore becomes more feasible, for example, to build mini-factories in rural areas, as they do not require a large corps of highly skilled technicians to operate them.

However, the use of advanced information technologies requires exceptionally good planning; although such technologies generally save capital outlay per unit of output, they generally increase capital outlay per worker employed. International management specialist Juan F. Rada conjectures that, because "the saving of capital is a crucial factor for the Third World, the technology could be used beneficially, *providing that the application complies with a well thought-out plan aimed at fulfilling the needs of the majority of the population*" (emphasis added). Major diseconomies may result, however, if the new information technologies are introduced randomly, with inadequate attention to systematic and coherent national policies.

Technological Dependency

It is important to consider the impact of the new technologies on the gap between the rich and poor countries. While microchips may increase industrial productivity, they also alter production processes and products by shifting mechanical, electromechanical, and electronic control processes into microprocessors. Technology transfer to less advanced countries thus becomes a more complex process; workers cannot understand and deal with microchips at their most fundamental level. Adaptation and maintenance of the microchip may well stay in the domain of the manufacturer. Technological interdependency may be increasing, but control will reside where the functions of the microchip are understood.

Increasingly, advanced communication and information technologies are purchased, rather than transferred; the information processing field abounds with "black boxes" and "turnkey projects," which tend to limit the use of domestically produced equipment and move the purchasing countries away from manufacturing their own components or into manufacturing only supporting components.

The new technologies also hold significant implications for the labor force in all countries. Whereas developing countries may have a relative advantage in production processes because their labor costs are low, that advantage can diminish as industrialized countries become more able to lower their own labor costs by using robots and other advanced production aids. Developing countries thus need to anticipate these and other impacts of microelectronics, possibly focusing their efforts on using advanced information processes to process their raw materials in order to maintain a competitive position in the global marketplace. In terms of educational planning, it is important to begin now to train the labor force that will be charged with implementing the new technologies.

The less developed countries are becoming alert to the dangers of dependency in the software area. Developing countries are relying on industrialized countries to a high degree for data processing, research, and design functions. Not only does this move them away from achieving their own research and development capabilities, it also makes them vulnerable to the risk of losing legitimate access to vital information through the selective release of data. And it is a tremendous drain on hard currency resources.

Imported or National Technology?

Developing countries are faced with a series of complex and often conflicting problems associated with importing new technologies, while at the same time supporting the production of their own technology. Limited economic resources tend to favor imported technology, which has already been tested and which has had its development costs spread over the large existing markets in the industrialized countries.

Harroldo Correa de Mattos of Brazil has outlined the process of developing national technological capacity, which he sees as occurring in four distinct phases. The first is a phase of technological absorption, in which the user is exposed to the equipment, attains a degree of familiarity with its parts and components, and learns to operate and maintain it. In the second phase, the advent of industrialization, the user begins to explore and control the technical characteristics of the equipment. The third phase is the beginning of development, with efforts to nationalize the technology by substituting national components for imported ones. The fourth is the research phase, wherein "the expert begins to develop his scientific skills and creates adequate conditions to achieve the technological independence of his country." The Brazilian strategy for encouraging the development of national industrial development has included giving local manufacturers longer delivery terms, more favorable payment conditions and order guarantees, and limiting the rise of competition through policies such as import restrictions.

Benefits of the New Technologies

The benefits that will accrue from the new technologies are significant. Advanced information technologies pave the way toward improved accuracy, reliability, and timeliness of statistical information, which makes it more valuable for decision making and planning. Such technologies also serve to reduce the time lag between events and their evaluation, increasing the potential for more relevant decisions, policy design, and understanding of real feedback and reward processes. Agricultural marketing is an example of a sectoral application that can benefit substantially from advanced information processing and dissemination capabilities. For example, the installation of a satellite earth station on an Alaskan island enabled the local fish packing plant to get current information on demand and prices in the East Coast seafood market, and thereby to adjust its catch. Advanced technologies may also help to optimize the allocation and use of resources by tracking industrial processes more effectively.

Countries might also consider the positive impact of telecommunication-computer linkages on labor force development and job creation. For example, corporations in the United States are beginning to see the economic advantage of having such functions as word processing and mailing list maintenance performed by workers in countries where labor costs are not as high, capitalizing on the rising quality and decreasing cost of the international telephone system to link them to that distant work force. This has a parallel negative consequence, in that it contributes to unemployment in the United States.

There are also positive cost implications associated with the new digital technologies. Digital systems are estimated to be 20 times more reliable than electromechanical systems; they take less space and less time to install, have lower operating and maintenance costs, and offer a higher quality of service. Further, system expansion to accommodate new customers and services can be modular and thus may not require a redesign of the system.

Telecommunications and Development

The growing status of telecommunications internationally is also attributable to a growing recognition of the importance of telecommunications to all aspects of a national development—to agriculture, education, transportation, health care, rural/urban migra-

(continued on page 11)

Growing More Rice in Sierra Leone:
Baseline Survey Guides Media Campaign

by Gary O. Coldevin

Sierra Leone, like the majority of West African nations, is primarily agriculturally oriented. Approximately 75 percent of its 3.9 million people live in the countryside. But while farming accounts for 30 percent of the Gross Domestic Product, most of it is still based on shifting cultivation. Small farms average about three acres per unit, and farmers use traditional implements and slash and burn methods. As a result, the growth of this economic sector has been slow, averaging only about 1.5 percent per annum since independence in 1961. Population increases —currently estimated at 2.6 percent—have been greater, so that by 1974 the demand for food had outstripped national production.

Rice is the staple crop in Sierra Leone and provides for 80 percent of the total food consumption. The current annual rice production is estimated at over 300,000 milled tons. About 380,000 tons are required to adequately feed the nation, leaving a deficit of about 80,000 tons which have to be imported and paid for with foreign exchange. If Sierra Leone were self-sufficient in rice production, funds now used for importing rice could be used to generate an export market economy.

With this background in view, the government of Sierra Leone has made increased yields, increased acreages, and more productive rice farming key development priorities. About 60 percent of the current rice production is through the so-called "upland" farms, but the area for expansion of this ecology is limited. Experts from the United Nations Food and Agriculture Organization (FAO) suggest that to expect even a 10 percent increase over current levels from this source is optimistic. The more immediate solution lies in expanding and improving swamp land rice farming. Current estimates indicate that of the 1.7 million acres of swamp land potentially available for development, only 13 percent are in use. Thus the area available for expansion is considerable. Equally important, the yield from an acre of swamp land is six times that which one could expect from an acre of an upland farm. Ministry of Agriculture officials suggest that up to one third of the nation's total rice requirements could be grown on swamp lands. Their primary problem is one of educating the farming community about this potential resource and providing information and training about appropriate farming methods and high-yield seed varieties. This is not an easy task, given the existing communications infrastructure and estimated 95 percent illiteracy rate of the nation's 300,000 small farmers.

While agricultural extension agents are often an effective way to promote agricultural innovations to farmers, they have not been particularly successful in Sierra Leone, because of the low agent-to-farmer ratio. Currently, about one extension agent is available for every 500 farmers, whereas a ratio of 1:250 is recommended. In addition, transportation facilities are lacking and print information is poorly distributed among the agents. Direct action among the farming community has been haphazard as a result.

Radio is receiving increasing attention as support for extension services. There are an estimated 250,000 radios in the country, or one receiver for every 15 people. Radio's potential access to adult farmers is thus reasonably high, and with its ability to slice through problems associated with illiteracy, radio is perceived as the only effective way to reach the rural community on a national level.

"...Radio is perceived as the only effective way to reach the rural community on a national level..."

Radio broadcasting began in the mid-50s when Britain established a radio studio and 10 kw. medium wave transmitter in Freetown, the capital city. This service was limited to the southern portion of the country. With the construction of a 250 kw. shortwave transmitter in 1973, radio coverage was assured on a national level, although recurring problems with fuel supplies to operate the facility have precluded a reliable transmission schedule.

Agricultural Radio

Regular agricultural broadcasting began in 1976 with the creation of the Publicity Unit of the Ministry of Agriculture. Its initial objectives were to explain the aims of government policy to farmers and to provide basic information on farming methods. More recently, in 1982, it was renamed the Agriculture Communication Unit and given a revised mandate: to support extension services and key agricultural development sectors.

The basic radio production format consists of four 15-minute programs per week. Broadcast under the banner of "Farming Magazine" at 7:30 pm from Tuesday through Friday, each of the four main language groups in the country occupies a particular evening. Interviews and other material such as market reports are interspersed with popular music and assembled for transmission simultaneously on the medium- and short-wave services. A "one message per interview" format is common. Topics are regionally based and planned around seasonal activities and current information needs.

The Unit also produces posters, pamphlets, and slide-cassette programs, which prior to the current campaign were mainly used at agriculture fairs.

FAO Assistance

When the Communication Unit was created, it was severely hampered by its lack of trained production staff, audiovisual equipment, and raw film stock. Transportation facilities were virtually nonexistent. On the positive side, the Ministry provided for additional staff to establish communication sections in the seven administrative regions of the country. Their role would be to produce audio segments for radio broadcasts and to organize extension communication support services such as cassette listening groups and slide-tape presentations.

The FAO was approached in this context for technical and training assistance. Production equipment and supplies were purchased to strengthen the audio and photographic sections, and a Land Rover was supplied for the Unit's exclusive use. External consultants were brought in to conduct six-week workshops in rural radio and slide-tape production.

The FAO's third innovation was to recruit a media evaluation consultant to assist the Unit in determining baseline levels of farmers' knowledge and practice of, and attitudes toward, key agriculture development priorities. The Unit would subsequently produce materials for a multi-media campaign based upon the recommendations of the survey. The campaign would last between two and three months, after which another survey would be taken to assess its impact.

The Baseline Survey

The FAO evaluation consultant arrived in Sierra Leone to begin the six-week mission in December 1983. Initial discussions with the Communication Unit centered on the topic or topics to be included in the baseline survey and information campaign. Two important decisions were made: 1) The survey should be centered on *one* priority area of development, and 2) the information campaign should spearhead a drive which could be reinforced primarily by extension workers, but would also include regional agricultural officers and a variety of organizations with central theme projects (U.N. Agencies, the Peace Corps, Integrated Agricultural Development Projects, the Seed Multiplication Project, etc.). Following the rationale outlined earlier, planners made expanding and improving swamp rice production a major development priority, and that activity therefore became the immediate focus of the inquiry.

(continued on page 4)

(**Swamp Rice** continued from page 3)

The basic parameter for selecting the sample was that respondents should be heads of household and either involved in, or having high potential access to, swamp rice farming. We then set about a stratified sampling which would yield subjects in three stages of swamp farm development: 1) *Fully Developed* (good irrigation structures, drainage, and water control), 2) *Partial* to *Semi-Developed* (ranging from cleared areas for planting to some irrigation structures and drainage), and 3) *Undeveloped* or *Traditional* (no irrigation structures, no drainage, seeding mainly by broadcasting, or scattering seed about). We also included a group of uniquely upland farmers in the Traditional group, farmers who had ready access to undeveloped swamps should they choose to farm them. The main focus of the information campaign would be directed toward the Semi-Developed and Undeveloped categories with the Fully Developed stratum serving as a criterion or reference group.

The initial target sample was set at a minimum of 25 subjects—chosen at random—in each stratum for each of four districts (minimum of 75 for each district, 300 overall) to represent a good cross-section of the country at various levels of swamp development. Final sampling tallies were 121 subjects (34 percent) in each of the Fully Developed and Undeveloped categories and 114 (32 percent) in the Semi-Developed group. Fifty-two uniquely upland farmers were included in the Undeveloped category. In addition, we included a control group having no access to swamp farming to test the knowledge and attitude portions of the questionnaire.

The survey instrument consisted of six sections: *identification* (name, district, village, location of house or farm); *basic demographic data* (age, sex, religion, marital status, education, literacy levels; type, size, and tenancy of farm); *practices, information levels* and *perceived information needs; attitude postures;* and *information sources.*

In deciding how to structure the practices and information levels sections, we compiled a listing of the key stages of swamp farming and ordered it into what we termed "indicators of swamp rice development." Seven indicators were included: Land Preparation, Seed Selection, Nursery Management, Transplanting, Fertilizer Application, Weed Control, and Harvesting. With the indicators in place, the first portion of the questionnaire section relevant to each asked the respondent to describe his or her current or projected practice. In this manner a score indicating the level of recommended practices could be compiled for each individual, with a maximum score of ten possible.

Next came information questions about the particular indicator which tapped respondents' knowledge levels of recommended techniques and practices advocated by the Ministry of Agriculture. These questions were generally open-ended but precoded to incorporate the range of correct answers possible. A total score of 83 was possible.

After completing the practice and information level questions, each subject was asked to enumerate his or her perceived information needs about each of the indicators. The rationale employed here was to place the individual in a state of analyzing his or her current practice, then to allow an expression of knowledge of "correct" techniques for each indicator *before* being asked about specific information needs. Further, by blocking practices, knowledge levels, and information needs separately for each indicator, the respondent was able to focus clearly on each issue at hand, which would not have been the case if all practice questions had been asked together, followed by all information level questions, and finally all information needs.

Attitude postures were assessed through a ten-item attitude scale created from the available literature and surveys on positive and negative features of swamp rice farming. A Likert-type rating scale followed each statement, but rather than using the standard five point scale, we opted for a three point response format, namely, Disagree—Undecided—Agree, since we wanted an instrument which would be simple to understand and administer, two important points to consider when dealing with a "hard to get at" and busy group of farmers. A maximum score of 30 was assigned for these scales (one for Disagree to three for Agree for positive direction statements).

The final section of the instrument assessed media exposure levels, kinds of information available, levels of contact with extension agents, preferred media and interpersonal sources, and perceived utility of all available sources of agricultural information.

Radio Producers Conduct Interviews

The instrument was pretested with ten farmers at various levels of swamp development near Freetown. In the actual field administration, all interviews were conducted by seven radio producers who had attended the FAO rural radio production workshop and who were soon to be posted to their respective regional headquarters. This process yielded several positive benefits: 1) It sharpened interviewing skills with regard to asking focused questions and probing for additional information, techniques which the producers could transfer to the preparation of radio programs, 2) it provided an excellent opportunity to meet their potential "Farming Magazine" audience and to assess felt information needs first hand, and 3) producers became familiar with the agricultural community in the districts where they were to be employed.

Results

As expected, the majority of the sample was in the 40 plus bracket in terms of age (74 percent) but deviated considerably from national norms in terms of educational background, with 31 percent having attended formal educational program. As a result, literacy levels were high, with 26 percent being able to read and write English, the official national language. Interestingly, the bulk of literate and educated respondents were owners or renters of Fully Developed swamp farms.

Only 24 percent of the total sample had a working radio in their houses (another 9 percent had radios which were not working because of the lack of, or high cost of, batteries). An additional 55 percent, however, said they listened at neighbors' homes to bring the current active radio audience to 79 percent. Ninety-seven percent of these indicated mostly evening listening, with "Farming Magazine" occupying almost 90 percent of program preferences. Many, and especially those in the north, indicated "occasional" listening only, a result of the sporadic service available on short-wave. One can assume that the frequency of listening would rise in direct proportion to the frequency of broadcasting given this overwhelming preference for agricultural programs.

The extension agent ranked as the most preferred interpersonal source of information (79 percent) and radio as the most preferred media source (76 percent). When asked to name the most useful of all available sources of information, the rankings were, in order, extension worker (61 percent), neighbors (47 percent), and radio (45 percent). The data thus support the dominance of interpersonal sources in general among the rural population. Radio is surprisingly strong in this context, however, and presumably its ranking would be improved further with a more reliable national service.

A predictable pattern was revealed among the mean scores generated for practices of recommended swamp rice farming techniques with the Fully Developed farmers scoring 8.44, Semi-Developed 6.76, and Undeveloped 2.61. An identical trend was noted in knowledge levels although the averages across all three groups and most indicators were low (24.4, 19.4, 11.6 respectively out of a possible score of 83). Notably weak areas were knowledge and practice of adoption of new seed varieties, transplanting seedlings, and the use of fertilizers. Attitude scores, on the other hand, were surprisingly uniform across all three groups, and with the exception of three areas (belief that swamp farming causes health problems, interferes with traditional ceremonial rites during the season, and that fully developed swamp farms can be cared for by women and chil-

(continued on page 14, col. 2)

On File at ERIC

Documents recently entered in the ERIC (Educational Resources Information Center) files include instructions for making and using low-cost instructional materials, a report on cooperation among regional communication training institutions, a paper on the development of information manpower, a checklist of items required for planning a national communication system, and a guide to preparing a computer search for the ERIC database. All five are available on microfiche and four in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. One is also available from the publisher.

- *Low-Cost Educational Materials: How to Make, How to Use, How to Adapt. Inventory. Volume II.* 1982. 123 pp. (ED 237 059)

This guide provides instructions for making and using 52 low-cost indigenous teaching materials and devices developed during a second series of national workshops held in Bangladesh, Indonesia, the Republic of Korea, Papau New Guinea, Sri Lanka, Thailand, and the Socialist Republic of Viet Nam in 1979 and 1980, and also during the second Regional Workshop on Educational Technology held in Dacca in 1980. Each description lists the subject area, objectives, materials needed, and source. Instructions tell both how to make the item and how to use it, and describe possible modifications where applicable. The items described include hand-made maps; models and displays; educational toys and games; and science apparatus, including a thermoscope, simple electroscope, simple microscope, osmoscope, plastic beaker, bamboo thermoflask, common pump, spring pendulum, and balances. Instructions are generously illustrated with line drawings. This guide from Unesco's Asian Centre for Educational Innovation for Development in Bangkok is available from EDRS in microfiche for 97¢ or in paper copy for $9.15. Volume I of this publication (ED 205 166), which was published in 1980, contains instructions for 85 products. It is available from EDRS in microfiche only for 97¢.

- *Meeting of Experts on Co-operation among Regional Communication Training Institutions. Final Report. Paris, France, April 19–22, 1983.* 1983. 19pp. (ED 237 067)

Cooperation among institutions, ways of facilitating exchanges of specialists and expertise, and the joint development of learning resources were examined in a meeting of leaders from 31 regional training institutions from all world regions. Part of Unesco's long-term concern with the training of media professionals, the meeting opened with a presentation by Antonio Pasquali, Deputy Assistant Director-General for the Communication Sector, who discussed Unesco's professional training programs. Reports presented by participants in plenary sessions focused on specific regional training problems and needs, with emphasis on the trainer and training methods, curricula, training materials, new techniques, and the need for greater regional and interregional cooperation. Participants then separated into two working groups to formulate recommendations concerning cooperation with international and regional communication training organizations, staff development, curricula, textbooks and training materials, specialist needs, women in the media, research and evaluation, and clearinghouses and miscellaneous needs. The 36 consolidated recommendations that resulted were adopted by the participants at the final plenary session. An annex lists participants, observers, organizations of the United Nations System, and the Unesco Secretariat. This Unesco report is available from EDRS in microfiche only for 97¢.

- Farid, Mona. *The Development of Information Manpower Resources.* 1982. 16pp. (ED 235 833)

This paper examines the training and education of information manpower in the formal educational institutions of Latin America, Africa, and the Middle East. The nature of the information, social, and economic infrastructures in developing countries is also examined. It is suggested that potential information users must be made aware of its importance and how to access it; simply making information available does not constitute in itself a necessary and sufficient condition for its use and the proper utilization of technology. Shortcomings in educational programs for information manpower are identified as the organizational structure of library and information science schools; the well-defined lines between disciplines; the shortage of qualified faculty; methods of teaching; the lack of proficiency in the western European languages in which much of the literature is written; and the absence of a systems approach methodology. Eight recommendations are presented for improving the educational level of information specialists in order to convey the maximum social benefits to developing countries. A 25-item bibliography is included. This 16-page paper is available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- Rahim, Syed A. *Data-Base for Communication Planning. The Basic and Statistical Data Required for the Elaboration of a Plan for a National Communication System.* 1978. 28pp. (ED 235 816)

Based in part on a list developed by Unesco for use in Afghanistan, this guide presents a comprehensive checklist of items of statistical and descriptive data required for planning a national communication system. It is noted that such a system provides the vital information component for the mobilization and utilization of matter and energy in the process of development, and that the system includes postal services; telecommunications; radio; television; satellite services; computer telecommunications links and online databases; libraries and documentation centers; the press; books and other publications; records, cassettes, and videotapes; films and movies; other audiovisuals; popular culture events; organized interpersonal communication; meteorological communication; commercial and trade communication; advertising; and administrative and security communication services. The checklist of information items required is divided into six areas; societal values, goals, objectives, and institutions; societal context; international context; communication institutional structure; communication technology, resources, and services; and communications future. A statement on the relevance of each of these planning aspects and a discussion of appropriate sources of the required information are provided. Also provided is introductory material on the general planning framework and the social, economic, technological, and international considerations related to national communication planning. This 28-page guide from the East-West Center, University of Hawaii, is available from EDRS in microfiche for 97¢ or in paper copy for $3.90.

- Laubacher, Marilyn R. *How to Prepare for a Computer Search of ERIC: A Non-Technical Approach. Revised and Updated.* 1983. 56pp. (ED 237 100)

Designed for educators requesting information from ERIC and for the search intermediary who channels their requests to a search service, this updated guide explains in non-technical language the steps involved in preparing a computer search for the ERIC database. Topics covered include choice of a database and how to determine whether a manual or computer search is appropriate; the definition of the topic to be searched; ways in which ERIC materials may be searched, including author, title, descriptors and/or identifiers (subject index terms), and free text; using the *Thesaurus of ERIC Descriptors;* how descriptors and identifiers are assigned and the aspects of the documents that are indexed, such as population described, format and type of document (research report, position paper, teaching guide), and educational level. Five appendices include lists of the ERIC clearinghouses with contact information, databases of interest to educators, publication types and codes, and educational level descriptors.

(continued on page 13, col. 3)

(**Rehabilitation** continued from page 1)
of the Third World. The "last frontier" remaining to be crossed in the next 20 years is the dissemination of appropriate knowledge, rehabilitation skill and experience to the rural and less developed areas of the Third World.

Such dissemination as has already taken place has provoked some anguished reaction from rehabilitation professionals who see their trade secrets being hawked in the market place, and who fear a dilution and oversimplification of their skills. For better or worse the cats are out of the bag, and the task now is to raise the level and quality of both information and skills. There is no possibility of returning to the dark ages of "guild mysteries."

Typically, rehabilitation facilities in the Third World have started in big cities either with expatriate staff or with nationals who have trained in the West. Orientation has initally been towards a high-tech, institutional approach, providing a high level of rehabilitative service to a small number of clients at considerable expense. The trend is now to try to redistribute rehabilitation resources much more widely by training nationals in their own country, by including rehabilitation skills in the professional training of medical, paramedical, and educational personnel, and by giving knowledge and skills directly to disabled persons and their immediate relatives.

Available Resources

Among the classic "How to do it" manuals are Huckstep's *Poliomyelitis: A Guide for Developing Countries*[1] and Fitchner's *How to Raise a Blind Child*[2], both written on the basis of long experience in Africa and Asia. Less widely accessible to the anglophone world has been the valuable work of the Frères Jaccard[3] in Cameroon in appropriately low-tech, low cost prosthetics and orthotics. The rehabilitation experience developed by Mexican villagers in Project PROJIMO, in which the majority of rehabilitation workers and technicians have themselves been disabled, is potentially of very great importance. If crippled, uneducated, and apparently "useless" villagers can learn in the space of a few months enough to provide the rehabilitation service described by David Werner[4], then a major solution has been found to the problem of personnel resources. There remains the problem of *distributing* the information and developing the appropriate attitudes and confidence.

In the field of mental retardation and developmental delay, several schemes have been developed for use in the West and then adapted in less developed countries. The Portage Project[5], a home-based rehabilitation system developed for rural areas of Wisconsin, USA, has been used in Spanish in mountain villages of Peru and a number of other places. Adapting the Portage Project for use in the West Indies, as much as possible of the material was represented pictorially in order to overcome the literacy barrier.[6] The HANDS approach to mental retardation in Nepal also concentrated on mobilizing persons with little or no education.[7]

The quantity and complexity of information on child development and programming necessary to overcome learning difficulties should not be underestimated. This mistake was made in one of the more widely disseminated manuals, still in experimental draft, *Training the Disabled in the Community*[8]. Material from the Hester Adrian Centre's *Parent Involvement Project,*[9] which is being field tested in several Asian countries, and the programs associated with Chapel Hill's "Learning Assessment Profile" (LAP)[10] used for several years in rural towns of Egypt, together with Portage Project material, go a long way towards filling the gap.

Severe hearing impairment, speech impediments, cerebral palsy, and multiple handicaps are among the more difficult types of disability to approach for general advice broadly disseminated. The rehabilitation of the pre-linguistically deaf child should commence by the age of 12 months, whereas in the rural Third World this disability does not generally attract attention until much later. In the absence of hearing aid technology and servicing arrangements, it is an extremely difficult task to teach the severely deaf child. Pamphlets produced by the All India Institute of Speech and Hearing, together with their "hearing camps" in rural areas, are among the few forays into this field in rural Asia.[11] The adaptation of normal home activities for stimulation of the cerebral palsied child, so that mothers can maximize the positive stimulation of their child in everyday life, has been investigated and taught by Sophie Levitt, the pediatric physiotherapist. Some of this experience has been incorporated into the CHILD-to-Child pamphlets.[12]

"It seems that human society is seriously impaired and in need of rehabilitation..."

More general approaches to the social barriers which create handicaps out of disabilities, and the design deficiencies which turn impairments into disabilities, have been slow to follow the "nuts and bolts" rehabilitation manuals. Advice on integrated education of the blind for Africa and Asia has been produced by the Commonwealth Society for the Blind[13], and Nigeria as early as 1978 produced *Integrating Marginally Handicapped Children into the Regular Classroom: A Sourcebook for Teachers.* The UN published in 1983 *Designing with Care,*[14] a guide to the adaptation of the built environment for disabled persons, which specifically concentrated on the needs of developing countries both at urban and rural levels. The International League of Societies for Persons with Mental Handicap issued in 1978 a guide to the implementation of the rights of mentally retarded persons, entitled *Step by Step.*[15]

It is, however, becoming apparent that design problems, legal obstacles, and social barriers are merely the visible tenth of an iceberg of negative attitudes, feelings, and stigmatizing beliefs within the community at large. Unless this submerged reservoir of ill will and bad faith is tackled, the guides and manuals will achieve relief merely on the surface, and will leave the *person* without rehabilitation. It seems that human society is seriously impaired and in need of rehabilitation as much as are disabled individuals.

Extremely little has been done or even attempted as yet in the Third World towards large-scale intervention for positive attitudinal change. Practically no controlled studies have been made of the socioeconomic, cultural, and religious roots of prejudice against disabled persons, even in more developed countries. Consequently the public information effort during the IYDP tended to lack target and impact.[17] Some of the western advice manuals such as *Training the Disabled in the Community* even tend to reinforce the image of the disabled person as a helpless object to be trained, rather than an agent in his or her own life.

Disabled persons themselves in rural areas of the Third World remain practically untouched by the spread of information sketched above. There is no reliable mechanism for distribution of printed material into the hands of disabled persons and their families, the great majority of whom in any case do not yet read. A similar problem has of course faced every effort of public health education and primary health care. A number of methods such as village theater, group discussions, role play, and puppet shows have been used. Many of these are described in *Helping Health Workers Learn.* [18]

Recourse had been had to broadcasting programs of advice and information. Radio is a potential channel for the dissemination of rehabilitation information, though the task is daunting. Rehabilitation skills tend to be more complicated than primary health care, and the results tend to be much slower than in curative medicine. Is it possible, or prudent, to attempt to address at random the problems of unknown thousands of families with blind, deaf, mentally retarded or physically handicapped members, none of whom would in practice provide any feedback on success, failure, or disastrous effect of the advice given? There is a picture even more daunting to settle the question: the present condition of disabled persons in rural areas, many of whom live a pitiful and subhuman existence for lack of practical information which could change their lives.

The format chosen for the rehabilitation information broadcasts is a series of 12

(continued on page 7)

(continued from page 6)
minute dialogues between doctor/counsellor and disabled person/relative/local leader. Building on six years experience in the North West Frontier Province of Pakistan, develop- both institutional and community-based bilitation facilities and counselling lies with disabled members from all over the Province (population 18 million) and from Afghan villages, the broadcasts aim to achieve a level appropriate to the constraints on resources in the village situation, while appealing to the common sense and practical wisdom of the audience.

References

1) R.L. Huckstep, 1975, *Poliomyelitis: A Guide for Developing Countries,* Churchill Livingstone.
2) D. Fitchner, 1979, *How to Raise a Blind Child,* Christoffel Blindenmission (Nibelungen Strasse 124, D-6140 Bensheim 4, West Germany).
3) Freres Jaccard c/o Mr. E. Jaccard, 13 Quartier Neuf, 25.130 Villers le Lac, France.
4) D. Werner, 1983, *Project PROJIMO,* The Hesperian Foundation, Box 1692, Palo Alto, California 94302, USA.
5) The Portage Project, 626 B. Slifer Street, Portage, Wisconsin 53901, USA.
6) Caribbean Institute on Mental Retardation and Developmental Disabilities, 94C Old Hope Road, Kingston 6, Jamaica.
7) HANDS, G.P.O. Box 1668, Kathmandu, Nepal.
8) Helander, Mendis, Nelson, (3rd edition 1983), *Training the Disabled in the Community,* W.H.O. Geneva, Switzerland.
9) Parent Involvement Project, Hester Adrian Research Centre, University of Manchester, M13 9PL, England.
10) Chapel Hill Training-Outreach Project, Lincoln Centre, Merritt Mill Road, Chapel Hill, North Caro- na 27514, USA.
ll India Institute of Speech and Hearing, Manasa- gangothri, Mysore 570006, India.
12) CHILD-to-child c/o Institute of Child Health, 30 Guilford Street, London WC1N 1EH, England.
13) G. Salisbury, 1974, *Open Education Handbook for Teachers of the Blind,* World Commonwealth Society for the Blind, Commonwealth House, Haywards Heath RH13 3AZ, England.
14) United Nations, 1983, *Designing with Care,* UNCSDHA, P.O. Box 500, A-1400 Vienna, Austria.
15) ILSPMH, 1979, *Step by Step,* International League of Societies for Persons with Mental Handicap, 13 Rue Forestiere, B-1050 Brussels, Belgium.
16) cf R.B. Edgerton, 1970, *Mental Retardation in Non-Western Societies: Toward a Cross Cultural Perspective on Incompetence,* in H. Carl Haywood (ed) Socio-Cultural Aspects of Mental Retardation, Proceedings of the Peabody-NIMH Conference, Meredith Corporation, U.S.A.; and J.R. and L.M. Hanks, 1948, *The Physically Handicapped in certain Non-Occidental Societies.* J. Social Issues, Vol. 4.
17) M. Miles, 1983, *Attitudes towards Persons with Disabilities following IYDP (1981): With suggestions for promoting positive changes,* Mental Health Centre, Mission Hospital, Peshawar, Pakistan.
18) D. Werner and B. Bower, 1982, *Helping Health Workers Learn,* the Hesperian Foundation, P.O. Box 1692, Palo Alto, CA 94302, USA.

M. Miles is Administrator of the Mental Health Centre Peshawar, Pakistan; Project Consultant for the FAMH/UNICEF Community Rehabilitation Development Project; and a member of the Public Information Committee on the International League of Societies for Persons with Mental Handicap.

future issue of DCR *will publish some of the actual radio scripts broadcast to inform the rural community about various kinds of treatment and rehabilitation.* ■

Radio Coverage Statistics

by Wilma Lynn

Recently, the Clearinghouse conducted research for AID on the number of broadcasting stations and receivers in less-developed countries around the world. The research surveyed 135 countries in Asia, Africa, and Europe as well as North and South America. We thought some of the research findings would be of interest to *DCR* readers.

Less-Developed Countries

Region	Population	# of Radio Stations	# of TV Stations	# of Radio Receivers	# of TV Receivers
Asia	2,626,313,000	1,364	50	119,014,000	40,858,857
Africa	483,360,000	251	188	29,695,000	7,166,169
Oceania	5,157,000	24	8	969,000	208,700
N & S America	386,573,000	3,935	65	89,522,000	36,415,500
TOTAL	3,501,403,000	5,574	311	239,200,000	84,649,226

Population statistics were obtained from the *World Factbook,* 1983, published by the Central Intelligence Agency and are accurate to July 1983. Data on radio and television stations was obtained from a variety of sources including the *World Factbook,* the *World Radio and TV Handbook* and the *World Radio and T.V. Facts and Figures,* and cover the period between 1979 and 1981.

One glaring problem that became evident from our research is the fact that reliable statistics on the status of broadcast infrastructure in less-developed countries is sorely lacking. Too often, in the case of statistics on radio and television receivers, this information can only be obtained by checking government data on the number of licenses issued yearly for radio and television sets in a given country. In a number of countries, and particularly in those where the broadcast system is government owned, no broadcast surveys have been conducted. In countries where broadcast stations are privately owned and operated by commercial institutions, up-to-date audience surveys which serve as commercial guides to audience listening and viewing patterns are regularly commissioned, thus providing a reliable guide to broadcast services and distribution. However, the reality is that the ratio of government to privately owned broadcast stations in the less-developed countries is almost 2 to 1.

Indeed, our experience points to a serious need for research on a worldwide basis that would provide accurate and reliable information on broadcast demographics as well as listening and viewing patterns. In the face of the growing involvement of the broadcast media in Third World development programs, information on listening and viewing patterns would be particularly helpful to development professionals and program planners. ■

Wilma Lynn is an international communications consultant currently based in Washington, D.C.

Unesco Needs Materials

The worldwide search is still on for outstanding classroom materials for teaching *nutrition* in primary and secondary schools in developing countries.

Types of materials needed: curricula, lesson plans, student workbooks, classroom exercises, descriptions of learning activities and experiences with the CHILD-to-Child approach, teacher- or student-made materials such as posters, flipcharts, stories, plays, flash cards, puppets, coloring books, recipes, nutrition readers, and other creative and innovative ideas and methods.

Unesco plans to use the materials to prepare two publications: an international catalogue of nutrition classroom education materials from countries around the world, and a Unesco *Nutrition Education Sourcebook* for teachers of nutrition education in primary and secondary schools in developing countries.

Please send materials as soon as possible to Dr. Susan Van der Vynckt, Education/STE, Unesco, 7 place de Fontenoy, 75700 Paris, France. ■

A Communicator's Checklist

1 *Distance Education: Evaluating New Approaches in Education for Developing Countries,* by Emile McAnany, Joâo Batista Oliveira, François Orivel, and John Stone. *Evaluation in Education,* (Oxford, England, Pergamon Press, 1983, Vol. 6, No. 3.)

McAnany, Oliveira, Orivel, and Stone are an international group of educators and economists well qualified to examine the experience with non-traditional approaches to education. Their monograph, *Distance Education: Evaluating New Approaches in Education for Developing Countries,* provides a useful survey of a dozen distance education programs, and a much broader discussion of evaluation evidence, issues, and problems.

McAnany *et al.* define distance education as "(1) a teaching and learning organization (2) in which students of a variety of ages and backgrounds (3) study either in groups and/or individually at home with (4) centrally produced self-instructional materials distributed through a variety of media (5) with regular communication and feedback between students and teachers." This looks like quite a comprehensive definition until one realizes that it (apparently deliberately) excludes instructional programs in school classrooms. The consequence of this is that the paper does not discuss several interesting and well-documented projects that use radio or TV to deliver instructional programs to schools. However, the remaining field is still quite wide.

The paper is very long and very meaty and providing a detailed critique here is clearly impossible. Rather, I will mention and briefly comment on the authors' policy and planning conclusions. These fall into two categories: those referring to distance education itself and those concerned with evaluation issues.

The authors conclude, on the basis of the case studies they present and other literature, that the feasibility and usefulness of distance education systems is no longer in doubt. There now exist many systems that provide learning and credentialing opportunities to students inadequately served by traditional systems. They review the distinction between fixed and variable costs and draw the usual conclusion that large audiences make for low unit costs. However, they go on to point out that even so, the fixed costs of technologies can make a large difference in final costs, which usually makes radio the medium of choice.

The review of effectiveness and costs will be familiar to those in the communication field. The new, and thus more interesting part of the analysis from my point of view, is this examination of organization and management issues. The authors note that the central message from the studies reviewed is the need for a better understanding of the relationship between the organizational format and structure and the nature of the tasks to be performed by distance education projects. They note that organizational problems are particularly acute because of the many different professional specialties required to design, produce, and distribute effective instructional software. While acknowledging that there is relatively little literature on these aspects of distance education, the paper makes its own important contribution to our understanding of them.

With regard to future evaluations in distance education, the authors call for more assessments of cognitive outcomes, including comparisons with traditional systems; use of indicators beyond test scores, for example, dropout and failure rates, numbers of graduates and length of completion time; and studies of the role of motivation, contextual factors, and the influence of demographic factors on success. They also suggest more studies of costs and much more careful examination of issues of organization and management. These latter two categories of studies are badly needed. I am somewhat less persuaded about assessments that compare alternative approaches because I think it is a mistake to think that distance education is in competition with the formal system. Rather, I think distance education systems have demonstrated that they are most in demand when they provide an alternative route to goals shared by many people, but which cannot be reached by substantial numbers of them through traditional means, whether this be because of distance, expense, or constraints of scheduling. Furthermore, the evidence is already compelling that a good distance education system *can* lead to the attainment of learning goals. Thus, the need now is for much more careful study of ways to improve effectiveness and efficiency and, as the authors point out, particularly of the organizational structures through which such objectives can be attained. ■

Reviewed by Barbara Searle, an Educational Evaluator in the Department of Education at the World Bank.

Available from Pergamon Press, Ltd., Headington Hill Hall, Oxford OX3 OBW, U.K., for US $24.00.

2 *Information Technology in the Third World: Can I.T. Lead to Humane National Development?* by William James Stover. (Boulder, Colorado, Westview Press, 1984, 183 pp.)

Information Technology (I.T.) in the Third World presents a liberal perspective on the process and effect of mass media, telecommunications, and computer technology in LDCs. The author explores in much detail the efficacy of I.T. and communications as agents of economic, social, and political development in the Third World. The logic, arguments, and interpretations are posed by the author to reflect a composite view of Third World people. In other words, the problems, actual or perceived, of utilization, acceptance, and adoption of I.T. in LDCs have been compounded by influencing forces from developed countries. Essentially, the author faults the use of I.T. because of its dominance by those with advanced technologies. In turn, he views I.T. as a viable option for humane development in LDCs. I.T., in effect, is both good and bad, cause and effect, problem and solution.

The author, somewhat apologetically, tiously and continually qualifies the potential applications of I.T. in Third World development. He states that: 1) access to I.T. does not automatically produce changes—changes are not always positive—certain types of communication such as propaganda inhibit changes; 2) mass media has been viewed as a fundamental causal element of development, a concept rejected by LDCs; 3) good communications can change a person's perception of the situation, but it cannot, in itself, change the situation.

The author in conceptualizing his thesis attempts to develop a comprehensive definition of Third World communication. "Communication is far from a single independent variable. It is both a dependent and an independent variable in a complex set of relationships with social, political, and economic institutions and processes." Operationally, the definition remains obtuse.

The author's treatment of humane development and the role of communications is handled exceptionally well. He contrasts social, economic, and political development within the framework of humane development. The changes and the impact of I.T. and communications on development systematically woven throughout the book. The question that serves as the title to the book is answered more than once and from

(continued on next page)

different perspectives.

If there is a weakness in the book, it is the section on the technology and, in particular, the information on satellite communications. The data and the references are dated.

His final chapter which he titles "Conclu- Requirements for Human Develop- nt," is much more than a concluding statement. It is, first of all, a synopsis that reflects both insight and sensitivity for people and places affected by the condition of communications. It is also a challenge and a plan of action for Third World leadership. In summary, the book is an excellent resource for those interested in learning about communication problems of Third World countries. ■

Reviewed by Louis Bransford, Vice President of ConferTech International, Inc. Dr. Bransford specializes in satellite communications, particularly in the planning and use of teleconferencing.

Available for US $15.00 from Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, USA.

3 *General Introduction to the Techniques of Information and Documentation Work,* by Claire Guinchat and Michel Menou (Paris, France, Unesco, 1983), 340 pp.

This book fills an important gap in the ds of librarianship and documentation. In single volume the principles and practices these growing fields are explained in detail. For the people pursuing information careers, especially in developing countries, this book can serve as an important manual and textbook. In the foreword, the authors state their hope that the text "will succeed in strengthening the motivation and improving the skill of those beginning or pursuing a career in a library or information unit without the necessary basic training."

The entire field of information science is dependent on the organization of efficient library and documentation systems. This requires well-trained personnel who understand how their assigned tasks contribute to the system, and who understand enough about the principles of the system to see how their specific tasks might be more efficiently accomplished. The absence or shortage of trained staff is especially acute in developing countries, leading to serious inadequacies and an inability to build national information and communication systems.

This manual does not teach the skills required to perform a specific task. It does, however, explain these tasks and sets them in the proper context. This manual will not lace the need for basic training, but it will ve as a short-term remedy when training is not available and will also help prepare future students. This handbook is organized as a tool for self-training; that is, descriptions of the various operations and concepts are given in modular form so that the student need only consult the portion directly related to the task at hand. But, because of its comprehensiveness, this manual should not be overlooked as an important resource for schools teaching library and information science. Among the specific tasks discussed in this book are selection and acquisition, document storage, bibliographic description, contents description, classification, indexing, abstracting, information retrieval, and information services. Also discussed are basic bibliographies and reference works, language authorities, facilities and equipment, and methods for the evaluation of information storage and retrieval systems. The authors have also included chapters on international information programs, standardization, education and training, research methods, and other policy issues.

The authors have stated their intent to concentrate on "contributing to the preparation of personnel working in computerized information systems." Although they have tried to cover some manual techniques as well, the emphasis on automated processes is readily apparent. However, practitioners who rely on manual systems, for whatever reasons, can still benefit from the book. The principles of library procedures, which apply regardless of the processes used, are the primary subject of this book.

It is important for such a book to be comprehensive, and it is important for correct procedures to be taught. However, the reality of most situations will force information staff to bend or break established procedures in order to best serve the user. The procedures described in this book represent the best of "good library practice," and conform to the principles established by library and information science educators. Most readers will discover, however, that the principles cannot always be reduced to practice, and the *needs* of their particular clientele and the availability of key resources will serve more to determine the procedures followed than will the principles outlined by books and educators. At the same time, however, it is important that those pursuing careers in library and information science know and understand the principles. Only in this way can they determine which they can ignore, and what consequences to expect if they choose not to follow standard practices. Guinchat and Menou present the information in this manual as if all readers will be able to achieve the high goals established. This in no way diminishes the book's usefulness, but readers should be aware that good library and information services can be offered even if only minimal resources are available.

By using the modular-chapter approach, the authors hope that each chapter can be updated separately. Appendices written according to local specifications and conditions can also be added to each chapter. To be truly useful, the manual will have to be translated into as many languages as possible. However, if the English translation of the original French is any indication of the quality of Unesco translations, then independent, highly qualified translators must be sought. It is unfortunate that Unesco chose not to support a project of this magnitude with a qualified English-speaking editor. The English text suffers from misused terms, unnecessarily complicated sentence structures, and a general feeling of heaviness. For the less skilled reader of English, these problems present a serious barrier to the thorough comprehension of the principles and practices the authors are working to explain. It would be hoped that future translation efforts of this very important and timely text warrant more attention on the part of Unesco.

This book is recommended for purchase by all libraries and documentation centers as a training and reference tool. Library and information science departments should also consider its purchase for use as a textbook and as a guide for the preparation of courses. Finally, all potential students of library and information sciences should read this book as it serves to introduce attractive career prospects. ■

Reviewed by Wendy D. White, Information Services Manager of the Board on Science and Technology for International Development, National Academy of Sciences.

Available from Unipub, Customer Service, P.O. Box 1222, Ann Arbor, Michigan 48106, USA; or from Unesco, 7 place de Fontenoy, 75700 Paris, France. (Price unavailable at press time.)

4 *Practicing Health for All,* edited by David Morley, M.D., Jon E. Rohde, M.D. and Glen Williams (Oxford, England, Oxford University Press, 1983) 333pp.

Three knowledgable and dedicated promoters of the concept of primary health care have joined in editing a compendium of case studies from 21 scattered contributors illustrating programs in countries as widely diverse as Cuba, Indonesia, China, Nigeria, Bangladesh, and Guatemala.

Hospital care systems, once considered the panacea for all health problems, envied by Third World countries, and thought of as the only means for delivery of first-class medical care, are no longer judged capable of providing the kind of care most people need. Primary Health Care (PHC), with its emphasis upon prevention rather than cure, stressing community participation and expanded use of the lower-level health worker as opposed to an over-dependence on medical personnel, received further impetus in 1978 with the now

(continued on page 10)

(**Checklist** continued from page 9)
famous Alma Ata Declaration. "Health for all by the Year 2000" became the goal of the 134 countries and voluntary agencies endorsing the concept of PHC, defined as "essentially health care made universally accessible to individuals and families in the community by means acceptable to them through their full participation and at a cost that the community and country can afford."

India, China, Cuba

Effective and affordable health technologies for dealing with the major health problems of the Third World are already at hand. Their implementation is the difficulty, and the obstacles are of a political and organizational nature. Political commitment and community participation in the organization of PHC are the two theories interwoven among the chapters of *Practicing Health for All.* The book discusses such programs as the barefoot doctors of China (now being upgraded and perhaps phased out), the voluntary agency work in Indonesia which evolved into permanent government programs (the "Ant and the Elephant" as author Mary Johnston of the Christian Medical Commission whimsically christens the tale), and India's early attempts at health worker training, reinforced in 1946 by the admirable report of the Bhore Committee proposing a national health program. Commitment, with a capital C, appears as the common theme among all the "success stories," and successful in many cases when operating with a lower level of financial commitment than other similar but less sanguine programs.

Cuba, despite an over-dependence on professionals and a surprisingly rigid medical hierarchy (a bit of *machismo,* not withstanding all the common man rhetoric?) has brought about remarkable achievements in its health care system since 1959. The vital statistics reflect the far-reaching socio-political changes that have taken place; infant and maternal mortality comparable to those of the industrialized countries; life expectancy at 72 years—the highest in the region; the dubious distinction of listing heart disease, stroke, and cancer as the most common causes of death.

With the Arusha Declaration (1975), another socialist government made its commitment to providing adequate health care for all its citizens. Yet, at the present time, the total development policies of the Tanzanian government and their specific strategies for eliminating poverty, ignorance, and disease have not been brought into line. The cure for the few, and a bias towards the urban makes the health ideal still far from realization.

In the state of Kerala, there is an emphasis, far beyond that found in the rest of India, on equitable socio-economic and political development. Income and nutritional status in this small state at the south-western tip of the Indian peninsula are among the lowest in the world, yet they have reduced fertility and mortality far below those of their more wealthy and supposedly sophisticated neighbors.

The People's Democratic Republic of Yemen, with a strong commitment to equality and broadly based people's participation, in 1973 nationalized the health sector, prohibiting private medical practice in order to mobilize all the country's scarce health resources. Coming onto the health development scene a bit later than most LDCs, they were fortunate in lessons learned from their predecessors and serendipitious also in the fact that they had already been promoting initiatives in the fields of environmental hygiene, rural development, and water supply, all health-contributory though not perhaps so labelled or recognized. Democratic Yemen is one of the few countries which may actually see "Health for All" (or at least the accessibility to) by the Year 2000. This same kind of interaction between health planners, political decision-makers, and community organizations which was present in Yemen also acted to produce innovative national plans in Indonesia and Ghana.

If political commitment and people's participation are two absolutes for the pursuit of successful programs, medical effectiveness and social impact are the final criteria for judging these programs' successes.

Judging Effectiveness

Medical effectiveness is judged by the quantitative indicators of morbidity and mortality, nutritional status, and life expectancy. A strong plea is made by the authors for "a set of quantifiable indicators of community health status, nationally accepted and promoted, and adaptable for use in the semi-literate community." Social impact is even more difficult to quantify. Perhaps it can best be summed up as ". . . the community's increased level of awareness of health problems and capacity to organize itself to solve these problems." (Muller, *Participation in Primary Health Care Programs in Latin America,* Medillon, Nimeo, 1980.)

Just how many of the 134 countries who have opted for "Health for All" will actually achieve it by the year 2000 is problematical. Increased awareness and the capacity to organize to solve the most pressing of these health problems may be the level at which most countries will find themselves. The seeds of change will have been sown, however, and more particulars can follow. ■

Available for US $8.95 from Oxford University Press, 1600 Pollit Drive, Fair Lawn, New Jersey 07410, USA.

Reviewed by Sally Coghlan, Director of Information for the Technologies for Primary Health Care (PRITECH) Project.

New Book from Unesco

Although the book's focus is education, the appeal of Unesco's delightful photographic essay *It's Never Too Late to Lea* universal. Subjects range from very you very old learners around the world, reacting with joy, wonder, and occasional puzzlement to the world of books and formal teaching. The book is reminiscent of the New York Museum of Modern Art's timeless *The Family of Man,* in that the photographs, and the accompanying quotations used as captions, are chosen with an unerring instinct for the oneness of us all, in this case in the pursuit of knowledge. The quotes and text are in French, English, and Spanish; the 80 pages of black and white photographs are from Unesco's own Photographic Service. Dominique Roger who conceived the publication, and Monika Jost who did the layout, are both artists of high caliber who deserve high praise for this elegant publication.

Available in the U.S. for US $26.25 from UNIPUB, P.O. Box 1222, Ann Arbor, Michigan 48106; from Unesco, 7 place de Fontenoy, 75700 Paris, France; or from Unesco booksellers worldwide. ■

New Clearinghouse

Our recent Reader Survey resulted in a substantial number of responses indicating an interest in microcomputer applications for development. As our readers know, we have had several articles on microcomputer applications over the past two years, and will, of course, continue to cover the subject.

A resource that we would like to bring to your attention is a new AID-funded Clearinghouse on the *management* applications of microcomputers for development. Its purpose is to disseminate information to people in developing countries—especially people working in small businesses and development-related institutions in the public sector—about applications, software and hardware, training, and infrastructure. For this purpose the new clearinghouse has already begun publication of *MC Newsletter.* In addition, the Microcomputer Clearinghouse hopes to be able to develop a network of micro users who can provide technical assistance as requested. To have an effective network, there must be active participation, sharing of experiences and information on the part of persons of like interests. This newest sister clearinghouse hopes you wil just that! Write to them at:

Microcomputer Clearinghouse
319 Cameron Street
Alexandria, VA 22314 USA

(**Telecommunications** cont'd from page 2)
tion, and national and international trade and commerce. The recently released joint ITU/OECD study on "Telecommunications and Development" highlights the fact that investments in telecommunications entail significant economic and social benefits contribute . . . to identifiable increases in gross national product. These increases . . . are greatest in the countries and regions with the lowest incomes."

One indication of the awareness and concern of decision makers regarding the importance of telecommunications was the United Nations General Assembly declaration of the year 1983 as "World Communications Year." The objectives of World Communications Year are, first, to provide the opportunity for all countries to undertake an in-depth review and analysis of their policies on communications development, and second, to facilitate the accelerated development of communication infrastructures. As the WCY Secretariat in the International Telecommunication Union has stated, *"These basic objectives are fully in line with the current concerns of all senior government officials, irrespective of the degree of development of their communications infrastructures. In view of the ever-growing importance of telecommunications, of the variety of the systems involved, and of the size of the investment required, it is easy to understand the . . . need (a concerted effort) felt by all those called n to take crucial decisions with regard to frastructure for communications—that key factor in the social, economic, and cultural development of nations."*

The Communications Imbalance

The efforts that are being coordinated as part of World Communications Year in Africa have been designed to complement the activities undertaken under the U.N. Transport and Communications Decade in Africa, 1978–1987, which was declared in recognition of the urgency of developing transportation and communication infrastructure in Africa. Statistics reveal the severity of the communication problem, not only in Africa, but in other developing regions as well. In January 1977 there were 0.4 telephones per 100 population in Africa, 4.5 per 100 in South America, and 5.2 per 100 in Asia. This stands in sharp contrast to the 70.7 telephones per 100 population in North America.

Expanding on that picture, in 1977 developing countries as a whole had an average of 1.1 telephones per 100 population, while developed countries had an average of 33 per 100. In 1982, three-fourths of the 550 million telephones in the world were in only eight ntries, and three-fourths of the 560 mil- television sets were in only nine countries. In other words, developing countries have 70 percent of the world's population, 20 percent of the world's gross national product, and 7 percent of the world's telephones and televisions.

"A recent ITU analysis revealed that 90 percent of telephone service in developing countries is used by subscribers in industry, business, transportation, and government."

Not only do developing countries have fewer telephones, they also have a strong imbalance in service that favors urban over rural areas. A recent survey of 27 African countries revealed that 53 percent of all telephones in those countries were in the capital city—this despite the fact that over 80 percent of the population typically resides in rural areas.

This urban-rural communications imbalance has far-reaching effects, not the least of which is the negative effect on national cohesion that results from what is in effect a dual urban-rural economy. A recent ITU analysis of telecommunications revealed that 90 percent of telephone service in developing countries is used by subscribers in industry, business, banking, transportation, and government. Lacking telephone service, rural areas increasingly also lack access to these important service sectors. Until policy makers learn to integrate telecommunications into the national planning process, the imbalance and its negative impact on national development and national cohesion are likely to prevail.

A comparison of annual telephone capacity growth rates is also revealing: North America has an annual growth rate of 4.6 percent, Europe 8 percent, Latin America 10 percent, and Africa between 6.2 and 8.7 percent. In order to achieve the goal of one telephone per hundred people in sub-Saharan Africa, where the need for telecommunication development is most pressing, an annual growth rate on the order of 14 percent is required. Unfortunately, levels of investment in telecommunications in developing countries have historically been low, averaging 0.3 percent of the gross domestic product, which is less than half of the average annual percentage of investment in developed countries.

Generally speaking, developing countries share a common set of problems regarding telecommunications: a huge gap between supply and demand, a strong distribution imbalance favoring urban over rural areas, poor quality of service, a long waiting time for new service, and peak traffic demands that exceed network capacity.

Righting the Imbalance

Still, developing countries are striving hard to make inroads into resolving their national telecommunication problems. The goals for the U.N. Transport and Communications Decade for Africa include not only an average penetration of one telephone per 100 population, but other goals that address the gamut of needs in developing a sound communication infrastructure. These include surveying training needs and establishing basic training requirements for telecommunication personnel, surveying and evaluating existing management policies and management courses, establishing a planning office in every PTT and developing a fundamental telecommunication development plan, establishing a maintenance and operations unit in every country, providing full radio coverage and increasing the number of radios from 7 to 20 per 100 population, and becoming self-reliant in manufacturing certain items of communications equipment. Perhaps the most ambitious goal is to provide a public call office for for every 10,000 rural people, so that an individual has access to a telephone within five kilometers of his home. Another ambitious goal is to complete the PANAFTEL network, which is to link all 49 member countries of the Organization of African Unity.

Massive Effort Needed

The effort to meet these goals and those of other regions of the world requires a massive mobilization of resources, both human and financial. While the developing countries' telecommunication growth rates are relatively high, increasing them to meet unmet demand entails considerable difficulties in mobilizing the necessary institutional and financial resources. A review of published data shows that, excluding city networks, it is difficult to maintain growth rates in excess of 20 to 25 percent per year. A question that merits exploration is whether, given adequate levels of financing, the advanced technologies will make it possible to maintain higher network growth rates by requiring lower levels of skill at local levels and by facilitating the process of network management.

The projected expenditure for telecommunications worldwide in the 1980s is some $640 billion, of which some 50 percent will be for public telephone equipment, according to a recent Arthur D. Little study. In Latin America alone annual telecommunication expenditures are expected to leap from $2.52 billion in 1980 to $4.9 billion in 1990. Even that level of increased investment will only increase the number of telephones in service in Latin America from 20 million to 43 million, or from six per 100 population to 10 per 100.

Given the sizable amounts being spent by telecommunication administrations for modern equipment, the training of personnel to ensure the proper operation and maintenance of that equipment is extremely important. While most developing countries now have national training centers that can fulfill at least some of the need for basic and medium-level training, there is significant unmet need

(continued on page 13, col. 1)

The A.T. Microfiche Reference Library: Information When You Need It

by Ken Darrow and Michael Saxenian

Despite the wealth of technical reference materials now available on proven village technologies, the vast majority of technical questions that arise in the field never get answered. Local organizations usually do not have appropriate technical references on hand, and those materials that are available are rarely indexed or organized in a way that makes it easy for project staff to locate needed documentation.

Piecemeal acquisition of reference materials, as the need arises, has generally been the only solution open to such groups. However, the obstacles to such an approach are formidable. Locating publications can be difficult and time consuming, the cost per item is generally quite high (a particular problem when ordering materials of unknown quality and applicability), and the typical wait of two to eight months for delivery of materials means that, in most cases, by the time they arrive the project has either lost momentum or proceeded without the needed materials.

The net result is that people cannot find the technical information they need when they need it, and therefore most technical questions are set aside and forgotten. Project staff go without the benefit of learning from the experiences of others, and are forced to guess at things for which good answers already exist.

Ready access to relevant technical information would assist these people in significantly increasing their productivity. The best information tool for this purpose is simple and centuries old—a library. To meet the needs of village development the library must contain a well-organized and indexed collection of technical documents chosen for their applicability to village situations. However, until now, libraries of sufficient size have been prohibitively expensive.

Now, however, microfiche technology offers a low-cost alternative to expensive paper libraries. The A.T. (Appropriate Technology) Microfiche Reference Library, recently assembled by the Appropriate Technology Project of Volunteers in Asia, reproduces every page of original text of 872 carefully selected reference books and documents from around the world. Included are almost all of the books reviewed in the *Appropriate Technology Sourcebooks, Volumes One and Two*. The library contains more than 112,000 pages of indexed and organized reference material, with answers to the great majority of questions that normally arise regarding appropriate village technology. The *A.T. Sourcebooks* and a separate paper index provide indexing and reviews in paper copy of every item in the collection, so that it is *easy to find needed information*. Specific technical data can be found within minutes, while surveys of technical options can generally be completed within a few hours. Field and shop handbooks on all common topics are included for reference. Most significantly, the cost of the collection is about 1/20th of the cost to assemble the same collection in paper.

The low price of this technical reference library is made possible by microfiche technology. Microfiche is the lowest cost technology in the world for reproducing books. A microfiche library, in turn, is the lowest cost means of organizing and handling large numbers of reference books. The A.T. Microfiche Reference Library, with the electric microfiche reader included, costs only US$825. Many small development groups which would otherwise have no access to a substantial technical library will now be able to do research immediately in their offices.

Microfiche is a 4″×6″ (11cm×16cm) sheet of film on which photographic images are made. Each sheet of microfiche in this library set can hold 98 or 133 pages of text (depending on the size of the page), reduced to 1/24th of the original size. The microfiche is read with a microfiche "reader," which magnifies the image on film back to its original size. We have found an excellent portable reader which we are offering with this set at a substantial discount (see below).

Most of the costs of paper publications come from production, stocking and handling, and shipping. Master microfiche sheets are produced by photographing and reducing each page of text. Duplicates can then be made from these masters at very low cost. With microfiche, shipping costs are also quite low due to light weight and compactness. Stocking and handling costs remain quite high if microfiche publications are offered on an individual, title-by-title basis, but these costs can be greatly reduced if microfiche publications are offered as a single standard collection.

The Microfiche Reader

Microfiche is a very simple technology for the user, requiring only a "reader" with a strong lamp and a good lens, and electricity. We are offering an excellent portable reader, the Information Design "Cube," as an option with the microfiche set. The Cube is a rear-projection reader with a bright sharp image, allowing for comfortable use in nearly any lighting condition. The Cube is easier to use than other portable readers we have seen, and it requires no set-up prior to use. This unit is available for either 110-volt or 220- to 240-volt electric current, which is converted to 12 volts to power a long-life 25-watt lamp. Patch cords for 12-volt operation are also supplied so that the reader can be powered through the cigarette lighter of a car, or hooked up directly to a car battery or two motorcycle batteries for use in areas with line current. The Cube can be operated in position, and tracings of complex diagrams can be made on paper placed against the screen. Unlike most rear-projection readers, the screen of the Cube is made of an extremely durable, uncoated plastic which can be easily cleaned with alcohol or any other solvent which will not dissolve plastic.

The cube measures 12″ wide×12″ deep×10″ high (29cm×29cm×25cm), and weighs less than 9 lbs. (4 kg), making it fully portable for field operation.

Most microfiche applications up until now have been for low-cost document storage. The image quality of these microfiche has not generally been very high. This, in combination with microfiche readers which are unnecessarily difficult to use and produce an unsatisfactory image for reading, can make microfiche difficult to use. However, the microfiche provided in the A.T. Microfiche Reference Library are of the highest quality available; used in combination with the easy-to-use portable microfiche reader which is offered with the set, these microfiche produce a very sharp and clear image which can be comfortably read for long periods of time. Learning to use the microfiche library and reader takes only 15 minutes. In fact, given its superior system of organization, and the small physical size of the microfiche set (small enough to fit in a shoe box), many people have found that the microfiche library is actually *easier* to use than a conventional paper library.

While users of the A.T. Microfiche Reference library will not be able to make photocopies of the text on microfiche without special equipment (and many of the items are under copyright in any case), the entire

(continued on page 13)

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

(**Microfiche** continued from page 12)
microfiche library can easily be carried home or to the field, or lent to a friend.

In tropical Third World conditions, the epoxy-coated "diazo" type microfiche used in this set is also far more durable than paper [illegible] Unlike paper books, diazo microfiche [illegible]t harmed by humidity or fungus. Because of the epoxy coating, diazo microfiche is resistant to scratching, and have a proven durability of 10 to 20 years.

Conventional libraries are too expensive for all but the best endowed Third World development groups. As the already high costs of producing and shipping paper copies continue to rise, the favorable economics of microfiche libraries will become even more compelling. The A.T. Microfiche Reference Library offers reproductions of one of the best A.T. libraries in the world, allowing local groups access to the information they need, when they need it. ■

Ken Darrow was a founder of the Appropriate Technology Project of Volunteers in Asia. He co-authored the *Appropriate Technology Sourcebook,* and is now setting up an appropriate technology information clearinghouse in Kathmandu, Nepal.

Michael Saxenian is the current coordinator of the Appropriate Technology Project of Volunteers in Asia.

For further information, write The Appropriate Technology Project, Volunteers in Asia, P.O. Box 4543, Stanford, California [illegible]5, USA.

(**Telecommunications** cont'd from page 11)
for training at the higher levels required for managerial personnel. A recent ITU training needs survey found that, in 10 West African countries, there will be over the next decade an estimated additional requirement for 600 assistant engineers, corresponding to 48,000 student weeks of training. Existing training facilities are also ill-equipped to provide training in the new technologies, such as digital networks, satellites, and fiber optics.

Constraints to Development

The costs of developing communication infrastructure are obviously great, and the lack of adequate financial resources is one of the fundamental constraints to improving communication services. The problem is apt to reside in a shortage of available foreign exchange. The foreign exchange requirements of a telecommunication investment program are substantial—between 50 and 60 percent of the total required investment—primarily because the bulk of the equipment must be imported. Unfortunately, most developing countries have a shortage of foreign ex[illegible]ge, a condition that does not promise to [illegible]ove. Although telecommunications is usually not first in line in the competition for foreign exchange, it can be argued that improved telecommunications will reduce the foreign exchange requirements of other sectors, such as transportation. Prudent planning will closely assess the range and extent of such effects.

The availability of local currency for telecommunications investment should not be a problem, as local telephone operating entities usually average at least a 15 percent annual rate of return in most developing countries. Unfortunately, telecommunication entities are often not free to control the use of telecommunication revenues. Most countries decree that not only must telecommunications make a profit, but that profit must be turned over in large amount to the government to meet the expenses of other sectors. Left to itself, the telecommunication entity could not only support itself but could subsidize rural service. As it is, rural service is often not provided for from the public treasury because it is not immediately and obviously profitable. Rural services have high costs (up to five times the cost for urban services) and low traffic volume. This situation is self-perpetuating; low demand begets high prices, which in turn beget low demand.

There are additional constraints to the improvement of telecommunications, particularly in rural areas of developing countries. Related to the financing problem is the fact that there is a dearth of strong evidence of both the direct and indirect benefits of telecommunication investment, so that investments cannot be adequately justified. The International Telecommunication Union, the OECD, the World Bank, the AID Rural Satellite Program, and others have been conducting research to systematically identify and measure the benefits of investments in telecommunications so that the sector can gain a more competitive position in the allocation of scarce financial resources.

Finally, there are a series of internal institutional problems that must be considered as constraints to telecommunications development. Primary among these are the lack of financial and management autonomy of most operating companies, and the fragmentation of responsibility for telecommunications, with different operating entities holding responsibility for different services. Fragmentation leads to higher costs, prevents economies of scale, leads to too much variety in equipment purchased, and causes duplication of managerial functions in a climate of managerial shortages.

Conclusion

Robert Saunders of the World Bank suggests the conditions that would relieve such constraints and give operating companies the financial and managerial autonomy they require:

- expedited procedures for investment program approval;
- a good commercial accounting system;
- tariffs set high enough to cover costs and generate investment funds;
- simplified regulatory procedures;
- authority to collect bills, including those to government agencies;
- reinvestment of telecommunications funds in the telecommunications sector; and
- competitive salaries.

The importance of these and other actions to achieve adequate telecommunications development in all countries cannot be overstressed. As the members of the International Commission for the Study of Communication Problems (the MacBride Commission) stated in *Many Voices, One World:*

". . . Communications has become a vital need for collective entities and communities. Societies as a whole cannot survive today if they are not properly informed. . . . Self-reliance, cultural identity, freedom, independence, respect for human dignity, mutual aid, participation in the reshaping of the environment—these are some of the non-material aspirations which all seek through communication. But higher productivity, better crops, enhanced efficiency and competition, improved health, appropriate marketing conditions, proper use of irrigation facilities are also objectives—among many others—which cannot be achieved without adequate communication and the provision of needed data."

This article was written to reflect the issues and challenges prevailing in global telecommunications emphasizing their implications for developing countries. It set the context for a summary of discussions of "International Issues in Communication Technology and Policy," which took place at the Aspen Institute at Wye Plantation in the spring of 1983. ■

Sandra Lauffer is Program Officer for Telecommunications at the Academy for Educational Development, and Director of Information for the AID Rural Satellite Program.

Reprinted from *International Issues in Communication Technology and Policy,* a report published by the Academy for Educational Development, 1983.

(**ERIC** continued from page 5)
Forms for ordering ERIC documents and reprints of journal articles are also provided, as well as a glossary and a 42-item bibliography. Published by the ERIC Clearinghouse on Information Resources, this guide is available from Information Resources Publications, 030 Huntington Hall, Syracuse University, Syracuse, New York 13210, U.S.A. (order no. IR-63; $3.75 plus $1.50 for shipping and handling). It is also available from EDRS in microfiche for 97¢ or in paper copy for $5.65. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, USA.

Literacy Work in Peru

In June 1982 a support project for the multisectoral national plan for literacy teaching by audiovisual methods was launched in Peru.

Under this project national personnel are being trained to produce and use audiovisual teaching materials. Video and radio are being used to improve the effectiveness of the literacy campaign and broaden the area covered by the plan.

Extension workers in audiovisual education have been trained for literacy activities, as a result of an agreement with the Training Centre for Audiovisual Teaching Services (CESPAC), under the Ministry of Agriculture, and funding from a UNDP-FAO project.

The functions of the extension workers are to select target areas; to motivate the population in general, and illiterates in particular; to contribute their resources to literacy activities; to encourage the setting up of community literacy centers; to select and train literacy workers; to plan for the use of audiovisual equipment in these areas; to give advice and encouragement; to participate in evaluation and to draw up plans and strategies for the post-literacy stage.

The educational materials have been first prepared on videotapes for the Spanish-speaking population. After feedback has been received and the project has been evaluated, a second phase will be launched by radio, to obtain wider coverage and to adjust to the country's different sociocultural realities, in particular, to bilingual literacy teaching (Quechua-Spanish, Aymara-Spanish).

Research and evaluation form an integral part of the work in regard to both the production and the use of the materials. These activities, however, are not carried out 'from outside,' but by the same persons who are producing and using the audiovisual materials.

The overwhelming importance and the complexity of post-literacy work are realized. Forecasts have been made and practical measures have already been taken to tackle the problem as the literacy campaign progresses—preparation of local newspapers for communication within communities, readers, travelling libraries, etc. The project has since its inception been geared to the establishment of a system of lifelong education based on audiovisual methods.

For further information, please write to: Proyecto de Desarrollo de la Alfabetización y de la Educación no Formal a través de Medios Audiovisuales, Apartado 4480, Lima, Peru.

Reprinted from Unesco Adult Education Information Notes, *No. 2, 1983. Adult Education Section, Literacy, Adult Education and Rural Development Division, Unesco, 7 place de Fontenoy, 75700 Paris, France.*

(**Swamp Rice** continued from page 4)

dren), in a positive direction. These data therefore suggest that the majority of Semi-Developed and Undeveloped farmers are willing to employ improved methods of swamp rice farming if provided with the educational and material resources to do so.

The final section on felt information needs revealed the areas which might be addressed in an information campaign, from the farmers' point of view. A wealth of queries was produced for every indicator, but particularly those where practices and information levels were low. A relatively coherent pattern thus emerged between practices, knowledge levels, and perceived information needs.

Implications for Campaign

With the foregoing analysis in view, there appeared to be little doubt that a media campaign would be highly useful for raising information levels toward recommended practices of swamp rice production. At the conclusion of the survey, we agreed that the data generated on felt information needs should serve as general guidelines for such a campaign, with specific emphasis to be directed toward those sectors where practices and knowledge levels were particularly low and where attitudes could be positively shifted.

Given the potential radio audience and the popularity of "Farming Magazine," radio would be the principal carrier of the campaign, particularly in the southern portion of the country where medium wave service is reliable. In the northern short-wave territory, programs produced for radio would be also used for cassette listening groups organized by the regional communication officers. Both sections of the country would be shown slide presentations conveying information appropriate to each of the seven indicators of swamp rice development. Logs would be kept by the communication officers of dates and types of presentations to individual villages.

As a final pre-campaign note, it was suggested that extension agents should be deliberately exposed to the same material as the target farmers to ensure a consistent and accurate flow of information. Ideally, print support would also be made available to extension agents to reinforce the audio and visual presentations.

In summary, while the advantages of baseline data for media production decisions are frequently expressed, such data are rarely gathered systematically in Third World rural communication projects. The campaign to be put into motion here, even though based on a very limited budget, stands an excellent chance of accurately addressing real needs of an important segment of the Sierra Leone farming community. ■

Gary Coldevin is currently Director of the Graduate Programs in Educational Technology, Concordia University, Montreal, Canada H3G 1M8.

Scriptwriting Contest

The Asia-Pacific Institute for Broadcasting Development (AIBD) has announced a competition on Scriptwriting for Production of Training Materials.

For Whom

It is open to participants from member countries of the institute in the Asia-Pacific region.

- Instructors highly experienced in video/film production in training institutions operating for broadcasting.
- Writers, producers, directors, cameramen, editors, sound recordists, make-up artists, animators of National Film and TV organizations.

How to Compete

- Participants should send to AIBD not later than 31 AUGUST 1984 a script or story-board on a 3 to 12 minute program to be produced in any of the formats such as videotape, 16mm film, slides or slide tape, for training TV professionals at basic or advanced levels.
- Four topics have been selected for this first exercise: technical aspects of camera work; care and routine maintenance of equipment; editing; make-up for television adapted to the Asia-Pacific Region.
- The winners will be granted travel and per diem expenses to come and produce the program at AIBD. Special arrangements could be made for production in their own country.
- Application forms and further information regarding conditions and regulations are available from AIBD, Bukit Putra, P.O. Box 1137, Pantai, Kuala Lumpur, Malaysia. ■

Free Devcom Catalogue

World Neighbors, an international development organization working with people in Asia, Latin America, and Africa to promote effective development, human dignity, and self-reliance, has just published a new catalogue of development communication materials. The catalogue describes 91 filmstrips, nine flipcharts, six booklets, four books, and two newsletters on health, nutrition, family planning, and food production.

These materials have been developed by World Neighbors to be used in person-to-person education to help families learn to produce more food and improve their health.

The catalogue is available free from World Neighbors, 5116 North Portland Avenue, Oklahoma City, Oklahoma 73112, USA.

(**Microcomputers** continued from page 16)

The Role of Microcomputers

Such support can be provided by the microcomputer, which, being flexible, can be adapted to suit the needs of the user, and is affordable at prices well within the reach of developing countries. A lower-range microcomputer of 32,000-48,000-character memory can process almost all the health indicators needed for the affordable and medically justified health programs for a population of 200,000. Storage and printing are easily provided. No special rooms or facilities are needed—just a clean desk-top and a power point. Even the expertise required is far less than for a traditional computer. The whole configuration will cost at most US $5,000. The data can be processed and the information outputs printed in 10 working days (60 hours) maximum, leaving as many working days for the gathering of data and the distribution of information up and down the hierarchy. These figures have been confirmed in Egypt where, following a pilot study carried out with WHO collaboration, microcomputer-based information systems are now largely operational in Fayoum, Ismailia, and South Cairo provinces.

The use of microcomputers at the intermediate level not only solves the problem of the central processing of large amounts of data and that of timely output of information; it increases the number of users, thereby making the technology to be transfered successfully. It also disciplines and trains people in planning, logistics, and objective measurement, and allows for the wide diffusion of health information among medical and health-related personnel within the health service. It addresses the primary health care level, where assistance can be most effective.

Transfer of Technology

Criticism of the transfer of microcomputer technology to the Third World usually stresses its effect on employment, difficulties of maintenance, lack of expertise in developing applications, and cost. But such criticisms are unjustified.

Traditional computer technology, a more demanding and expensive resource, is already in use in the Third World—in airports, banking, the armed forces, and medical research. To operate a computer is not to know how to construct one; and many people in the Third World can do the former. Many if not most of the developing countries, in which good health and sophisticated technology—aircraft, cars, brain scanners, oil refineries, weather stations, hydroelectric and various industrial plants—exist alongside disease and poverty, have secondary school graduates who can be trained to operate and service a microcomputer. This was found to be the case in Egypt.

It cannot be denied, however, that the transfer of technology has its problems. One of them is that commercial competition has resulted in the proliferation of hardware components, similar in function but sufficiently diverse to prevent the universal use of a single item of software for a specific application. This lack of international standards creates a trade dependency. Another problem is that of language. Modification of hardware to allow input and output in native languages is both possible and simple, but expensive. Systems analysis and software development and acquisition are also expensive. Yet these are problems that can be solved (indeed, they have been solved in some instances) and do not justify failure to exploit microcomputer technology.

"... Those responsible for health matters in the Third World must be made aware of the potential of microcomputers..."

An International Effort

For some time now it has been part of the work of WHO to identify health objectives and to develop health indicators, concepts, and guidelines for national information systems. It is now time to examine more closely the logistics and implementation of such systems and to develop national expertise in microcomputer technology and its uses.

WHO's Division of Information Systems Support, in collaboration with a number of technical programs at headquarters and in the regional offices, is studying with several developing countries the usefulness, operation, and costs of microcomputers in health statistics, health literature, and health system management. Technical cooperation can and should become broader in scope. One need of developing countries, for example, is for simulation studies to determine the need for microcomputer technology that will yield information useful to decision-makers—information, that is to say, that will help in monitoring progress towards health objectives, identifying further health needs, and implementing new target-oriented activities. Such studies could indicate, among other things, how large and how densely populated an area should be to produce useful statistical information at low cost. Once the optimum size for such a unit has been established, it will probably become clear at what hierarchical level in the health services system microcomputers could be placed more effectively, although this will, of course, also be influenced by the availability, at the different levels, of secondary school graduates who can be trained to operate microcomputers.

Other action is needed. Those responsible for health matters in the Third World must be made aware of the potential of microcomputers. Member States will require cooperation in choosing and testing hardware and in negotiating with industry over service charges, e.g., for adapting hardware and software components to local needs, including local languages. Finally, it is essential to carry out research aimed at developing flexible and versatile software packages and low-cost hardware for wide-spread use in health activities.

Microcomputer technology is compatible with the conditions prevailing in the Third World. To transfer it to the field of health will require coordination at the international level under the auspices of a body such as the World Health Organization. ■

Dr. El Kholy is Secretary General to the Board of Health, Ministry of Health, Cairo, Egypt. Dr. Mandil is Director, Division of Information Systems Support, WHO, Geneva, Switzerland.

[1] *International Seminar on Informatics Support to Health Management Systems, Cairo, 1–8 December 1982. The full report of the seminar (unpublished WHO document ISS/83/3) is available to professionally interested persons on request to Dr. Mandil.*

[2] *El Kholy, A. & Mandil, S. H. The relevance of microcomputers to health improvement in developing countries. This paper will be published in full in* Information and management, the international journal of information systems applications.

Reprinted by permission from the WHO Chronicle, *37(5): 163-165 (1983).*

Summer Seminars on The New Technologies

The School of Communications of California State University at Chico has announced a four-week Summer Institute on Telecommunications and the New Information Media. Divided into four one-week conferences, the schedule is as follows:

- Satellites, Teleconferencing, and Broadcast Telecommunications (July 15–20)
- Interactive Video Technology (July 22–27)
- Microcomputers and Electronic Information (July 29–August 3)
- Working Field Trips (August 5–10)

Costs are US $1,800 for the entire month, or $525 a week. There will be informal sessions as well as formal presentations.

Designed as a forum for international leaders in media, business, education, and government to explore new developments in communications, the Institute is limited to 50 participants.

For further information, or to apply, write: International Summer Institute on Telecommunications, California State University at Chico, Chico, California 95929, USA. ■

Microcomputers and Health Improvement in Developing Countries

by Aziz El Kholy and Salah H. Mandil

What are the difficulties associated with the collection of adequate health data at the periphery of a national health care system? And what is the relevance of the microcomputer to analyzing these data, extracting useful health information, and conveying it quickly to the decision-makers? An international seminar[1] was convened by The World Health Organization (WHO) in Egypt in December 1982 to discuss these questions and to see how the host country's recent experience with microcomputers could contribute to answering them. The following article, based on a background paper[2] prepared for the seminar, argues that the use of microprocessors in health information could be the most important single factor in improving management and thus bringing health for all within reach.

Microcomputers have become available at the right time. In the last two decades medical science has made available a host of effective and relatively inexpensive interventions that are capable of saving countless lives: vaccines against the killing childhood diseases such as diptheria and poliomyelitis, oral rehydration therapy for diarrhoeal disease, cheap safe drugs for schistosomiasis. Simple, reliable diagnostic techniques allow better forecasting of epidemics as well as improved management of individual cases. Still other drugs and vaccines are already on the horizon.

But to adopt such interventions without adequate evidence of their effectiveness, and without confirmation thereof in the local setting, can lead to what has been called "the nicest possible type of inflation." If the new medical technology is to be put to good use, information systems must be developed as a basic element of the national health system. Timely and suitable health information is indispensable for ensuring the progress and cost-effectiveness of health care programs, as well as for rational planning and training. The key to generating and disseminating this information may well be the microcomputer.

Design and Implementation of Health Information Systems

The WHO Inter-Regional Consultation on National Health Information Systems (Costa Rica, 1979) recognized that health information systems must be made capable of delivering information for specific health service aims over a long period. This presupposes:

- health service aims that are capable of being identified and quantified, and
- medical interventions that are genuinely effective and locally affordable.

These, then, are the prerequisites for the design of the health information system. For its implementation, data must be collected, stored, processed, analyzed, and interpreted; the resulting information must be printed and disseminated; and feedback must be obtained. The timeliness of the information is a necessary condition for its use. Here the critical factors are the volume of data at the processing level and the remoteness of the intended recipient of the information.

Data are usually collected at local health centers. Since the work of collection is relatively light, the data are amenable to hand manipulation. It is at the later stages that problems arise: the expertise and facilities needed for the processing, analysis and interpretation of the data and for the printing and exchange of information are usually not available at the peripheral level, nor may they be cost-effective to establish there. Such facilities can be provided by an expensive central computer, but in a large country with poor communications there will be lengthy delays at both ends, in the relaying of the data and in the dissemination of the resulting information. Such delays totally defeat the purpose of data collection, which is the timely use of the findings for decision-making.

A logical alternative would be to do the assembling, processing, analysis, and interpretation of data and the publication and exchange of information at and from an *intermediate point* in the data-cycling process, between the national focal point and the peripheral health care units. One would have to determine in each case the optimum population size to yield meaningful information on morbidity, disability, and mortality and on the effective use of available resources. For a large number of developing countries, a population of 200,000 would perhaps be reasonable since it could generate potentially usable data even on diseases with low case-fatality or disability rates. Nevertheless, the problems of hand sorting and processing data analysis and interpretation, and printing facilities would still remain. It would appear therefore that, even at an intermediate level, the minimum requirements of an information system cannot be met without the support of appropriate technology for data processing and information dissemination.

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
and Resource Center Manager
Heddy F. Reid, Editor
Arlene Horowitz, Program Associate
ISSN 0192-1312

AED
International Division
Academy for Educational Development

Nonprofit Org.
U.S. Postage
PAID
Permit No. 44464
Washington, D.C.

Policy & Planning; Rehabilitation; Resources; Rice-Growing; Microfiche; Micros & Health

development communication report

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

Autumn 1984
No. 47

Microcomputers for Education in the Developing World

by Kurt D. Moses

The United States Agency for International Development has identified four characteristics of formal primary education in less-developed countries, particularly Africa, which appear to impede the efficiency of education and training systems. The four characteristics are:

- Inability of education systems to reach all populations efficiently
- Limited resources compounded by inadequate planning and implementation as a result of missing data, lack of qualified manpower, and lack of administrative coordination
- Scarcity of basic knowledge on the organization of the educational system
- Insufficient effect of short-term projects created by uncoordinated donor efforts.

Of these problems, the second is increasingly amenable to the use of a microcomputer to improve educational efficiency. The limitations on planning and implementation of educational efforts that result from lack of data, lack of qualified manpower, or lack of administrative coordination all make use of the powers that a microcomputer can bring to bear at various points within an organization. These powers can be categorized into six basic categories:

- Organizing information
- Performing computations or processing paper work
- Monitoring progress
- Enhancing planning
- Improving communication
- Enhancing instruction

Each of these applications will be described in more detail in the following section.

Organizing Information

At the present time, one of the most rapidly growing applications for microcomputers in the less-developed world is the *organization and retrieval of information*. In order that it be used effectively, particularly in an automated form, information must be characterized, related, and placed into an easily accessible format. Computers typically not only require this type of organization, but in fact assist it by allowing rapid comparison of available data and by allowing multiple indexes for specific factual items. As an example, students who have been recorded in a school system's ledger can be categorized by three or four different selection criteria (e.g., sex, grade, region of birth, performance in school) and thereby be subject to more rapid analysis.

The most powerful immediate application of microcomputers in the less-developed world will be at the ministry level, where there are frequently severe shortages of trained staff, a lack of administrative coordination, and offices which are typically distant from the source of data on the educational system. In the ministries, and also in some countries, at the regional level, microcomputers can assist in the management of available data on students, on teachers, on facilities, and on finances.

In these applications, microcomputers are typically used to maintain fairly complex databases, and can pre-edit data which is submitted by schools, by districts, by regions, or by other organizational units within the educational system. In the past, in ministries which had some access to computer power, there were frequent delays because of over-burdened central computer facilities. Now, microcomputers

(continued on page 12, col. 1)

In this issue . . .

Microcomputers for the Developing World 1
Social Marketing—Two Views 1
Wonsuom—Ghanian Communication . 3
DSC on Videotape 4
AID DevCom Policy 5
On File at ERIC 5
T&D in Nigeria 7
A Communicator's Checklist 8
Publications to Note 10
Training Gambian Fieldworkers 11
DCR Reader Survey 15
Coming of Age of Development Communication 16

Social Marketing: Two Views Two Opportunities

by Susan Saunders and William A. Smith

"If you can sell toothpaste,
why can't you sell good health?"

This simple and somewhat disquieting question lies at the heart of social marketing and reflects its origin in the commercial world. Commercial marketing represents a powerful technology for selecting, producing, distributing, promoting, and selling an enormous array of goods and services to a wide variety of people in every possible political, social, and economic context. Even those who resent the slick superficiality of some modern advertising, or decry the ever-increasing array of seemingly useless gadgets, must accept the fact that marketing works. It creates products (most of which are useful); it positions those products in a marketplace to meet a special consumer demand; it makes the products available and affordable to particular consumer segments; and it motivates consumers to buy and use a product by illuminating its benefits.

Social marketing applies this approach to problems such as cancer detection, forest fire prevention, dental hygiene, automobile safety, alcoholism, child abuse, family planning, and infant diarrhea. Internationally, the term is used in two ways. The first emphasizes selling a product; the second selling an idea.

The first view of social marketing necessarily includes the *sale* of some socially beneficial product, such as condoms, birth control pills, or oral rehydration salts. Typically, these products are subsidized to ensure that the consumer cost is low enough to reach those unable to pay commercial prices, but the actual sale of the product is considered critical because it contributes in four ways to marketing effectiveness. First, it helps to ensure consumer motivation. Some argue that if hard-earned cash is used to pay for a product, then the person really wants it and will use it. Second, marketing increases

(continued on page 2, col. 1)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(**Social Marketing** continued from page 1)

internal efficiency. Sales are a simple and clear-cut measure of program success. Poor sales are a motivation to examine the program itself and change what is wrong. Advocates also argue that the sale of a product stimulates the entrepreneurial instincts of program managers; it provides an internal stimulus to succeed which makes these programs more efficient than public sector bureaucracies whose incentives are typically independent of program performance. Finally, sales contribute, although not fully, toward cost-recovery and increase the potential for long-term self-sufficiency.

The second view of social marketing uses the same systems approach as the first, but emphasizes the promotion of socially beneficial ideas and practices instead of products. There is no object to sell, no transfer of money, but rather an articulate reshaping of traditional educational strategy to reflect a consumer orientation and a marketing context. "Eat less salt," "Use your seatbelts," "Immunize your child before age one," "Keep breastfeeding your infant during bouts of diarrhea" are examples of socially beneficial practices which can be marketed almost like Coca Cola, new cars, or condoms.

But social products are different from commercial ones in important ways. For example:

Social Products Are More Complex than Commercial Ones

It is one thing for a consumer to choose between Coca Cola and Pepsi Cola, but quite another for a rural woman to learn a new formula for making a diarrhea medicine at home, remembering how much salt and sugar to use, and then giving enough of that solution to a fitful and sick child.

Social Products Often Are More Controversial than Commercial Ones

Again, it is one thing to sell a new perfume and quite another to motivate a young African man, whose status in his community depends upon having children, to use modern contraception.

Social Products Are Less Immediately Satisfying to the Consumer

It is not much fun to walk for several hours, wait in line several more to have your child vaccinated, and have your husband complain the next morning because your child was crying all night. Nor is it gratifying to go for a breast examination and discover you have breast cancer. In contrast, you drink Coca Cola and it immediately tastes sweet and pleasant.

Our Audiences Have Fewer Resources than Most Consumers

The "poorest of the poor" are rarely an explicit audience for commercial marketers. But social marketers are committed to reaching precisely those people with the least time, status, and mobility; people who are often illiterate, isolated, sick, discouraged, and left out.

Social Programs Require Spectacular Results

Ministries of Health, when planning a new program, want a 30–50 percent reduction in infant mortality. Changes of 2–3 percent are simply not acceptable. Any major manufacturer of shampoo, however, would be delighted with a 2–3 percent increase in market share after six months of advertising.

There are many other differences. William Novelli, President of Needham Porter Novelli, has outlined some important differences between the marketing of commercial and social products. He points out that: 1) there is greater resistance to audience research and audience segmentation in social programs; 2) governments are rarely able to maintain continuity and support long-term marketing efforts; 3) social programs have much less control over the delivery system, and government intermediaries are not motivated by sales incentives; 4) social marketers are asked to teach many things at once, not just focus on the single most important benefit of a new suntan lotion, for example; 5) consumer research is difficult because of the very nature of social products. How, after all, do we really verify consumers are using contraceptive products properly? 6) Competition often comes from colleagues in other social ministries so we find ourselves defending "health" as more important than "food" in order to compete for scarce government resources. These and many more factors make the job of social marketing substantially more difficult than that of the traditional commercial sector.

These differences are important, but so are the similarities between commercial and social marketing which distinguish them from other delivery strategies.

Marketing, whether social or commercial, is organized around four P's: product, price, place, and promotion.

Product, as already discussed, can be either an object or an idea. An important factor is that the product be configured to maximize consumers' acceptance and use. If, for example, effervescent salts are more acceptable, attractive, and useful to certain rural women, then oral rehydration salts (ORS) packets should be transformed into effervescent tablets. If mothers don't understand the concept of dehydration, then it may be best to position ORS as a tonic to strengthen the baby during diarrhea or a prevention for "dryness."

Price, or the cost of the product to the consumer, takes on hidden meaning when social marketers promote, for example, a home-mixed sugar and salt solution. The price of ORS is not only the actual monetary cost of the sugar and salt, but also the time a mother must spend mixing and administering the solution to her child. To ask a mother to boil and then cool water, for example, adds significantly to the "cost" of home-based oral rehydration therapy. Family planning services often carry another kind of hidden cost. The harangues from in-laws and other family members often plague a contracepting young couple and represent a prestige cost many are not willing to pay.

Place relates to where the product is available and signals the importance of an adequate distribution and supply system to ensure that the product is *easily* available to the consumer. The emphasis in effective marketing is putting the product in a place which maximizes contact; this often means developing special distribution systems. In public health, we are too wedded to health centers as the primary distribution system. A marketing perspective may lead us to discover some exciting alternatives.

Finally, **promotion** encompasses a wide array of techniques for using different communication channels (media, point-of-purchase displays, posters, meetings, etc.) to make sure that consumers know what the product is, what it is for, what benefits it has, how it is to be used, where it is available, and anything else that might motivate a consumer to seek it out and use it properly. This last issue of proper use takes on special importance with ORS. It is not enough just to put ORS in every home. Unlike immunizations or even contraceptives, the consequences of improper mixing and administration of ORS in the home are potentially life-threatening.

The implicit "P" in marketing is *people;* the consumer, the target audience, the potential user. Marketing, more perhaps than any other delivery strategy, places emphasis on the consumer's needs, attitudes, constraints, and opportunities. It is practical, comprehensive, integrative, and research-driven. Whether it is "selling" a product or "selling" an idea, these four qualities can add significantly to our ability to organize and then deliver improved social services in a wide variety of areas. ■

Susan Saunders is Director of Social Marketing Programs for the Academy for Educational Development. She has worked in social marketing internationally for the last ten years. William A. Smith is a Senior Vice President of the Academy for Educational Development.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Wonsuom—A Rural Communication Project in Ghana

by S. T. Kwame Boafo

The communication infrastructure in most parts of sub-Saharan Africa displays a heavy urban bias in geographical reach, content, orientations, language, and style. Most outstanding and common among the features of the modern communication systems in the region are high concentration and clustering in the cities, inadequacy of information facilities and resources, and limited accessibility to available facilities for people living in the rural areas.

These features serve as a major obstacle to efforts using, on a long-term and sustained basis, communication technologies in the socioeconomic, cultural, and political development in the sub-Saharan African region. The inadequacies in the distribution of communication technologies in the region make it difficult for the bulk of the population who lives in the rural communities to participate effectively in discussing and making decisions on development issues. The gaps and imbalances in communication infrastructure can also create, among people cut off from the mainstream of communication flow, severe disagreement or ignorance of national development goals and strategies. Such conditions can either frustrate or decelerate development efforts. Solutions to this problem which have been proposed and attempted in many regions of the developing world include decentralization and democratization of the communication infrastructure, with the establishment of rural newspapers and local community radio stations as a major focus.

The *"Wonsuom"* rural communication pilot project in Ghana broadly aims at training, research, and experimentation in rural community-based communications, and specifically at providing communication technologies at the grassroots level to enhance the contribution of communication in rural development. *"Wonsuom"* is a Fante expression which literally means "Let's carry it together." It identifies the project and symbolizes the significance of getting the people to participate in development programs in their communities. *Wonsuom* is used both as a call sign for the radio programs and the name of the newspaper. Fante is the main language spoken in the project area. The project, when fully operational, will use a combination of a rural newspaper published in the local Fante language, rural radio broadcasts, radio listening clubs, and slide projectors to carry development-oriented information to the communities in the project area and to mobilize and stimulate the people for development programs.

The *Wonsuom* project is carried out by the School of Journalism and Communication at the University of Ghana with technical and financial assistance from Unesco. The project is based in the Central region of the country, about 80 kilometers west of Accra, the national capital, and covers 22 rural communities with a total population of about 150,000. The adult population in the communities is mainly occupied in farming and fishing.

Programs from Local Communities

The radio component of the project was formally launched in March 1983, after an extensive 14-month preparation and planning period. Programs are produced and transmitted on the local relay station of the national broadcasting corporation on a daily basis. Most of the programs are generated from the local communities and address issues of interest and relevance to the local people. The radio broadcasts deal principally with: a) news and information on local events and significant national events; b) discussion programs involving local community leaders, farmers, fishermen, and extension agents on problems facing the communities and on such development areas as primary health care, agriculture, community development, home management, family planning, and small-scale industries; c) features on the achievements of farmers, fishermen, and other individuals and on development activities in the local communities and elsewhere.

"Listening clubs organize performances and competitions among local brass band, singing, story-telling, and wise-saying groups . . ."

Only the radio and listening clubs components of the project are in the implementation stage because of a number of constraining problems. The problems, which stem from Ghana's deepening socioeconomic crisis, include fuel shortages, electricity rationing, and a general scarcity of goods and services. These factors have created some discontinuities in the implementation of the project and delayed both the publication of the rural newspaper and an evaluative study of the project's reach, penetration, and effects on the local communities. But there are some indicators of the impact.

Feedback and Outreach

Wonsuom radio listening clubs have been formed in the communities by the local residents. Members of the clubs meet on a regular basis to listen to the radio broadcasts, discuss issues highlighted in the broadcasts, and then deliberate on ways of generating development projects in their communities. The discussions and deliberations are recorded for subsequent broadcast on the radio. This helps to carry the views and opinions of the communities on issues of concern to them and create a two-way communication process in the villages.

The listening clubs also serve as the focus of social and cultural life in the communities. The clubs organize performances and competition among local brass band, singing, story-telling and wise-saying groups, and concert parties. These performances are recorded for broadcast which gives access to the radio and recognition to talented local artists. Besides, the listening clubs have helped to unearth from the communities a number of young and middle-aged people who possess leadership qualities, initiative, and dynamism in community development. Such individuals have organized members of the listening clubs to undertake self-help development projects such as farming, pit-latrine construction, clean-up campaigns, and adult literacy classes in the local languages.

An evaluation has been scheduled to gather more empirical data on the impact of the project. It is anticipated that newspaper reading clubs will be organized when the newspaper component of the project is implemented to complement the radio listening clubs. Slides have also been planned on development issues for showing by development agents at the meetings of the clubs and other organized social groups in the communities. In these ways, the *Wonsuom* rural communication project reinforces development messages through radio transmission, through the newspaper, through slides, and through interpersonal communication. ■

S. T. Kwame Boafo, Ph.D., is a Lecturer in the School of Journalism and Communication, the University of Ghana, in Legon, Ghana.

New Learning Technologies Project

Under a cooperative grant agreement with the Office of Education of the Agency for International Development's Bureau for Science and Technology, the Institute for International Research (IIR) has recently begun a Learning Technologies Project to explore the uses of newer learning technologies in developing countries. These technologies may include microcomputers; hand-held electronic learning aids and other microprocessor-driven devices; videodiscs and interactive video; telecommunications equipment for the transfer of instructional materials; and print technologies.

The Learning Technologies Project will be directed by IIR's Director of Development, Dr. Sivasailam Thiagarajan.

IIR will assist in developing a framework for designing a series of pilot research studies, and evaluating competitive proposals from organizations in the U.S. and the Third World.

Inquiries related to the project should be addressed to Dr. Clifford Block or Dr. Julianne Gilmore, S&T/ED, Agency for International Development, Washington, D.C. 20523, USA. ■

Documentary on DSC Shows TV Doesn't Have To Be Expensive To Be Good

by Iain McLellan

As a freelance reporter for the African section of Radio Canada International for the past two years, I have had the opportunity to make contact with a variety of Canadian and African government officials, educators, and non-governmental organization workers. Many of these people shared with me their enthusiasm for and expertise in Development Support Communication. These international contacts inspired the idea for a television series designed to provide both Canadian and African audiences with an overview of how various communications media might be used to promote social development.

We decided that the format for the series would consist of seven half-hour documentaries covering radio, television, film, appropriate and high technology, and community access to the media. The first $10,000 (Canadian dollars) to produce "Communications en Développement: Une Force Puissante de Changement" came from the Comité de l'Année Mondiale des Communications, Quebec, which was established by the Government of Quebec's Ministére des Communications to support special projects during World Communications Year '83. The Canadian International Development Agency contributed another $10,000 (Canadian) to the project.

The International Development Research Centre, Tele-Globe Canada, and the National Film Board supplied film stock shots and CF Cable TV offered a day in their three-camera studio plus two days on location with a crew in exchange for the rights to broadcast the series in Montreal. Equipment rental and access to editing facilities far below commercial rates was arranged through PRIM Video, a video artist cooperative supported by the Canada Council.

To keep the salary expenses down, the majority of the production was done by just three people: a narrator/interviewer, a technical jack-of-all-trades, and a researcher/editor. All three of us would carry, set up, and test the equipment. We found we could work very efficiently with one person in front of the camera, one behind it, and the third directing and monitoring the sound.

We used a JVC (1900CH) tritube color camera and the Sony U-Matic portable videocassette recorder (¾ inch NTSC) to do most of the shooting. We shot the interviewees as much as possible in their place of work and placed them in front of video and film editing machines, computer equipment, radio antennae and so on for added atmosphere. Other interviews and stand-ups were shot outdoors in places with a lot of greenery.

The series includes the whole gamut of communications technologies used in North America and Africa, from a demonstration of a flannelograph, to posters and puppets, to computer video-text, interactive video, and fiber optics. We were fortunate to be able to interview African communicators who were in Montreal for the World Conference of Community Radio Broadcasters, and a training session at l'Institut International de la Communication.

Cameroonian communications consultant Jean-Victor NKolo proved to be an extremely valuable resource. Among other things, he was helping the Canadian Sickle Cell Anemia Society to organize a publicity campaign, and we filmed the process to illustrate how community groups can use the communications media to their advantage.

"We found we could work very efficiently with one person in front of the camera, one behind it, and a third directing and monitoring the sound."

We wanted to get a good balance in the series between concrete examples of successful communications projects and an open discussion of the problems involved in putting communications to work supporting development. We also wanted to make sure that the information was presented in a palatable and visually interesting format. Our cameras take viewers inside a community radio station serving Montreal's Haitian community, to an aero-space lab where satellites are made, to a TV studio where African students are preparing a program, and to a concert given by Senegalese musicians.

The series was shown during the winter and again in the summer of 1984 on the community channels of CF Cable TV and Cablevision Nationale, the two cable companies which serve 80 percent of the homes in Montreal. The television networks of Senegal, Central African Republic, and Benin have expressed interest in broadcasting the series. The Centre d'Etude et de Coopération International, a Montreal-based non-governmental organization, the Canadian International Development Agency, and l'Institut International de la Communication are finding the series to be a useful training tool.

Though it was not easy addressing both Canadians and Africans at the same time, I think we were able to contribute to bridging the information gap between the two continents. Both communities should have a better idea of the issues surrounding the use of communications to aid social development after seeing the series.

Some Practical Wisdom

1. Don't worry about wearing out shoe leather or your telephone contacting potential donors of money or equipment. Make as many calls as you can. There is a direct relationship between the number of people you contact and the amount of support you receive.

2. Video is not as complicated as it seems. It just takes a combination of creativity, common sense, and patience. The technical aspects of videotape can be picked up on-the-job quite easily.

3. Do as much pre-planning as possible to save time during the shoot. Pre-interview all interviewees and prepare questions in a systematic fashion which will aid in editing later and save precious production time.

4. Schedule as many interviews as possible each production day and give the illusion of interviewing them in different locations by changing the backgrounds, furniture, or decor without having to move your equipment.

5. Don't let your interviewees ramble. Tell them to keep their answers short and don't be afraid to interrupt for a clarification or another question.

6. Keep good track of what shorts and interviews are on which cassettes. This will save lots of time when it comes to editing.

7. Try to keep as cool as possible during the long hours and high tension of the production period. You can be sure that a piece of equipment will malfunction, an interviewee won't show up, a drop-out will mysteriously appear on a new cassette, you'll have an electronic buzz you can't get rid of easily, or a kleig light will blow, hopefully not all on the same day.

8. Be ready to make last minute changes and adjustments. No production is completed exactly as planned without a delay or two or three.

9. Make sure you have more than enough blank cassettes to cover your day's shooting and try to economize on the amount of tape you use. It's better to have many short shots and interviews than a few long ones. It makes editing easier as well.

10. Don't shoot outdoors without bringing along a microphone wind screen. You never know when you might need one.

11. Try to keep the camera as steady as possible while filming an interview, with the occasional pan in and out. Too much camera movement is distracting to the viewer and makes editing more difficult.

12. When editing your stock shots be careful to follow logical sequences and not have a person scratching his head one second and his hands in his pockets the next.

13. Try to get a good balance between a clip that is too long and boring and one that is cut off too quickly before the viewer can figure out what's going on.

14. Try to avoid editing in drop-outs or bad

(continued on page 13, col. 3)

A.I.D. Development Communications Policy

The Agency for International Development has given new impetus to its commitment to development communications with the issuance of a recent "Policy Determination" on *Development Communications*. This is the first time that the U.S. bilateral aid agency has specifically endorsed communications as an important area for development assistance, noting that a substantial increase in support of communication activities is anticipated.

The Policy Determination provides guidance on the objectives and conditions under which A.I.D. will support the fuller application of communications methods and technologies in U.S.-assisted development programs. It states that A.I.D. will assist developing nations in using communications to reduce costs, extend services and information, and increase the effectiveness of projects it supports in all sectors. A.I.D. will also provide guidance in making informed consumption and investment choices among available technologies, including the development of new communications infrastructure, although A.I.D. will not give priority to investments in infrastructure.

The Policy Determination makes the case that communications technologies are powerful tools for development, with substantial potential for (1) reducing rural isolation; (2) increasing the productivity and effectiveness of economic and social development programs; (3) strengthening key private and public sector institutions; and (4) advancing the basic human right of people to have the information needed to make informed personal choices. The emphasis in A.I.D.'s assistance will be on technical assistance and training to support the application of communications to problems of development.

Determinations on the possible inclusion of communications activities in specific A.I.D. programs will be made by A.I.D. Missions in each developing nation, and will be influenced by other priorities agreed to by the host country and A.I.D.

A.I.D.'s central support activities in development communications are being enhanced. These responsibilities rest in the Division of Educational Technology and Communications in the Office of Education, Bureau for Science and Technology, A.I.D./Washington, directed by Dr. Clifford Block.

The full text of the A.I.D. Policy Determination can be obtained by writing to "Development Communications Policy Determination," c/o The Clearinghouse on Development Communication, Academy for Educational Development, 1255 23rd Street N.W., Washington, D.C. 20037, USA. ■

On File at ERIC

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers on the role of communications in developing nations and the use of communications to encourage participation in projects, and reports on the use of popular graphic media in development, a distance teaching project, and a computerized information service. All five are available on microfiche and four in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping.

● McAnany, Emile G. *From Modernization and Diffusion to Dependency and Beyond: Theory and Practice in Communication for Social Change in the 1980s.* 1983. 38 pp. (ED 240 621)

Through a review of development literature, McAnany examines the changes that have occurred in thinking about the role of communication in developing nations. He begins by surveying the theories of the past, including those of the neo-classical and Marxist scholars. He also looks at the emergence of the dependency theory, examines paradigms as research complexes, and discusses theory and practice gaps in communications. He then looks to the future and to an integration of theory and practice. Among the topics discussed are (1) the meaning of communication in development; (2) development priorities in the 1980s; (3) Third World communication priorities and expectations in the 1980s, including the role of the new technologies in development, new communication and cultural policies, and alternatives for democratization and participation; (4) potential areas of change in communication including the organization of people, areas of rural need, and communication technologies and rural development; and (5) new paradigms and practices in the 1980s. This paper was the keynote address at the Conference on International Communication and Agriculture held in Urbana, Illinois, in April 1983. Available from EDRS in microfiche for 97¢ or in paper copy for $3.90.

● Perrett, Heli E. *Using Communication Support in Projects. The World Bank's Experience. World Bank Staff Working Papers, Number 551.* 1982. 77 pp. (ED 241 034)

Intended to assist World Bank staff and officials in deciding when and how to include communication support activities in Bank-financed development projects, this paper describes the use of planned communications to encourage participation in projects by certain groups of people, to improve institutional efficiency and staff development, and to ensure project benefits or prevent negative project impact. It is noted that communication support includes informational, motivational, and educational activities which make use of person-to-person contacts, group discussions, mass media, or other channels of communication. The paper describes (1) the role and functions of communication support in World Bank lending projects; (2) experience of communication support in such projects; (3) the process of designing communication support activities; and (4) common problems and issues in the design of these activities. It is concluded that well-managed communication support can provide a cost-effective approach to the design and implementation of development projects. Appendices provide information on World Bank lending for development communications and educational broadcasting; illustrations of project analysis from Bank project work; an extensive list of the advantages and disadvantages of using different media, materials, and techniques for communication support; and a workshop agenda showing the integration of communication support into a course on population planning, policies, and programs. Available from EDRS in microfiche for 97¢ or in paper copy for $7.40

● Parlato, Ronald and others. *Fotonovelas and Comic Books—The Use of Popular Graphic Media in Development.* 1980. 265 pp. (ED 239 806) (Circulated in November 1979 under the title *The Use of Popular Graphic Media in Development Support Communications Programs: A Survey of Fotonovelas and Comic Books.*).

Intended as a working document for communications professionals and as reference material for planning administrators, this study compared comic books and fotonovelas and analyzed their use in health and nutrition, family planning, agriculture, and literacy programs in developing nations. Most of the somewhat limited efforts to use these forms of media dealt with family planning. Generally, the efforts were not entirely successful and the quality of production was irregular, because producers misunderstood the media forms and did not appreciate their traditional conventions and generic structures. Fotonovelas, with their visual and highly emotive quality, were found to be more effective in reaching illiterate, semi-literate, and large audiences; had more potential for multimedia campaigns and participatory education; and were better suited for certain distinct educational messages, especially family planning. In contrast, comic books, with their less emotive themes and more abstract presentation, were found to be more flexible, could reach more diverse audiences, and were ideal for children and adolescents. However, comics were more expensive to produce and presented more production problems than fotonovelas. Both faced distribution problems resulting from limited institutional channels and limited commercial marketing systems in less developed countries. This report, which includes a review of successful and unsuccessful examples of both media forms, is available from EDRS in microfiche for 97¢ or in paper copy for $19.95.

(continued on page 6, col. 1)

(ERIC continued from page 5)

- Lalor, Gerald C. *The University of the West Indies Distance Teaching Project. Report to the Advisory Council. ACEP 7.* 1983. 16 pp. (ED 240 993)

The three papers in this report are concerned with the development and activities of the University of the West Indies Distance Teaching Project (UWIDITE), through which the University is continuing experiments on the use of telecommunications to extend its rural services. A report to the advisory council, the first paper summarizes the UWIDITE project to date and discusses preliminary studies that led to recommendations for a small system to be used for inservice teacher training for challenge examinations, agricultural extension, and health training. Discussion of the project includes funding, objectives, initial programs, present status, equipment, maintenance, training, technical assistance, evaluation, current network uses, programs being prepared, project administration, advisory committee, conclusions, and suggestions. The second paper, "Developing Study Guides and Workbooks for Programs," lists UWIDITE program development services and provides guidelines for the preparation of student materials for distance teaching programs. These guidelines suggest inclusion of a general introduction as well as a course introduction, and describe course development techniques. The third paper, "Interactive Distance Teaching," is a synopsis of strategies to make effective use of interactive audio through humanizing the experience and grouping the participants, preparation of course materials, encouraging discussion, and making listening easier. Available from EDRS in microfiche for 97¢ or in paper copy for $2.15.

- *The Evaluation of SISMAKOM (Computerized SDI Project).* 1983. 58 pp. (ED 241 060)

A survey of 88 users of SISMAKOM, a computerized selective dissemination of information (SDI) and document delivery service provided by the Universiti Sains Malaysia and four other Malaysian universities, was conducted in August 1982 to collect data about the system and to assess the value of such a service in a developing country. The SDI service, which is based on the Chemical Abstracts (CA) and the Food Science and Technology Absracts (FSTA) databases, has been offered to college instructors and selected personnel in private businesses and the government since November 1980. Approximately 78 percent of the respondents indicated that they were better informed since they started using the service; 30 percent were already aware of the existence of more than 60 percent of the information supplied; a saving of three hours per week due to use of SISMAKOM was reported; 90 percent wanted to continue using SISMAKOM and 40 percent of this group were willing to begin paying for the service; and 62 percent expressed a need for retrospective searches. This report from Unesco presents descriptions of the SDI project and survey methodology and results, a series of recommendations for SDI services in developing countries, and a copy of the original questionnaire with an English translation. Available from EDRS in microfiche only for 97¢. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210 USA.

Ag Publications

Readers involved with agriculture will be interested in the work of Agribookstore, which acts as the developed world sales agent for a number of international agricultural research centers. To obtain Agribookstore's free catalogue, write to Steven A. Breth, Agribookstore, IADS Operations, Inc., Rosslyn Plaza, 1161 N. Kent St., Suite 600, Arlington, Virginia 22209, USA. ■

Practical Research Handbook

As *DCR* has reported, distance education is undergoing a revival among education planners around the world. The International Extension College has been a steadfast supporter of all kinds of distance teaching efforts, and in 1982 published what is essentially a "cook-book" for running a distance education activity. *Practical Research in Distance Teaching: A Handbook for Developing Countries* addresses the necessity for using practical research to ensure the best possible educational management and products. Author Roger Mitton states:

> By "practical research" I mean research which is undertaken to help a distance-teaching organization do a better job. Someone is supposed to do something in the light of the results—to change a policy, to redraft some material, to launch or cancel a project, or whatever. And the researcher carries out his research with that in mind from the outset.

Based on several years' work with the Lesotho Distance Teaching Center, the *Handbook* links research to action; instructs in basic research methods such as social surveys, sampling, questionnaires, data processing and analysis; and ties these research methods to distance teaching applications. Appendices tell the practitioner how to do statistical procedures, and the theory behind them; how to do costing; and where to read further into the subject.

The Agency for International Development is making available, through the Clearinghouse, a limited number of copies of the Handbook free to developing country practitioners. Others may write for ordering information from the International Extension College, 18 Brooklands Avenue, Cambridge CB2, 2HN, United Kingdom.

J.B.

Oral Rehydration Therapy Video Tapes

The Office of Health, Agency for International Development (A.I.D.) has developed two videotapes on Oral Rehydration Therapy for world-wide educational and promotional activities:

- "Vital Fluid"—total run time 7 minutes
- "Saving Children's Lives"—total run time 25 minutes

Both tapes depict the seriousness of diarrheal diseases, explain how dehydration from diarrhea kills, and show how Oral Rehydration Therapy can successfully save up to 5 million lives each year. The tapes include field shots taken in Africa, Asia, Latin America, and the Near East, and footage taken at the 1983 International Conference on Oral Rehydration Therapy (ICORT). A.I.D.'s role in the ORT effort is highlighted.

The seven-minute tape, "Vital Fluid," is a summary of the longer 25-minute presentation. "Vital Fluid" has been successfully used to give a general introduction to ORT during staff meetings and promotional visits, thereby setting the stage for further specific ORT discussion. It is recommended that there be an ORT speaker present with this tape to answer questions and to discuss specific organization issues relating to ORT programs.

The 25-minute tape, "Saving Children's Lives," describes the diarrheal problem, ORT treatment, and A.I.D.'s projects in further detail. The same basic format is followed as in the "Vital Fluid" tape. This tape has been used successfully at conferences, displays, and in meetings where a more in-depth look was requested. It is intended to be more of a training film for the general public. Though it is not specifically designed for the medical community, it could also be of use as a general introduction to ORT for physicians and other health professionals.

Both tapes are in color, on ¾ inch U-matic cassettes.

For further information, please contact Robert Clay, Public Health Advisor, Office of Health, Agency for International Development, Room 702, SA-18, Washington, D.C. 20523, USA.

Education and Technology Conference

The World Congress on Education and Technology, to be held in Vancouver, Canada, May 22-25, 1986, will consider the implications and impact of technology on education and society.

Program proposals and requests for more information may be sent to David Rivers, Congress Director, World Congress on Education and Technology, 1155 West 8th Avenue, Vancouver, British Columbia, Canada, V6H 1C5.

The Training and Demonstration System of Agricultural Extension: A Nigerian Experience

by Richard China and Peter Langmead

Bauchi State Agricultural Development Program (BSADP) was established in 1981 by the Nigerian Federal and Bauchi State Governments with the assistance of the World Bank. The objective of BSADP is to increase state agricultural production by three to five percent a year over a five-year term. This is being achieved by the development of an effective extension service and by providing easy access to agricultural inputs and markets through construction of village sales points and feeder roads. The program covers 66,000 square kilometers of semi-arid savannah and serves 455,000 farm families with an average farm size of three hectares. The principle crops are millet, sorghum, maize, rice, groundnut, cowpea, cotton, and vegetables. Most farmers cultivate by hand but the use of draft oxen is increasing. All farmers keep small numbers of livestock.

In 1982 BSADP took over the State Ministry extension service with a village extension agent to farm family (VEA : FF) ratio of 1 : 1659. Prior to BSADP, the extension service had pushed sole crop packages, ignoring evidence that farmers' mixed cropping systems were more efficient in their use of labor, water, light, and nutrients. Moreover, VEAs with their negative attitudes to traditional farming and inadequate technical background, were expected to convince farmers to adopt these sole crop packages by theoretical instruction only. As a result, VEAs commanded little respect among farmers and made little impact. Thus the main challenge for BSADP has been to devise recommendations which fit into traditional cropping systems; to ensure effective communication; and to change staff attitudes.

Implementation of T & D

In early 1982, BSADP recruited two consultants in Extension and Media to reorganize the extension service. These were Richard China (Extension Specialist) and Peter Langmead (Media Specialist). A modified T&V system called Training and Demonstration (T&D) was devised, and media facilities were developed. All extension staff underwent re-orientation courses to introduce T&D and increase their appreciation of traditional cropping systems.

VEAs were assigned to 232 village sales points. As in T&V, small groups of VEAs receive topical training one day every fortnight from trainers at 70 selected sales points (SPs); however, in T&D, training concentrates on the practical skills of how to demonstrate new methods on farms, and each trainer is equipped with a Mobile Video Unit (MVU).

Every fortnight the 'MVU Trainers' are briefed by the Extension Specialist on the current package. These packages contain simple illustrated notes for VEAs; video dramas, which communicate not only the T&D message but also illustrate the approach that VEAs should adopt in their dealings with farmers; audiocassettes for VEAs to play to farmer groups; demonstration samples such as new seed varieties in labelled specimen bottles and various chemicals; pesticide sprayers and the other inputs necessary to establish demonstration plots. To boost staff morale and credibility with farmers, extension and training staff are provided with colorful BSADP caps and badges.

To provide more background knowledge to T&D messages and improve training skills, trainers and supervisory staff frequently attend short courses conducted by the Training Department.

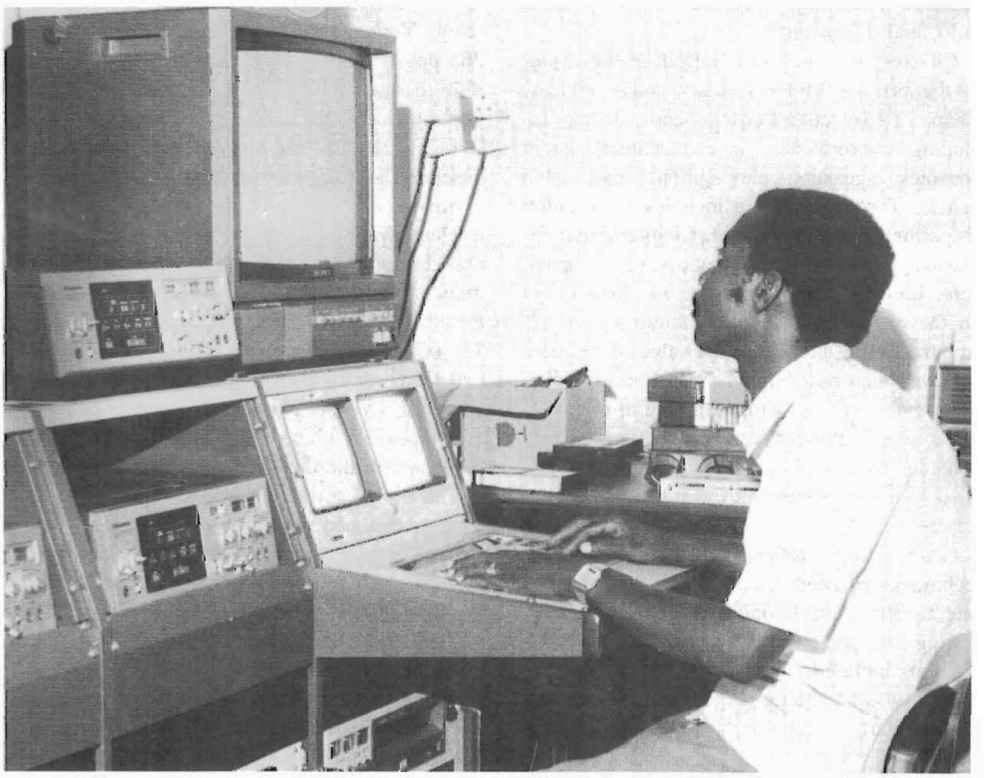
Demonstrations

Before the planting rains, VEAs demonstrate seed dressing and how to use fertilizer and pesticides in mixed crops. During the rainy season each VEA establishes his own plot, to further practice skills learned in training, and assists up to eight farmers in different hamlets to establish 0.2ha mixed crop demonstration plots with improved seed, fertilizer, herbicides, and insecticides. To distinguish plots from surrounding crops, and to attract other farmers attention, each plot is marked with a large BSADP flag. After harvest VEAs demonstrate crop storage chemicals, conservation of crop residues, and how to mix concentrates for livestock feeding. During the dry season, to reduce disease buildup and market saturation from continuous cropping of traditional vegetables, farmers in the flood plains are given samples of exotic vegetable seeds. Home economics agents demonstrate to farmers' families preparation of these new vegetables. Small irrigation pumps and improved vegetable production techniques are also demonstrated.

Demonstrations are conducted in groups, and mini-field days organized on successful plots so that other farmers can see the results of using new methods. The aim of the plots is not to show farmers how to farm but to give farmers an opportunity to observe how a wide range of improved technology can be incorporated into crop mixtures and how these methods perform under their own conditions. Not everything included in the plots is absolutely right for all farmers and not all demonstrations work out as intended. Farmers are encouraged to discuss what they like, what they do not like, and the reasons why. Feedback from these discussions helps to determine the next year's extension plan, and which seed varieties and chemicals should be made available in greater quantities.

Supervisors, as well as ensuring that VEAs maintain standards, conduct on-farm adaptive research trials. The function of these trials is to see how new ideas gleaned from research institutes work in the field. Successful practices which gain farmer approval may then be included in VEAs' demonstration farmer plots the following season.

(continued on page 13, col. 2)



Media Center for the Bauchi State Agricultural Development Program in Nigeria. Extension agents learn to produce audio and videotapes which are shown to farmers in the field.

A Communicator's Checklist

1

Audio Craft—An Introduction to the Tools and Techniques of Audio Production, by Randy Thom (Washington, National Federation of Community Broadcasters, Inc., 1982), 183 pp.

This book offers a practical, self-help guide for people seeking a basic understanding of the electronic medium of audio production. While it is written primarily about radio production, the text can also be used by people working in video, film and audiovisual production. *Audio Craft,* developed from the experiences of broadcasters working at community radio stations, is an excellent reference that can be understood by those individuals without a science or engineering background. Nevertheless, its one weakness is that the theory of sound is treated lightly and emphasis is on practical application. While the first section does point out some basic theory about sound, frequency, and measurement, there are no discussions of modulation, the electromagnetic spectrum, or wave propagation.

The text is divided into four chapters and an appendix which outlines a sample survey course in radio production. The first chapter addresses sound and how it is measured, electricity and sound, level and impedance matching of audio connections, and balanced and unbalanced connections. This first chapter also includes the three basic ways of evaluating audio equipment, namely: frequency response, signal-to-noise ratio, and distortion.

Chapters two and three introduce the reader to the primary and secondary audio devices. Chapter two discusses primary audio devices including microphones, tape machines, audio consoles, speakers, phonographs, and patch panels. The chapter also includes information on caring for the equipment. Chapter three emphasizes secondary audio devices: (1) compressors, limiters, and expanders, and their effect on the overall volume of an audio signal, (2) equalizers and their effect on selected frequencies within an audio signal, and (3) noise reduction devices which, while not able to eliminate noise already present in recordings, are able to generate as little noise as possible. The two noise reduction devices discussed are Dolby and DBX.

Chapter four is an excellent discussion of the techniques of production. Topics include: setting up the control room, using microphones, editing, mixing, considerations in program production including real-time versus non-real time, division of labor, "spot" announcements, documentaries, and setting up remote productions.

The appendix is a sample outline for settin, up a production training course with emphasis on the necessity of determining in advance what students are expected to learn. Community radio stations generally offer three types of production courses: (1) survey—which covers all aspects of production lightly, (2) specialized—which covers one aspect thoroughly, and (3) comprehensive—which covers all aspects thoroughly and is obviously longer. The author advises that the survey course be attempted at frst in order to familiarize students with equipment and basic production. Once these basics have been learned, a specialized course can be considered.

Audio Craft is an excellent resource which touches on most aspects of audio production. It is highly recommended for those individuals looking for a basic introduction to the tools and techniques of audio production. ■

Reviewed by Maria Rubama, an instructor in the School of Communications, Department of Radio/TV/Film, at Howard University in Washington, D.C. She is currently teaching in Liberia under a Fulbright grant.

Available for US $15.00 from NFCB, 1314 14th Street, NW, Washington, D.C. 20005, USA.

2

See How They Grow—Monitoring Child Growth for Appropriate Health Care in Developing Countries, by David Morley and Margaret Woodland. (New York, Oxford University Press, 1979) 265 pp.

In these days of galloping technology, which is particularly characteristic of the health field, it is delightful to find a simple technique being described as the most successful in its field.

Such is the Weight-Growth Chart of the Path to Health program, subject of this book by Dr. David Morley and Margaret Woodland, both members of the faculty of the Institute of Child Health at the University of London. *See How They Grow* is one in the excellent series of Tropical Community Health Manuals published by Oxford University Press and geared to the specific needs of trainees and practicing medical personnel in the developing world.

The use of growth charts is nothing new in either developed or developing countries. The innovative aspect of this approach is that it focuses the attention of health workers on the monitoring, not merely the recording, of growth, and on taking appropriate actions as the result of a visual negative record.

Measurement of height is of little use in making day-to-day decisions in child care; in addition to the difficulty of achieving accuracy, height measurement is not sensitive to the small changes which may be critical to the diagnosis of inadequate growth. Weight changes, however, can be easily identified and a health worker can be taught weighing procedures and the interpretation of results in a few days. In fact Morley and Woodland suggest the use of primary school graduates without health training of any sort with the observation that not only are they capable of learning the techniques but "if they prove themselves competent and wish to become health workers, they can train later as auxiliaries."

David Morley has long been known for his strong conviction that only when the health care of people in the developing world is put directly within the precincts of their own community, planned for and delivered therein, will the goal of "health for all" be reached.

> Past overemphasis on a high-quality service has used resources unavailable to the majority of the world's population. The appropriate second quality health care perhaps should be compared to first- and second-class travel. . .The journey may not be quite so comfortable. . .but you get there safely! (And more cheaply)

Any health technology which is simple and easily applicable, when materials and high-level manpower resources are at a premium, is of immense value.

The Weight-Growth chart itself is an amalgam of the best features of other weight charts, combined with of the authors' field experience. The result is a standard chart covering the first five years, simple yet packed with relevant information. The use of the chart as a home-based record underscores the concept of Primary Health Care. The commitment to community participation is an example, in the best sense, of "appropriate technology." Keeping the record in the home involves the mother (and probably other members of the family) directly, reinforcing the concept of the outreach program and promoting a more humane relationship between care giver and parents by recognizing their interest and ability to participate in the health delivery system.

In the preface of the book the authors go to great effort to document and thank those who provided the illustrations. "Books such as these can provide some technology, possibly help develop a few skills," but (in the spirit of 'a picture is worth a thousand words') "if [it] is to change people's attitudes . . . it may well be through the illustrations."

It is one of the ironies of the Third World Primary Health Care movement that the present teacher-student role may soon be reversed and many of the lessons learned and systems adopted, not always by choice, by Third World countries will become accepted practice in

highly developed societies. The explanation is money, and the growing unacceptability of geometrically rising costs.

Similarly, the last chapter, entitled "Adequate Physical Growth is Not Enough," is aimed at health care givers in the Third World. It is one of the best discussions on early child raising this reviewer has ever come across. *See How They Grow* has messages for parents and health care personnel in all phases of development and in all societies where people care about the growth—physical and otherwise—of their children. ■

Reviewed by Sally Coghlan, Director of Information for the Technologies for Primary Health Care (PRITECH) Project.

Available to readers in developing countries for £2.50 from TALC, P.O. Box 49, St. Albans, Herts. AL1 4AX, U.K. Available to other readers for US$18.95 from Oxford University Press, 1600 Pollit Drive, Fair Lawn, New Jersey 07410, USA.

3 ***Evaluating the New Information Technologies,*** edited by Jerome Johnston. (San Francisco, Jossey-Bass, Inc., New Directions for Program Evaluation Series, 1984), 93 pp.

This volume is an example of the old adage, "good things come in small packages." Its 93 pages make up a volume filled with accurate, timely evaluation data. Each article is written from the perspective of a professional research evaluator and, more importantly, by people who obviously know what they are talking about. The choice of contributors is an excellent one. There is also an interesting prologue and summation offered by Jerome Johnston, the editor. Contributors are James S. Ettema, Martin Elton and John Carey, Henry T. Ingle, and Ronald Rice.

The book debunks many claims made for new technologies and puts them into proper perspective. There are five chapters covering videotex, teletext, microcomputers, new media, and research methods for evaluating them. The data provided is written for and about the U.S. audience and takes for granted relative affluence, reliable and extensive telephone communication, abundant, cheap, and reliable power sources, and the generally temperate climate of much of the United States. Additionally, the evaluations were of programs developed for literate and relatively sophisticated users of communication and new technologies. Regardless of this fact, this book has much to offer readers in developing countries.

The data provided indicate that, for the most part, many of the newer technologies are still very much in search of markets in industrialized countries. This is important information for developing countries. If no salient benefit for these new technologies is suggested by these evaluations, change for the sake of change can be avoided.

Developing countries can also benefit from this book in that, in the words of the editor:

> Evaluation can be described as the use of social science research methods to gather information that can help one or more audience or stakeholders decide what next steps to take or how to value steps that have already been taken.

Another reason the book will be helpful to readers in the developing world is because they comprise the "second audience for evaluative data on technology," in the editor's words, "the broad range of potential customers for the new technologies."

No cost data is provided for these technologies. Given the volatility of the market for them—especially for microcomputers, cost data might quickly date the book. However, since comparative pricing information may be difficult to come by in developing countries, it might have been helpful.

The book is recommended. ■

Reviewed by Arlene Horowitz, Program Associate and Clearinghouse computer expert.

Available for US $8.95 (soft cover) from Jossey-Bass, Inc., Publishers, Department 62425, P.O. Box 6200, San Francisco, CA 94162, USA. Subscribers in the developing world should order from Jossey-Bass, Limited, 28 Banner Street, London EC1Y 8QE, U.K.

4 ***Mass Communication in Africa,*** by Graham Mytton (London, Edward Arnold, Ltd., 1983) 159 pp.

For a variety of historical and geographical reasons, the development of mass communication has been uneven on the African continent. As a concomitant to this, research on the subject, by country and by region, is sparse. Research which exists has been primarily done by non-African students of communication, and data that have been collected are often spotty and incomplete.

In an effort to generate interest and desire on the part of African researchers to take advantage of what he feels is a uniquely rich field of investigation, Graham Mytton, currently Head of International Broadcasting and Audience Research, BBC External Services in London, has given us a very useful book.

Mass Communication in Africa draws on the author's own research in Tanzania and Zambia to provide a solid base from which to review the development of mass communication (primarily newspapers and radio broadcasting) in (mostly English-speaking) sub-Saharan Africa. Mytton applies the Western theories of communication to the African environment, noting that the social contexts are crucial in determining the process by which the media are used, and that the social functions of communications to inform, to link, and to transmit social values and norms differ widely from culture to culture. The channels of communications are far more complex—and interesting—in Africa today, than perhaps anywhere else due to the continuing existence of strong traditional channels alongside the modern technologies for communicating. These traditional methods supplement what are generally resource-poor modern communications facilities in most African nations, and reflect the multiplicity of languages, geographical isolation, and economic pressures that combine to limit access to the more modern channels to a generally urban audience.

The control of the media in Africa tends to reside in government—an extension of the colonial practice—which also reflects not only political but economic realities. In other areas of the world, commercial advertising in the media rests securely on the purchasing power of the media audiences. In African nations this is insufficient to support private newspapers, radio or TV stations. However, Mytton states that:

> Even in African countries at similar levels of economic development the media differ in their role, in the social and political control exercised over them, and in other ways. They must therefore be expected to produce different results . . . Though a certain amount of work has been done on the history of Africa's media, there is room for research on a far larger scale.

A review of the media and the politics of change, before and after independence, is even-handed and thought provoking, and should stimulate a series of country-specific research projects to document these changes.

Three lengthy case studies on the media in Zambia, Tanzania, and Nigeria document the author's research in the first two countries, and personal observation in the latter. The role of radio broadcasting—the most widespread of the media in Zambia and the least appreciated—is interestingly explored. Tanzania's use of the media by the government to achieve consensus on nation-building clearly presents the multiple issues of freedom of the press, access for illiterate audiences, political orientation, cultural preservation and choice of national language. The pluralism of Nigeria's current mass media under a relatively new democratic government is reviewed. Each of the 20 political parties own media, providing a unique example of "government" ownership, and assuring a variety of viewpoints to the readership.

Mytton is a strong advocate of radio's role in the development process as a network builder, but he reminds readers that the mass media, including radio, cannot replace other forms of communciations, primarily because they cannot provide the kind of feedback that would offset the exhortatory nature of most top-down centralized communication. He points out the dif-

(continued on page 10, col. 1)

(**Mass Comm.** continued from page 9)
ficult nature of this central governmental control of media:

> The fact that a government holds the power to protect the public from harm is no guarantee that the same power will be used in that interest. Development journalism requires that governments or their agencies supervise, decide, judge and act in a field in which they are subject as well as object. Reporting on governments and their activities is a legitimate part of the media's function: therefore governments are not reliable and independent arbiters of what the media ought to be doing.

But he reminds us that the constraints on African media are primarily economic, not political: increases in ink, machinery, and newsprint costs are forcing a reduction in print production, while rising costs for broadcasting equipment and parts are reducing transmissions.

These and other serious issues of the role of the mass media and their control are addressed in this book. Each chapter lists numerous reference sources, and a select bibliography is included. A few tables and charts provide useful data on the mass media in selected African countries, and a list of African mass communication study centers is included.

It is to be hoped that these centers—and others on the continent—will take this material as a point of departure and focus the skills of the social scientist on the many areas of study that are suggested by *Mass Communication in Africa*. ■

Available from Edward Arnold Publishers Ltd., 41 Bedford Square, London WC1 3DQ, U.K.

Reviewed by Judy Brace, Director of the Clearinghouse on Development Communication.

Wallchart Available

A full-color wallchart displaying a wide range of packages designed for condoms and oral contraceptives is now available from Population Communication Services of The Johns Hopkins University. The majority of these packages have been developed for social marketing projects in developing countries, and depict some creative approaches to the marketing of contraceptives.

The poster is available free of charge to *DCR* readers working in developing countries. Others may purchase the wallchart for US$5.00.

To order, contact: Media/Materials Collection, Population Communication Services, The Johns Hopkins University, 624 North Broadway, Baltimore, Maryland 21205, USA.

If you would like further information on package design and development, ask for PCS Packet #4, which includes the wallchart, an overview of the topic, and descriptions of contraceptive social marketing projects in Egypt and the Caribbean. PCS Packet #4 is free to developing country readers; US $6.00 to others. ■

Publications To Note

by Arlene Horowitz

The Asian Mass Communication Research and Information Center (AMIC) in Singapore offers an excellent series of occasional papers on development communication topics. No. 19, "Reaching Out: The Role of Audio Cassette Communication in Rural Development," is authored by Dr. Ronny Adhikarya of the FAO and Professor Royal Colle of the Communications Department of Cornell University. It provides a useful discussion of such issues as extension agents and communication, outreach systems, the use of paraprofessionals, the need for localization, overdependence on broadcasting, the main problems communicating with farmers, characteristics of audiocassette techniques, distribution systems, etc. Available from AMIC, 39 Newton Road, Singapore 1130, Republic of Singapore.

Another useful series of papers of particular interst to *DCR* readers is published by the International Extension College (IEC). No. 19 in this series of broadsheets on distance education, "Basic Education for Adults: A Report of a Workshop on Southern Africa," is taken from the proceedings of an IEC workshop on the role of mass media in distance education held in Harare, Zimbabwe, in 1981. Broadsheet No. 12 in the series, "Secondary Education at a Distance," is written by Hilary Perraton, a familiar name to readers of *Development Communication Report*. It discusses why secondary education is often overlooked in the focus on the educational needs of developing countries. Dr. Perraton reviews the ways that distance education has been used to support secondary education over the years, and concludes that while distance education will certainly bring education to many who would not otherwise receive it, it is not "an easy way of providing high quality, cheap, secondary education." These and others in this series of broadsheets on distance education can be obtained from IEC, 18 Brooklands Avenue, Cambridge CB2 2HN, U.K.

The State of the World's Children 1984, published by UNICEF, contains a collection of thoughtful essays on numerous health and social issues affecting the lives of the world's children. There is a good selection of demograhic material and statistical tables on health, nutrition, education, etc. Among the issues covered are oral rehydration therapy, growth monitoring, immunization, breast-feeding, family planning, and food supplements. Development planners and policy makers will have much on which to ponder in these pages. Available from Oxford University Press, 1600 Pollit Drive, Fair Lawn, New Jersey 07410, USA, for US$6.95; or Oxford University Press, Walton Street, Oxford OX2 6Dp, U.K.

UNDP recently sent us a collection of several timely documents that we recommend, including "A Primer on Development Support Communication," (No. RB392), a 23-page pamphlet written by Romeo H. Gecolea that explains the meaning of development communication. Along these same lines is "Guidelines for Developing a Technical Manual" (No. RB391) written by James H. French, which uses clever illustrations to show how to produce technical manuals for use by agricultural extension workers. On the first page it explains that the inspiration for the book comes from the need to bridge the "gap between the sophisticated reports turned out by agricultural researchers and the practical information which agricultural workers and farmers need to increase crop production." It succeeds admirably. UNDP also included in its collection two papers written by John L. Woods. One is an outline of a "Regional Workshop on Development Support Communication for Rural Development" (No. RB393) held in Los Baños, Philippines in August 1982, and the other Woods contribution is his essay on using communication in family planning. This piece, "Time for a New Aproach to Population Communication" (No. RB394), originally appeared in *Focus on People* in conjunction with the Third Asian Pacific Population Conference held in Colombo, Sri Lanka, in September 1982. Finally, UNDP's "The 'APTISC Approach' to the Development of Information, Education and Communication Programs" (No. RB395), by Muangtong Khommani suggests use of the Appropriate Practical and Technical Information Cube (APTISC) approach to describe precisely the scope of information, education, and communication needed by specific audiences to ensure the relevance and cost-effectiveness of campaign strategies. Available from UNDP/DTCP, P.O. Box 2-147, Bangkok 10200, Thailand. ■

Popular Theater Publication Available

In August 1983 Zimbabwe organized a three-week workshop to orient development workers to the use of theater as a tool for conscientization. It turned out to be more than a training exercise—it also revealed the rich experience of people's theater which activated, politicized, and raised the morale of individuals involved with the project.

This is one account of that workshop—a detailed description and critical analysis of the process followed by one of the workshop groups. An introduction sets out the historical experience of theater-for-development in Africa and of people's theater in Zimbabwe.

The publication is available from Kees Epskamp, CESO, Badhuiswed 251, P.O. Box 90734, 2509 LS, The Hague, Netherlands. ■

Field Experience in The Gambia: Screening and Training Fieldworkers

by Peter L. Spain

The Evaluation Unit of the A.I.D. Mass Media and Health Practices Project in The Gambia (see *DCR* #37) was a field-based research effort, with the key data collection being done in rural villages by Gambian fieldworkers. The selection of those fieldworkers and their subsequent training occupied several months of the project's first year in The Gambia.

We knew what results we wanted from our fieldworkers—a certain number of valid questionnaires every month. What we had to do then was to specify to ourselves what a fieldworker would have to do to get those results, and after that, break down those skills into what a fieldworker would have to know when he or she came to us (screening) and what we would have to teach the fieldworkers who survived our screening (training). If there was an ideal fieldworker, what would he or she be like? This was our guiding question. The answers to this question became our basis for decisions in hiring.

If there was an ideal fieldworker, what would he or she be like? What would he or she know? What would he or she do? We brainstormed freely on these questions, and came up with the following list.

The ideal fieldworker:

(a) Would read, write, and speak English, Mandinka, and Wolof
(b) Would be able to live in a village
(c) Would be able to ride a motorcycle
(d) Would be able to maintain records
(e) Would be female, because responents are female
(f) Would record answers faithfully and precisely
(g) Would be a "transparent" data collector, with no influence on respondents' answers
(h) Would be able to overcome obstacles with initiative during long periods without supervision
(i) Would be results-oriented, in terms of completing interviews
(j) Would be responsible with money and receipts
(k) Would communicate with the office as needed
(l) Would not be impatient with repeated tasks - i.e., interviews
(m) Would be sensitive to rural customs and village protocol
(n) Would understand the overall project.

There was more, but that was the gist of our profile of the ideal fieldworker.

Something we did not have to do was to look for candidates. Early on, in casual conversations with medical staff, A.I.D. staff, or friends in general, we had mentioned that the project would have four fieldworkers by December. After the middle of November, applicants began presenting themselves, and by the start of December, we had well over 130 candidates for the four fieldworker jobs. Calls came in from various government officials recommending this and that candidate; some wrote letters as well.

The Screening

We screened the application forms for abilities in English, Mandinka, and Wolof, as well as for willingness to be posted in the provinces. This reduced the list to just under 100. To select from this group, we invited all of them to sit for a written test, and through the goodwill of a local high school found a location adequate to our numbers. The test dealt with written English and called for accurate translations into Wolof and Mandinka. Candidates also had to compose some English paragraphs and solve five mathematical problems.

On this basis, we pared the list to 14 candidates. They were invited to a two-week training session, for which they would be paid. We were going to use the training sessions as the final basis for our decision to hire. In inviting 14 people, we gave ourselves a latitude that paid off later. Because of our need to do extensive baseline research before the health education interventions of the campaign began, we ended up hiring eight traineees for that first research round. Because two of the fieldworkers we eventually hired married and had children during the project, we had extra trained people to work temporarily during their confinement leaves.

So 14 people were invited for training and, of these, 12 came. None of the other candidates who sat for the test were invited, but of these, six came—not easily put off, and were willing to take the training without compensation. We agreed to take them, and the training began with 18 people.

The Training

Our guiding principle in this process was our results orientation. That is, we knew what we wanted from our fieldworkers—a certain number of valid questionnaires each month. The training focused on ways to ensure that the candidates would learn how to get those results—both the numbers and the validity.

Validity presented the most problems. It was not that the candidates seemed bent on fakery, but the problem was that they were all unfamiliar with the research concept. As educated people, and as people who hoped to be working for a famous American university in concert with the Medical and Health Department, the trainees found it very hard to grasp the concept of research as listening rather than teaching; as observing rather than demonstrating. They thought that the training would graduate them as healthcare providers, doers of good, and sharers of knowledge. The idea of listening actively to villagers without shaping or correcting villagers' comments sank in very slowly.

During pretests with village women, we found that the women themselves had no experience with the kind of interviews we hoped to do. When asked a question, they would often turn the question back to the interviewer, asking "What do you think?" or "What does the Medical and Health Department think?" Village people were accustomed to dealing with government extension agents who came to teach and to guide; these researchers who seemed interested only in listening and watching were a puzzlement to them.

The training, therefore, had to re-educate the trainees about their own assumptions of what their roles would be and to prepare them to re-educate villagers about the very same assumptions. This was the idea of the "transparent" data collector, and most of the training time was spent explaining this new concept. (The only occasions on which interviewers were taught to instruct the mothers were those in which a mother described her homemade ORT solution formula with dangerously high levels of salt.)

Training involved lectures, role-playing, discussions, and practicing interviews. The difficulties involved in active listening and the tendency of listeners to project their own ideas into what they hear was brought home dramatically by the familiar exercise of telling a story to one person, then having that person tell the story to a second person, then having the second person tell the story to a third person, and so forth. By the time the story had passed through 18 retellings and had been retold aloud by the eighteenth person, the totally transformed story demonstrated to all how difficult the listening job is.

We had special sessions on village protocol conducted by experienced Gambians with many years of rural development work. We had an overview of the project and its implications both for The Gambia and for the world, from the project director who was visiting from the United States. We had a presentation by the director of the health education campaign—just enough to give the trainees the big picture, but not enough to refuel a vision of themselves as health educators.

At the conclusion of two weeks, we selected eight people to work on the baseline research. We needed the extra personnel because time was short, and we could observe the eight in actual work situations to confirm our choice of the final four. The baseline research was done over three weeks, throughout the country, trekking together in the project's extra-large vehicle. In the end, we hired four women and went over our results-oriented checklist on each.

That was *almost* the end of the training. There remained that one item on the checklist that we had not addressed: "Would they be able to ride a motorcycle?" Training the four finalists in-

(continued on page 15, col. 2)

(**Microcomputers** continued from page 1)

can provide access to current data much more rapidly than most systems presently in operation. Recent experiences in Zimbabwe, Kenya, Senegal, and Egypt suggest that whereas the typical implementation time for a computerized retrieval system would range from 18 to 36 months, microcomputer applications on existing data can now be accomplished in under 12 months. Among the districts and the ministries, perhaps the greatest advantage at the ministry level is the capability to expand trained manpower. Not only is quality typically improved, but speed of retrieval is increased, allowing staff to perform more functions and potentially freeing other expensive personnel to deal with policy and option issues rather than merely clerical-type data collection efforts. In addition, microcomputers reveal lack of data and inconsistencies among the districts and among various ministries. Because of better accessibility, microcomputers can provide the basis for enhanced coordination.

At the regional level, which is becoming increasingly responsible for implementing educational activity, microcomputers offer a very important enhancement to the regional organization's capabilities. Often, regions represent a second or third priority in terms of resources and personnel, and, consequently, information. If properly installed, the microcomputer can assist regions in attaining control over their own activity.

Performing Computations or Processing Paperwork

This application represents perhaps the most traditional use of computers, but is particularly appropriate for microcomputers. Microcomputers represent, in the case of computation, a middle position between the electronic calculator and the periodically available capacity of large central computer facilities. Frequently, because of an overload of processing demand or inflexibility of organizational structures, central computing facilities have not been as readily available for even the routine clerical and financial functions at ministry and regional levels. As a result, a substantial amount of manual calculations is still performed. The microcomputer offers a substantial time-saving option.

In addition, and perhaps in the long-term more importantly, the microcomputer offers the option of processing paperwork with electronic methods that not only allow more rapid drafting, but also allow inclusions in major reports which previously required a considerable amount of organized effort. As importantly, the introduction of microcomputers into paperwork processing supports enhancement of communication between organizations.

Although a number of organizations in the less-developed world have had virtually no exposure to automation or computerization, some of the most modern methods of word processing can be introduced without the painful and often frustrating efforts previously associated with larger and more cumbersome equipment. While such movement to third and fourth generation computer software and hardware may seem abrupt, microcomputer software and hardware have become typically more readily useable by untrained personnel, more forgiving of mistakes, and more capable of dealing with a wide variety of situations previously not possible. As a result, microcomputer-based systems using fairly advanced technology can be customized to the particular social and cultural situation which exists in less-developed organizations.

In the same regard, processing of paperwork which relates to collection of survey data can be greatly enhanced by use of the microcomputer because it reduces the dependency of various ministries (or regions or schools) on cumbersome data entry equipment. In many instances in the less-developed world, actual surveys have been performed, but the processing of results is hindered by the lack of effective data entry equipment or trained entry operators. Microcomputers offer the possibility of entering relatively "intelligent" survey data, along with data editing and checking, to correct discrepancies or missing data closer to the source rather than later in a survey process.

Monitoring Process

Central and regional computers, particularly microcomputers, can be readily programmed to monitor performance in various areas. Since the most frequently used monitoring technique is to compare a plan with actual outcome, once such a structure is established, microcomputers can be set up to compare a plan with actual activities and to summarize readily any discrepancies.

A frequent management problem in the less-developed world is the inordinate amount of administrative time spent by a few highly trained officials to review, individually and painstakingly, each area of activity in order to determine whether a plan has been accomplished. Microcomputers can highlight those negative discrepancies which require special attention and thereby free the additional time of scarce personnel. In addition, because of the processing speed, microcomputers can reveal discrepancies more quickly, and to more people than previous manual methods.

Enhancement of Planning

Microcomputers offer tremendous potential for enhancing planning activities. Supported by an electronically maintained database, as described in the first subsection, a computer can allow the rapid development of alternate scenarios for a ministry, for a region, or even for an individual school. While certainly some types of planning are carried forward using manual methods, a microcomputer can provide, in the same period of time in some cases, a tenfold increase in the number of options that may be considered. As importantly, a microcomputer can allow for a fairly complex set of solutions to particular problems—a solution combination which may be too complex or too time consuming to monitor manually.

Such political and informal methods of decision making as are characteristic in many parts of the world, place a premium on having accurate and readily available facts and options for the decision makers. For both the developed and less-developed world, the ministries which are most effective are those which have been able to influence key leadership through accurate and readily available information at the point where decisions are being considered. It is particularly in this capacity that the microcomputer strengthens the ability of scarce, trained staff to provide appropriate information when decisions are in process.

Improved Communication

Because of the flexibility and, to some extent, the individuality of microcomputers, their installation tends to increase the desire on the part of users to interconnect them. It is soon found that microcomputers provide sufficient analytical ability to exhaust readily the store of existing data and thereby create a demand for more data or more direct linkages to larger data sources. This frequently means tying microcomputers into existing central computer installations, or interconnecting microcomputers within a ministry. Accordingly, because of certain technological efficiencies, microcomputer installations tend to create additional demand for communication linkages. The result of this demand is in some cases a shift in priorities by a less-developed country's communications ministry, or, in other cases, an intermediate solution which involves some paper data and some electronic data.

With a larger variety of information in electronically retrievable form, telephone lines can become a means of rapidly transmitting such data electronically between distant places. While the overall quality of communications lines in most of the less-developed world is substandard by developed countries' standards, communications lines between major administrative or regional organizations are often of sufficient quality to allow such data transmission. The measurable benefits of improved communication are frequently difficult to discern. Over time, however, improved communication can increase the rate at which government services are provided.

A related application of microcomputers is their ability to concentrate digital data, as well as voice data in some cases, to make more efficient use of scarce telephone communication facilities. Using a microcomputer and statistical switching techniques, multiple users can access the same telephone line simultaneously without any noticeable deterioration in performance or quality. As a result, one could create additional communication links electronically within the country without incurring the major infrastructure costs involved in laying new communications lines.

(continued on page 13, col. 1)

(**Microcomputers** continued from page 12)

Enhanced communication in almost any form is of benefit to most of the less-developed world, because lack of effective communication remains one of the major handicaps to efficient development. Lack of efficient communication which is readily accessible particularly to administrative personnel slows the processing of personnel actions, slows the distribution of materials from central sites to remote sites, and substantially diminishes the overall responsiveness of many service organizations.

Enhancing Instruction

The computer's ability to respond to specific instructional circumstances, such as recalling different lessons depending on the answer given to a question, makes the computer, and particularly the microcomputer, potentially one of the most powerful educational tools available. Lesson reinforcement, individual repetition, and drill and practice sessions can be individually tailored to specific needs of a particular culture or language. While problems remain in installing microcomputers in even moderately remote areas, the long-term potential for the microcomputer in educational applications is substantial.

Recent studies have indicated that rates of comprehension among reasonably sophisticated students, at least in the United States, have in some cases doubled in certain standardized test scores. In job training situations where visual recognition or linear problem solving are essential parts of the training experience, microcomputers have proved to be highly effective tools. With hardware costs dropping approximately 30 percent a year, and with the increased understanding of educational software, one can project that within the first five years of this current educational effort, opportunities will arise for major studies of microcomputer enhancements to the learning experience. In conjunction with a variety of nontraditional learning approaches including radio, distance teaching with correspondence, and study centers, we can expect some exciting new opportunities for educational delivery to enhance the ability of less-developed countries to extend the educational opportunity to greater percentages of their own populations. ■

Kurt Moses is Director of the Systems Services Division, Academy for Educational Development. Based in Washington, he travels widely to advise on computer applications for management.

Call for Copy

DCR encourages subscribers who have worked in projects using radio for education to share their experiences with us and our network.

Please send reports, information, or articles to the Clearinghouse editor. Thank you!

(**T&D** continued from page 7)

Mass Communications

To communicate with larger numbers of farmers, the MVUs show the T&D video dramas in villages, and in the near future fixed video units will be installed at the largest sales points. In addition, a twice-weekly radio forum complements the current T&D message.

Training of Media Staff

The equipment which is used to make the video dramas was installed and initially operated by the media specialist; however instruction was given in camerawork, simple insert and assembly editing techniques, and sound recording, so that the dramas are now produced by local staff.

Use of Media

The fortnightly T&D video package cycle is very short when one considers the high media input. In Nigeria a large proportion of media produced by outside agencies tended to be inflexible, costly, and quickly out of date. For example, a film can take over four months to produce, and can only be put to use the following season. Film serves a purpose, but it is not the purpose of T&D. The only media which are efficient, cost effective, and can sustain a rate of output suited to a two-week deadline are those which are produced electronically—video and audio.

Video can emulate nearly every other form of media: slidetapes, films, flipcharts, puppet shows, etc. Moreover, video can be produced so rapidly it can be used to direct extension staff and communicate with farmers without message dilution, and can be automated to simplify operation.

Contrary to public belief, electronic equipment survives very well in adverse conditions. The MVUs are designed to withstand shocks and, whether installed in four wheel drive vehicles or Peugeot 404 vans, cause few problems. Similarly, high dust, temperature, and humidity levels have not seriously impaired operation.

Evaluation

VEAs are tested fortnightly on their T&D comprehension and results computerized so that performance can be continuously monitored. Similarly, demonstration plots are systematically scored. The best VEAs receive prizes and are considered for promotion and further training. This combination of theory tests and plot scoring has generated healthy competition and ensures most VEAs pay attention to training. Inevitably some VEAs are lazy, uninterested, or incompetent and appropriate action is taken against those who fail to maintain satisfactory standards.

Feedback on T&D response occurs at the fortnightly trainers' briefings. Specialist staff evaluate demonstration farmers' response. Recent surveys indicate 95 percent of demonstration farmers wish to use improved short season sorghum and 76 percent want to use herbicides next season.

Performance

The VEA : FF ratio has increased to 1 : 1153 and by 1988 will reach 1 : 1000. Further expansion is limited by financial constraints and the desire to improve quality rather than number of contacts. There is now one demonstration plot per hundred farming families. Surveys indicate 65 percent of farmers listen to the T&D radio forum, and MVUs give up to three video shows a day to groups of 40 farmers or more. As a result, sales of fertilizer, seed, and chemicals have risen sharply.

"The success of the T&D system with its media support is attracting considerable interest . . ."

At this stage it is difficult to assess the long-term impact of extension on agricultural production when annual yields vary by 50 percent or more due to fluctuations in rainfall. However, there is no doubt that the discipline of the fortnightly cycle with emphasis on practical demonstrations supported by in-house media production has rejuvenated the local extension service. Farmer confidence in VEAs has increased and extension is making an impact on farmers vis-a-vis the adoption of new farming methods. The success of the T&D system with its media support is attracting considerable interest within Nigeria and from the West Africa Projects department of the World Bank. ■

An Agricultural Extension Specialist, Richard China has worked in Smallholder Development Projects in the South Pacific, Liberia, and Nigeria.

Peter Langmead, a Media Specialist, has been engaged with incorporating media techniques in Agricultural Extension Systems, mostly in Nigeria.

(**Videotape** continued from page 4)

sound no matter how much you need the material. Nothing cheapens a product more.

15. Don't worry if your finished product doesn't have the slickness of big-budget network television. With TV equipment getting cheaper and cheaper, the professional's monopoly of the medium will be increasingly reduced, which is a big plus for home-grown productions. ■

For more information on "Communications en Développement," or to obtain a copy, please write to: Productions Nord-Sud, 11761 St. Germain, Montreal, Quebec H4J 2A1, Canada. (The U.S.$250 cost of the series covers the duplication of the tapes and the postage.)

Iain McLellan has been working as a journalist in print, radio, and television for the last ten years. He is currently in Africa with an International Development Research Centre fellowship studying the relationship between development planners, television, and other DSC projects.

(**DevCom** continued from page 16)

students. The programs carried the entire mathematics curriculum through a combination of entertainment, drill, student response, physical activities, and the principles of distributive learning.

The program outcome demonstrated significant improvement in the learned skills of the test group compared with control students. While start-up costs of a program of this sort are high, the longer the program is used, (and the fewer the students who have to repeat the grade), the more cost-effective it becomes. The *Radio Mathematics* project is now being replicated in Thailand, and its process is being applied to other subject areas such as language teaching and science education.

By 1975 the results of Wilbur Schramm's study, *Big Media, Little Media,* a comprehensive look at the media, their potential, limitations, and applications, along with the studies on evaluation and cost-effectiveness of Klees, Wells, Jamison, Mayo, Orivel, and others, were widely available.

Present in all these studies was the concern for the educational needs of developing countries. Distance education (for such things as in-service teacher training or non-degree instruction) gained support as a means to accommodate the learning needs of large numbers of potential students for whom traditional education was impossible. At the tertiary level, the pace-setting work of Britain's Open University had a worldwide ripple effect.

Distance education today

Today, coming full circle, distance education enjoys the fruits of these earlier labors, now encompassing correspondence education, adult education, higher education, educational technology, in-service training, and nonformal education. A combination of print materials and broadcast or recorded media is again seen as the answer to many of today's educational problems.

The sheer numbers that China is now handling in that country's TV University cannot fail to impress those who have to contend with a rising birth rate or burgeoning adult enrollments, and shrinking education budgets. The proponents of distance education are perhaps the readiest to test the potential of the new communications media as educational tools: the electronic blackboard, slow-scan TV, the videodisc, and the computer, are among those media being applied to the learning process.

Still, world-wide, radio holds the greatest promise in support of education of all kinds. A Clearinghouse study shows that the reach of radio transmitters is surprisingly comprehensive, even in remote rural regions, and the transistor has worked its own miracles of radio accessibility. Radio's recurring technical and production costs have proven to be more easily borne than those of television, and people can learn effectively from radio.

Satellite applications

From the beginning of the ICIT, the U.S. Applications Technology Satellites' (ATS-1 and ATS-6) experiments conducted in telemedicine, teleducation, and telemanagement in the U.S. were monitored. The ATS-6 application with the most exciting potential for development, however, was SITE.

India's Satellite Instructional Television Experiment has generated shelves of reports, studies, evaluations, and articles, to document the process of bringing satellite-transmitted educational television to 2,400 rural villages in six Indian States for one year. Broadcasts reached schools in the morning with language, mathematics, and science programming, and villagers in the evening with health, nutrition, family planning, and agriculture programs.

The possibilities of using satellite transmissions to reach hitherto inaccessible regions with broadcast and interactive media were seized upon by both education and communication planners. Today, international agencies are increasingly committed to using all manner of telecommunications to extend services for health, agriculture, education, and community development to remote regions.

From the first, it was apparent from CAI and programmed instruction, ETV, the SITE broadcasts, Radio Mathematics, and correspondence materials, that to design programs which would effectively teach the same material over and over, would require extraordinary initial commitment, expertise, and imagination, at every step of the way.

We know that what is now called software must be carefully developed to withstand the test of time. In conflict with this are the constraints of never-enough-time, never-enough-money, and never-enough-trained-people. The problems of training technical staff to maintain the technology are minor compared with those of training the program designers, training the subject specialists to work with the designers, and training the creative staff to interpret the design and content for the audience.

Development communication

From the Philippines came the term 'development communication,' as perceived, taught, and applied by Nora Quebral at the University of the Philippines at Los Baños. Seen there initially as an outgrowth of agricultural extension, development communication soon grew to encompass a process of translating and communicating new knowledge in various fields to disadvantaged populations. It implied a commitment on the part of development agencies to support a capacity for information transfer within the system and to acknowledge the obligation to transfer that information to improve the quality of life.

This approach to information sharing had a major drawback, and the insistence of development communicators on the need for evaluation in the process of communicating is a result of the recognition that one-way communication carries the seeds of disaster. If a message is irrelevant, untimely, culturally insensitive, misunderstood, or boring, it is ignored, at the very least. If there is no testing or feedback process, then the communicator will not correct the message. Preliminary audience research, pre-testing, revision, formative and summative evaluation, have all become accepted parts of the process of communicating development information.

The medium

A list of media currently being used for development messages includes not only those original media from educational technology, but a variety of indigenous, or folk, media. A song, a story-teller, puppets, or drama now tell the story of nutrition, for example. While mobile vans continue to carry films of agricultural innovations to African villages, TV soap operas promote responsible parenthood in Latin America. Where wall posters promote contraceptives in one country, *fotonovelas* promote basic education in another.

The ways in which these varied media are being adapted to stimulate the adoption of innovations are becoming ever more interesting and imaginative. Before adopting any innovation, a person must first be aware that a problem exists. Then there must be knowledge of the *cause* of the problem, followed by the recognition that there is a *solution* to the problem. Only then can the person make the behavioral change and adopt the solution.

Learning from commercial advertising how to reach an audience effectively, the field of *social marketing* has evolved to take the target audience through these necessary learning steps. The first successful developing-country examples of social marketing were in the area of nutrition and family planning education. Recently, a health education project has provided an excellent model for this approach.

Mass Media and Health Practices

A significant decline in infant mortality due to diarrheal dehydration has resulted from a highly successful pilot project to use the media to introduce life-saving oral rehydration (ORT) solution to rural mothers in two test sites, Honduras and The Gambia. The project demonstrated the effectiveness of of educational messages based on audience research, and a design that integrated the same information in a variety of ways through a variety of media—radio spots, radio novels, posters, and health workers. (The project has been extensively documented in *DCR*.)

Concurrent with the communication trends we have seen were several others that were to challenge the top-down, infrastructure-related kinds of development—those of 'small is beautiful' and appropriate technology; of Paolo Freire's conscientization and the recognition of nonformal education as an empowering process that can demand and create change.

(continued on page 15, col. 1)

(**DevCom** continued from page 14)

"Successful projects . . . usually have a leader of . . . vision and limitless energy . . ."

The development process is frequently stymied at the level where it should have most impact, the grass roots. If there is public participation in the decision making process, however, the motivation for community adoption of activities which are culturally acceptable *and* address felt needs, may carry the project through.

It is interesting to note that successful projects at the grass-roots level usually have a leader of vision and limitless energy who can sustain what will be a long, difficult, often frustrating process.

The communications equivalent of these trends are participatory media that include those already mentioned, such as puppet shows and folk theatre, and, if access is provided by local stations, community-based radio programs. Ross Kidds's efforts on behalf of folk theatre have turned up a remarkable number of such activities. A religious group in Ecuador supports a radio station with programming done entirely by local *campesinos*. An instant camera in the hands of Tanzanian villagers has been the basis for documenting and sharing their adoption of a particular improvement, such as a latrine.

The gratifying aspect of all these efforts to get information and education to those who are most in need of it is that they are expanding. Program planners no longer need to be convinced that communication can be the crucial factor in program adoption. The major constraints now are at the staffing, budgetary, and policy levels. It is not easy to find qualified program designers, scriptwriters, and graphic artists who know how to present a message clearly and simply, or researchers who can establish knowledge and needs. It is not easy to set up the mechanisms to support education at a distance. It is not easy to achieve public access to the media.

Encouraging trends

The fact that organizations throughout the world are atttempting to deal with these and other issues, on local as well as regional levels, encourages us at the Clearinghouse to redouble our efforts to expand our network, and to facilitate the sharing of experiences. There *are* solutions to development problems. It is incumbent on those of us who know that there is a *process* of finding the right solution for the right problem to support and encourage development workers everywhere. ■

References

1. Clearinghouse on Development Communication, *Thesaurus of Development Communication*. Washington: Clearinghouse on Development Communication, 1981.

Judy Brace is the Director of the Clearinghouse on Development Communication.

Results of *DCR* Reader Survey

Close to 12 percent of *DCR* subscribers responded to the January 1984 reader survey, a high rate of return which was particularly impressive given the great distances and occasional postal delays in many of the 127 countries served by *DCR*. Returns are still trickling in, almost a year after the questionnaire was sent out.

Subcribers' comments from all over the world testify to the usefulness of the publication, and to the strength and unity of the *DCR* network.

Sharing copies of *DCR* is common among our readers; the survey reinforced with actual figures what we had long known—secondary readership of the newsletter is extraordinarily high. Each issue of *DCR* is read by an average of seven readers. In addition, many people photocopy the newsletter for colleagues and students, and libraries report a brisk circulation of *DCR*.

Survey Results

(Note: Readers were encouraged to check more than one category where appropriate.)

- My work is primarily in
  —communication (55%)
  —education (57%)
  —agriculture (26%)
  —nutrition (14%)
  —population (9%)
- Most of my time is spent working in
  —information dissemination (41%)
  —teaching (41%)
  —research (36%)
  —project planning (33%)
  —project administration (23%)
  —project evaluation (19%)
- Do you share *DCR*?
  —share *DCR* with students (22%)
  —share *DCR* with colleagues (78%)

An average issue of the newsletter is read by seven readers, which brings the readership circulation number to 35,000.

- How do you use the information in *DCR*?
  —as a source of project information (84%)
  —in project evaluation or design (20%)
  —as a source of reprint material (15%)
- How does *DCR* benefit you?
  —by keeping you aware of new developments and current communication thinking (87%)
  —by promoting the use of communications strategies for development (47%)
  —by putting local development issues into an international perspective (18%)
- Have you ever ordered books or other material reviewed or mentioned in *DCR*?
  yes (54%) no (28%) no answer (18%)
- How would you rate the overall usefulness of *DCR* to your work?
  very useful (68%) somewhat useful (32%)
  No readers rated *DCR* "not useful"
- Would you like *DCR* to
  —have more photos and graphics (31%)
  —have as much text as possible (69%)
- Please rank the following in order of importance to you:
  (1) articles on major issues of development communication
  (2) articles on specific communications technologies and techniques
  (3) articles on specific sectoral applications
  (Numbers 2 and 3 were ranked just about evenly.)

Comments

The question asking readers if they would like articles on a particular sector or technology yielded a wide variety of ideas and suggestions, for which we are grateful. Requests for articles on microcomputer applications lead the list—for a start, see the article by Kurt Moses in this issue. Other technologies mentioned ranged from low-cost satellite applications, to puppets and folk media, to videotex, to radio for health education, to video training for teachers.

DCR readers are an active and diverse network of professionals. For the Clearinghouse staff in Washington, reading the returned questionnaires was an opportunity to appreciate that diversity, and to learn more about the shared concerns of subscribers, concerns which will continue to be reflected in *DCR*. ■

H.F.R.

(**Training** continued from page 11)

volved four weeks, two broken mirrors, four stitches in a knee, and a smashed headlight. In time, the mirrors and headlight were restored and the knee healed. We like to think that this final bit of training demonstrated once and for all to our fieldworkers what we meant by results orientation.

As a footnote, let us mention that few female fieldworkers existed in The Gambia before our evaluation team was posted; fewer still were issued motorcycles. But we were convinced that well-trained women with the ability to drive themselves between villages would get the results we wanted—a certain number of valid questionnaires each month. As it turned out, those were precisely the results the fieldworkers produced. ■

Peter Spain is an International Communications Specialist assigned to A.I.D.'s Office of Education, Bureau for Science and Technology. Dr. Spain was the Field Director for Research in the Mass Media and Health Project in The Gambia, and has worked in radio in the Philippines and Mexico.

The Coming of Age of Development Communication

by Judy Brace

This article, in a somewhat longer version, was written by the Clearinghouse Director for the Golden Jubilee Issue of the British Council's excellent journal Media in Education and Development *(Vol. 17, No. 2, June 1984). It is reprinted here by permission of George Grimmett, Editor,* Media in Education and Development.

No one could be more delighted than I am to join the celebration of the half century anniversary of a much admired and respected older sibling.

In many ways, the Clearinghouse on Development Communication shares the same roots and the same evolutionary history as the British Council's Media Group and its journal *EBI/MED,* and we have always looked there and found encouragement and support for mutual concerns. In as much as we are deeply committed to the same goals, it might be useful to look back and see how our side of a parallel relationship has developed.

Role of the Clearinghouse

The Clearinghouse on Development Communication has been documenting 'communication which has as its purpose the deliberate promotion of one or more aspects of national development'[1] for more than a decade. We are supported by an enlightened group at the U.S. Agency for International Development (A.I.D.), that has demonstrated, through a number of projects, the capacity of the media to promote or support change on behalf of the social services.

Over the years, the scope of the Clearinghouse has expanded to encompass a far greater range of media and development concerns than its initial focus on educational technology. We now follow a generic field of media used for social development, looking both at the *kinds* of development activity (distance education, transfer of agricultural innovations, public campaigns in support of improved nutrition) and the *way* the information is transferred (posters, puppets, radio, satellite-supported technologies).

This widening concern has been reflected in the breadth and depth of our Clearinghouse newsletter. It has grown from a four-page *Instructional Technology Report* to the current 16-page *Development Communication Report,* distributed to some 5,000 readers—the majority in the developing world.

What follows is a review of some of the changes and landmark projects the Clearinghouse has noted and reported on.

Establishment of ICIT

In 1972, with a handbook on educational technology and a film on educational television in El Salvador and Niger, the Information Center on Instructional Technology (ICIT) came into being.

Those were the days in which the deficiencies of education were to be overcome by the enormous potential of television. In the developed countries, the promise of reaching large numbers of students with uniformly excellent teachers, innovative curricula, and stimulating visuals, fired the imaginations of educators. Their thinking quickly informed that of educational planners concerned with the problems faced by developing countries—including those that were newly-independent, and promised free education for all.

The role then for the ICIT was to carry the news of educational television (ETV) as a possible model to the developing world through a newsletter and other publications, based on its growing collection of informational documents.

In Africa, Niger and the Ivory Coast were the prime examples of ETV, and in Latin America, El Salvador was the model. In Asia, Korea and Japan adopted this new educational technology. But television was not the only instructional medium that we were concerned with.

Instructional media derived from the application of instructional systems design to the information-carrying photographic and electronic media such as slides, films and videotapes, records and audiotapes, radio, TV, and computers. Numerous investigations in those early days were devoted to questions of the ability of the media to teach, and to which medium was the most effective. To collect some of this data, Unesco and A.I.D. published a series on *New Educational Media in Action,* with examples from around the world on ETV, radio, and print for formal and distance education.

Radio Mathematics

Perhaps the most successful test of a medium carrying the full teaching load in a primary school curriculum has been a carefully documented A.I.D. effort in formal distance education. *Radio Mathematics* (1974-1979) was designed to test the cost effectiveness of radio compared with traditional teaching by taking the lessons of computer-assisted instruction (CAI) and applying them to radio.

Program designers from Stanford University worked with the Nicaraguan Ministry of Education to translate the primary mathematics syllabus into radio programs that would provide relevant numeracy skills to a test group of rural

(continued on page 14, col. 1)

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
and Resource Center Manager
Heddy F. Reid and Kathleen Moran, Co-editors
Arlene Horowitz, Program Assistant
ISSN 0192-1312

AED
International Division
Academy for Educational Development

Microcomputers; Social Marketing; Rural Communication; TV Techniques; T&D; Fieldworker Preparation

development communication report

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

Winter 1985
No. 48

Radio Santa María: A Case Study of Participatory Evaluation

by John K. Mayo, Charles B. Green and Miguel E. Vargas

Radio Santa María was established in 1964 under the auspices of the Catholic Church in the Dominican Republic. Its initial purpose was to attract rural and urban disadvantaged adults into a certified literacy program, but it has evolved into programs leading to certificates at the primary and intermediate levels. Breaking with conventional methodology that depends on remote-memory learning, RSM curricula stress education as a tool that helps individuals meet and cope with their environment, relating school learning to real-life needs. RSM depends on three educational aids: workbooklet texts, radio broadcasts, and field teachers. The radio station is largely self-sufficient with some support from the Government of the Dominican Republic and private contributions.

"All too often the main result of an education program evaluation is a report that finds a resting place on office shelves."[1] This statement reflects the experience and the fear of many persons currently involved in the evaluation of development communication projects. We have seen too many evaluations that have had little, if any, influence on program performance and that have resulted in "just one more report." This realization was foremost in our thinking when the Learning Systems Institute at the Center for International Studies at Florida State University (FSU) was invited by *Radio Santa María (RSM)* of the Dominican Republic to submit a proposal for an evaluation of their distance teaching programs. At the outset, we wanted to be as certain as possible that, were we to become involved, our evaluation would be genuinely helpful to *RSM's* administrators and producers.

Two additional concerns needed to be resolved before a response to *RSM's* invitation could be submitted. First, since *Radio Santa María* had been evaluated twice within the past ten years, what purpose would another evaluation serve? Second, since the evaluation project was but one part of a large training and equipment procurement project funded by the U.S. Agency for International Development (A.I.D.), to what extent were *Radio Santa María's* leaders really committed to an evaluation? Could it be that the evaluation was really the idea of the funding agency and that RSM had accepted it, at least in part, only to qualify for the larger funding package? A representative of our institute visited the Dominican Republic to discuss these matters with *Radio Santa María* and with A.I.D. *Radio Santa María* apparently was in the process of trying to improve its education programs, and although the previous evaluations had shown that the programs were effective, those studies had not had much influence on improving their quality. Another evaluation would be useful if it would illuminate specific ways in which *RSM's* services could be improved. The leaders of *RSM* also stated that the evaluation was at least as much their idea as it was A.I.D.'s. On the basis of these assurances, a proposal was submitted.

Evaluation Guidelines

To be sure that all concerned with the project understood our position, the proposal suggested that the evaluation should make maximum use

(continued on page 2, col. 1)

In this issue . . .

Radio Santa Maria 1
Telecommunications in Alaska 1
Adapting Illustrated Materials 3
Interactive Radio in Schools 4
Ecuador Campaign to Measure ORS Correctly 7
Publications to Note 7
Community Radio in Peru 8
A Communicator's Checklist 9
IPDC Update 9
Training African Communicators . . . 11
Maitland Commission Report 12

Instruction by Audio Conference: An Alaskan Example

by Coppie Green

Despite rapid changes in the last decade, the State of Alaska is still very much in a phase of development, not unlike many developing countries. It is faced with similar challenges and constraints due to its climate and enormous size, as well as its limited technology and slowly emerging institutional support systems. Among the challenges Alaska faces is educating its widely scattered, multi-cultural population. This poses numerous problems including: where to find enough qualified teachers for these remote sites; how to deal with the multi-cultural Alaskan population so as to preserve diversity; and how to provide in-service training for teachers in remote villages. To provide the best possible education the LearnAlaska system was established which evolved out of earlier Applications Technology Satellite (ATS) experiments. This article describes how tele-education works in Alaska. Developing countries that face similar challenges in providing basic educational opportunities for their rural populations may find in it relevant and useful information.

The State of Alaska has a land mass 1/5 the size of the United States, more coastline than the United States, and only 400,000 people. Of Alaska's 250 communities scattered across its 570,000 square miles, only 15% can be reached by roads, and many of these communities have a population of fewer than twenty people. Yet—or perhaps the word should be "therefore"—here resides the world's largest instructional telecommunications system: the LearnAlaska Network.

Created by the Alaska State Legislature in 1980 to facilitate educational opportunities for rural Alaskans, the LearnAlaska Network is a satellite-based system of audio conferencing and lowpower television. The Alaska Department of Education and the University of Alaska are joint sponsors of the Network. Its principal users are the 53 public school districts and all branch campuses of the University. The University of

(continued on page 6)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(**RSM** continued from page 1)

of the experiences and the findings of the previous *RSM* studies, and the new evaluation should exhibit the following characteristics.

1. *RSM* personnel should be involved as much as possible, even though this might compromise the objectivity of the study in certain areas.
2. The study should not overemphasize the measurement of outputs to the neglect of inputs and processes.
3. The evaluation should not disrupt ongoing activities.
4. The evaluation should take account of *RSM's* resources and the limits under which it operated. In this manner, recommendations growing out of the evaluation would be realistic and practical.
5. The evaluation should not ignore significant program elements just because they could not easily be quantified.
6. The evaluation should enhance *RSM's* ability and willingness to continue monitoring and improving its various services.
7. It would be at least as important to identify *RSM's* strong points as to pinpoint its shortcomings, since it is often more feasible to improve an institution's strengths than to correct its weaknesses. The report growing out of the evaluation should highlight guidelines for the continued growth and improvement of the institution.
8. The evaluation should evolve and improve as the nature and needs of *RSM* became better understood by the institution and its outside evaluators.[2]

A Participatory Self-Study

In preparation for the evaluation, our team reviewed the previous studies of *RSM* as well as studies conducted on other Latin American educational radio programs. Subsequently, a planning seminar was held with some of the persons who had carried out those studies. Although the evaluation team recommended that personnel from *RSM* become actively involved in the evaluation, it was unsure how much time staff members would actually be able to devote to the effort. After considerable discussion in the planning seminar, the *RSM* leaders adopted the concept of a fully participatory self-study. *RSM* staff members would carry out the field work while members of the expatriate evaluation team would serve as facilitators, helping to design the evaluation instruments, training the *RSM* staff in evaluation techniques, and conducting the major statistical analyses.

Since the planning seminar had involved only the *RSM* leaders, as a first step in the self-study, a meeting of *RSM's* entire staff (approximately 35 people) was held to discuss the purpose of the evaluation and the activities that would be involved.

A policy document, which *RSM's* leaders had produced in 1975 for a regional meeting of the Association of Latin American Radio Education Agencies (ALER), provided the original departure point for the self-study. This document reviewed *RSM's* history as well as its major educational programs and goals. The *RSM* staff was divided into discussion groups according to their program assignments. The groups were asked to review the 1975 document and the educational objectives contained therein, and then to consider the following questions:

1. What are the educational objectives of *RSM?*
2. Why are we trying to accomplish these objectives?
3. What are we doing to try to reach them?
4. Are we doing the same thing or something different from what we were doing in 1975?
5. How and why are we doing things the same or differently?

Each discussion group reported on its deliberations, providing updated interpretations of *RSM's* objectives. The Florida State University facilitators used these reports as a basis for drafting the initial set of field evaluation instruments. These instruments were then carefully reviewed by the *RSM* personnel to ensure that they would provide valid, reliable, and, most importantly, useful information.

The *RSM* personnel intimately involved in the several programs served as interviewers and were assisted by additional staff personnel who volunteered to help in the field work. At first, the *RSM* personnel were wary of the study. The attitude of some of the staff members was that the evaluation was a good idea, but the need was to evaluate other programs—not the ones in which they were personally involved. As preparation for the self-study proceeded, however, the entire staff became more positive about the project, and almost everyone asked to be included in the field work.

The Evaluation Proceeds

The FSU facilitators trained *RSM* personnel in the necessary evaluation techniques, and the self-study was conducted as planned with the university personnel assisting on administrative and procedural matters. After *RSM* staff gathered the data, the FSU facilitators hired local personnel from outside the radio station to code the questionnaire data, and to transcribe the recordings of the community discussion groups which had been organized. Statistical analyses were made of the data which were amenable to such treatment, and the qualitative data were summarized. From these results the facilitators prepared a series of preliminary reports on each of *RSM's* educational programs. These reports were discussed with *RSM* subgroups to get their reactions and suggestions. A follow-up seminar involved the same *RSM* leaders, resource persons, and FSU team members who had participated in the original planning seminar. They discussed the reports in detail and suggested changes. The FSU team then prepared a final report which included the suggestions and recommendations from the *RSM* groups and from the seminar. The report was issued in Spanish as an *RSM* publication, with the FSU team listed as editors. *RSM's* administrator also requested that the FSU team write up its suggestions and recommendations independently since the team members, while serving as facilitators had become very familiar with the operation of the organization. These recommendations were submitted as a separate report.

Advantages of Self-Study

In retrospect, the most important advantage of this approach, we found, was that the evaluation process itself resulted in program improvements while the evaluation was underway. As the *RSM* staff members discovered ways in which their programs could be strengthened, they immediately started to take measures necessary to make improvements. By the same token, the final evaluation report of the self-study became part of an improvement process, not the culmination or final event of that process. Momentum had built up during the self-evaluation and all indications were that this would result in a continuation of the evaluation effort.

As active participants, *RSM* personnel also developed some important evaluation skills. Plans were made to upgrade data management and analysis skills since these had been performed largely outside the organization. A computerized information retrieval system was installed by *RSM* with this same objective in mind.

Although the original project called for the study of only some of *RSM's* educational programs, the participatory approach demonstrated that it was not possible or desirable to compartmentalize the evaluation. Although the self-study did focus on specific education programs and objectives, the study actually touched every aspect of *RSM's* operations. For example, it revealed a need for improved staff communication to upgrade the overall administration of the radio station, and steps were eventually taken to provide stronger links among various administrative and production units.

Our experience with *RSM* caused us to re-examine just how participatory one can be in the conduct of program evaluations. As we began the evaluation, we had in mind that, ultimately, we would be in charge of the evaluation and would direct members of the staff in the data collection and subsequent activities. We found that once our suggestions were taken at face value, the RSM staff assumed command of virtually all parts of the study. We came to question whether a truly participatory evaluation could mean anything less than a self-study similar to our experience. Participation may be analogous to diving from a ten-meter platform: you cannot do it only half-way!

Some Disadvantages

The participatory approach presents some obvious disadvantages, particularly with regard to interviewer bias. If the team had hired outside

(continued on page 10, col. 1)

Spreading Good Ideas: Adapting Illustrated Materials

by Joan Haffey and Ann Jimerson

It is often much easier to change well-tested educational materials from another country to suit local conditions than it is to "start from scratch." However, adapting means *changing, not duplicating*. Ample care must be taken to include messages specific to the needs of the new audience and not just to ensure that images such as clothes and surroundings are appropriate. The examples that follow demonstrate some of the advantages of starting with successful materials, and point to the need to pretest all materials in the new setting. The samples are from pictorial booklets for semiliterate and illiterate audiences, and demonstrate the need for clear visual illustrations. The same guidelines apply to the adaptation of any materials that rely on visual images to relay or reinforce information.

Reasons for Adapting Materials

- *Proven ideas work well*
  A major advantage of adapting materials is being able to test ideas that have proven useful elsewhere. This Pakistani drawing, which tells pregnant women to avoid visiting those who may have a contagious illness, had to be revised six times before it was clearly understood by the illiterate Pakistani target group. A Kenyan adaptation of this same message and drawing was well understood during the first pretest.

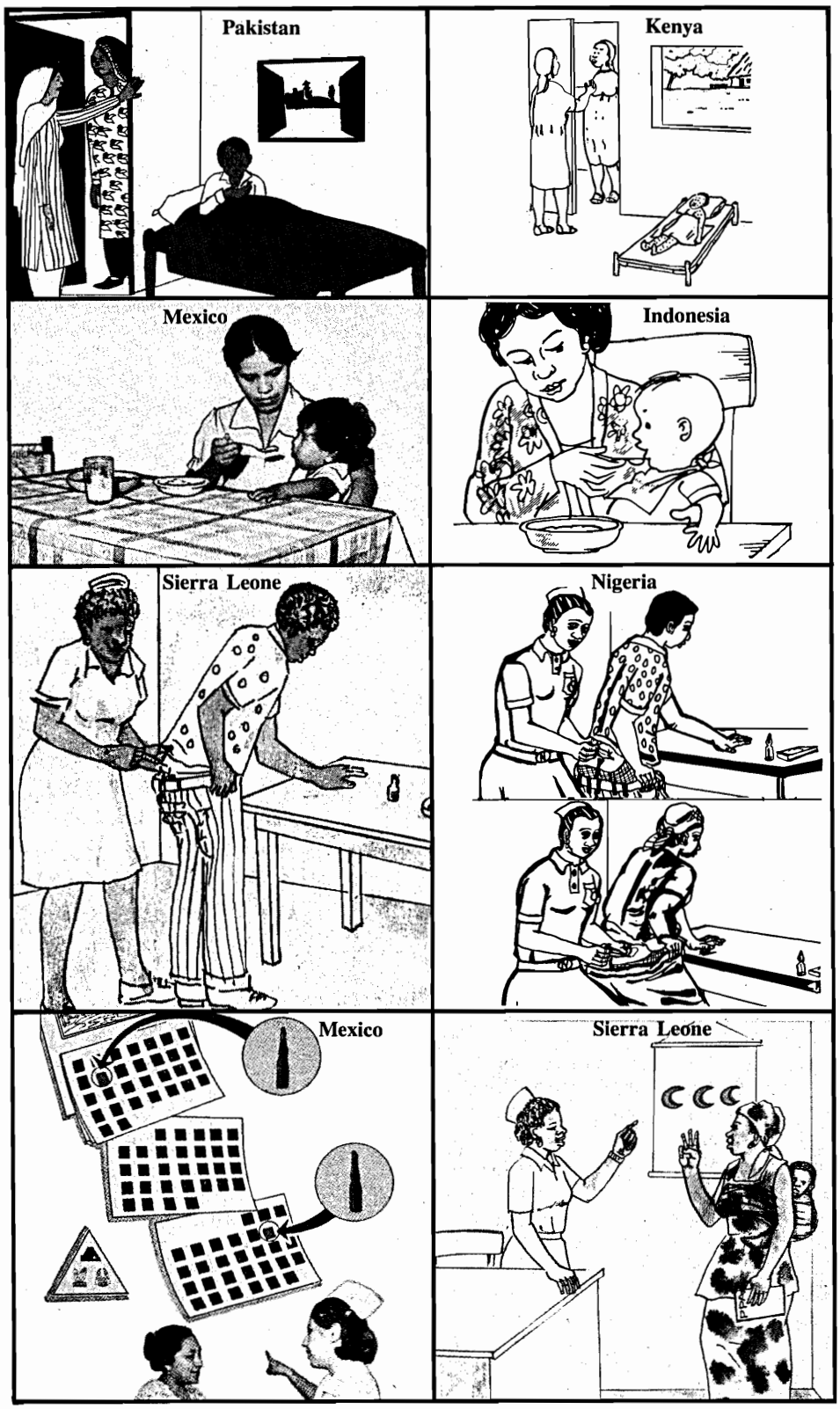
- *Technical information requires few changes*
  The instructions for correctly using a particular technology or product often are the same worldwide. Existing educational materials dealing with technical information usually provide a good selection of points, readily adaptable for local use. For instance, the message "Continue feeding a child who has diarrhea" is the same for Mexico and Indonesia, a similarity reflected in these visuals.

- *Time and money are saved*
  A Nigerian project saved both time and money by using this Sierra Leonean drawing of a man receiving an injection to cure a sexually transmitted disease. The drawing was easily understood. The final version for Yoruba speakers in Nigeria is quite similar except an illustration of the wife receiving an injection was added to the same page.

Reasons for Testing Materials

- *Misunderstood messages*
  Symbols are culture-specific and often need to be changed to convey an identical message. For example, although the message "Come to receive an injection every three months" is the same in Mexico and Sierra Leone, the symbols that prove effective in conveying this message to illiterates differ considerably for these cultures. Thus, existing materials should only be used as preliminary drafts for the development of your own visuals.

(continued on page 4)



(**Visuals** continued from page 3)

Two other considerations when testing materials for a new audience are:

- *Special informational needs*
  Efforts should be made to determine the specific informational needs of the audience so that appropriate messages can be included in the adapted materials. For example, in a culture where false rumors regarding a contraceptive method abound, messages that counteract those rumors should be added.
- *Cultural sensitivities*
  If cultural sensitivities are ignored in selecting visuals, it could be detrimental to a program. Pictures that are acceptable in one culture may be offensive in another. Only by testing drawings and photos with the target audience and with the authorities who will distribute the materials, can you be assured that the visuals are acceptable and *will* be used.

When assembling illustrated materials, it is important to give credit to those from whom you have borrowed ideas or actual illustrations. People are justifiably proud of effective educational materials they have produced. You should always ask for permission to use them, whether or not the materials are copyrighted. You will find most people are pleased to see their ideas or visuals widely used.

★ ★ ★ ★

The examples used in this article were taken from booklets developed with the assistance from the Program for the Introduction and Adaptation of Contraceptive Technology and the Program for Appropriate Technology in Health (PIACT/PATH), by: Programa para la Introducción y Adaptación de Tecnología Apropiada (PIATA), Mexico; PIACT Bangladesh; Yayasan Kusuma Buana, Indonesia; Sierra Leone Home Economics Association and Planned Parenthood of Sierra Leone; Aga Khan Central Health Board for Pakistan; Maendeleo ya Wanawake, Kenya; and the Ministry of Health and Planned Parenthood Federation of Nigeria. The Johns Hopkins University/Population Communication Services (JHU/PCS) assisted with the development of Nigerian materials. The U.S. Agency for International Development has supported many of these efforts.

Because of differing needs, countries may require assistance to undertake an adaptation project. PIACT/PATH and JHU/PCS will provide assistance in this process upon request. PIACT/PATH work with local groups to design and adapt pictorial materials on health and family planning topics for illiterates and semiliterates. Inquiries for information or assistance should be sent to: PIACT/PATH, 1255 23rd St., N.W., Suite 420, Washington, D.C. 20037, U.S.A.

The Population Communication Services Project at The Johns Hopkins University offers technical assistance in developing or adapting communication materials for family planning programs in developing countries. Single copies of sample family planning materials are available from the Media/Materials Collection. When requesting samples please specify audience, family planning topic, and type of materials/media desired. Send requests to: Population Communication Services, The Johns Hopkins University, 624 North Broadway, Baltimore, Maryland 21205, U.S.A. ■

Joan Haffey is Associate Program Officer for PIACT/PATH. She holds a Master's Degree in Public Health from the University of Michigan and has worked in Honduras, Pakistan, Peru, the Sudan, and Kenya.

Ann Jimerson is Media/Materials Coordinator for JHU/PCS. She has worked in educational materials development and communication training in Honduras, Costa Rica, Brazil, Colombia, Panama, and Washington, D.C.

Interactive Radio in the Classroom: Ten Years of Proven Success

by Maurice Imhoof

Interactive radio is something new in educational radio. It is unlike any other application of radio to education, and must be thought of apart from "educational radio" as practiced in the past.

Interactive radio is based on a careful instructional design that creates radio lessons to involve students. Students interact with the radio lesson by responding orally, physically, or in writing to prompts from the radio. Well-timed and frequent pauses by the radio instructor allow the students time to respond, and the pause is immediately followed by the radio instructor giving the correct response to reinforce or correct the students' answers. Typically in a half-hour broadcast, students will be called on to respond over one hundred times. The pace is quick, the students cannot remain passive, the classroom teacher has a prominent role, and the thirty minutes go quickly.

Interactive radio really works. After ten years of unprecedented development and research by the Office of Education, Bureau for Science and Technology (S&T/ED), of the U.S. Agency for International Development to demonstrate the effectiveness of interactive radio, we are encouraged by the results. In Nicaragua, Kenya, and the Dominican Republic, S&T/ED projects created a major breakthrough in reaching more children, providing them with better instruction, and at low per-student cost.

The interactive instructional-radio model used in these countries has shown conclusively that systematic radio broadcasts can carry the principal instructional burden in the key subject areas of mathematics, language arts, and basic skills. Daily half-hour programs broadcast to first-, second-, and third-grade children have produced dramatic gains in student achievement without the need for significant retraining of teachers or large investments in textbooks and other materials.

To apply this breakthrough to other countries, an instructional radio conference was held in Nairobi, Kenya from Sept. 24-28, 1984. The theme of the conference—a new direction for education by radio—was set by the keynote speaker, Alex Quarmyne, Unesco Chief Technical Adviser, Zimbabwe Institute of Mass Communication:

> Radio is one of Africa's great wasted resources. . . .We require a renovation of the broadcaster and the educator themselves. From the broadcaster we require a commitment to, and a change of, attitude toward education. Similarly, from the educator, we require a commitment to, and a change of, attitude toward radio.

Sponsored by Kenya's Ministry of Education, Science, and Technology and by S&T/ED, the conference focused on the on-going Radio Language Arts Project at the Kenya Institute of Education to demonstrate the process and principles of interactive radio as applied in rural Kenyan schools. The Radio Language Arts Project team discussed project design, implementation, and evaluation. In addition, conference members visited rural classrooms where English lessons were being received. This "field-laboratory" experience provided the basis for conference discussions on the interactive-radio approach used in all of the S&T/ED projects: Radio Mathematics in Nicaragua, Radio-Assisted Community Basic Education in the Dominican Republic, Radio Language Arts in Kenya, and the newly funded Radio Science Project.

Throughout the conference, there were demonstrations of how the S&T/ED model of interactive radio could apply to educational problems faced by planners in developing areas. Daily presentations were also given by the S&T/ED interactive radio research project directors. Participants were leaders in instructional-materials development, adult education, and educational broadcasting from Botswana, The Gambia, Lesotho, Liberia, Nepal, Somalia, Zimbabwe, and Kenya.

To convey the urgency of using interactive radio as a major cost-effective medium of instruction, the conference participants formulated a number of recommendations. While recognizing the importance of other educational strategies, these recommendations stress the utility and practicality of interactive radio as a familiar and effective medium.

Recommendations

- Interactive radio should be more widely used.

Through interactive radio, education of both high quality and greater access can be provided to achieve the requisite level of competence. Radio can even be used to reach the unschooled at a lower cost than traditional forms of education. Thus more educational broadcast time and coverage should be made available by governments.

- Interactive radio can be an important educational tool at the primary level.

Many developing countries currently lack the classrooms and trained teachers necessary to teach primary school children. Interactive radio can compensate for these deficits in the schools and can provide basic education to adults or children in nonformal settings as well.

- Interactive radio should be used in critical curriculum areas.

Interactive radio can provide better instruction in subjects that are difficult to teach through conventional means. Second-language instruction, for example, can be enhanced by interactive radio's use of careful instructional design, with speakers who use the regional standard language in real situations. Mathematics, a perennial challenge to teach, has been taught through interactive radio with great success.

- The development of radio lessons should be integrated into the overall curriculum development and evaluation.

Interactive radio can fit into the existing curriculum. In fact, without integrating interactive radio lessons into a system which includes educational leaders, broadcasters, teachers, and learners, and without the development, testing, revision, and implementation of the educational innovations, interactive radio instruction will fail.

- Interactive radio at its best should be part of a mix of instructional techniques.

In viewing radio as a cost-effective medium to solve educational problems caused by a lack of resources, we should not ignore the fact that interactive radio combined with other media—including excellent teachers—can be effective. Teacher participation, print and other visual support will strengthen interactive radio's effectiveness.

- Interactive radio should be viewed as an aid to the teacher.

Radio presents the subject matter, bringing uniformly high-quality instruction to difficult subject areas; the classroom teacher manages the classroom, and has the opportunity to give individual help. The radio lessons may indirectly add to teachers' skills as well.

- Radio should be used to train teachers.

The proportion of untrained and underqualified teachers is likely to grow as the school population increases. Radio has proved to be an effective means of providing instruction to untrained teachers and of providing inservice training. In addition, special consideration should be given to training teachers in the use of interactive radio broadcasts.

- Interactive radio should be more widely promoted to parents and administrators.

Since parents and educators may be more comfortable with traditional teaching methods, the value of interactive radio needs to be clearly and systematically presented to them. Experts should create a forum to explain intensive, interactive radio before broadcasts begin, to help teachers use the programs well, and to reassure teachers of their continuing priority role in the classroom.

- Further implementation of interactive radio should proceed.

Since interactive radio has been successful on an experimental basis in several countries, it should be integrated into national curricula in those countries, and its application extended to other countries. ■

Maurice Imhoof is the Director of the Kenya Radio Language Arts Project at the Academy for Educational Development. Much of his career has been spent in developing countries, where he has applied learning methodologies, designed textbooks, and trained teachers.

The Spring 1985 issue of DCR will focus on interactive radio.

1985 International Development Conference

The biennial International Development Conference will be held in Washington, D.C. March 20-22, 1985. This year's theme is "Toward a National Consensus on International Development." Sessions will cover the effects of Third World development on particular sectors of American life; an examination of elements of current U.S. policy toward the developing world; American attitudes toward, and information about, the Third World; and specific ways to increase public understanding of international development.

For more information about this conference contact: International Development Conference, Room 420, 2001 S Street, N.W., Washington, D.C. 20009, U.S.A. Telephone: (202) 232-8626.

Training Scholarships Available

The U.S. Agency for International Development (A.I.D.) has allocated $200,000 to the U.S. Telecommunications Training Institute (USTTI) to award scholarships for professionals from developing countries to receive short-term training in the field of telecommunications. Nominations for these scholarships should be submitted either directly to USTTI, 1255 23rd St., N.W., Washington, D.C. 20037, U.S.A., or through A.I.D. missions in developing countries.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words.

(**LearnAlaska** continued from page 1)

Alaska Instructional Telecommunication Services (UAITS) manages and operates the Network and provides support for faculty and student users, while the Department of Education coordinates use for grades K-12. Each of these systems also provides programming for adult lifelong learning, using both instructional television and audio conferencing. The Alaska Department of Administration installs and maintains equipment.

Audio Conferencing

Audio conferencing—the first of the systems to be installed—has proven to be a highly effective tool for providing instruction across the state's vast distances. Accessible by any telephone in the state, the LearnAlaska System can link up to 120 sites in a single audio conference, or several sites together in simultaneous conferences. The equipment at the local level consists of a convener (speaker) and free-standing push-to-talk microphones. Equipment is located in audio conference sites throughout the state—in public schools, on university campuses, in legislative offices, in some correctional centers, in village-owned community centers, and in nonprofit agencies. Most sites are staffed by volunteer site coordinators selected by the educational/community agency sponsor. The coordinators—now numbering more than 600 including alternates—prepare conference rooms and equipment and are a communication link between the Network and the community.

In three years, the number of LearnAlaska audio sites has grown to 318. The LearnAlaska audio conference network handled 3432 conferences during the 1983-84 academic year. Of these, 76 percent were for direct instruction; the remainder were for support of instruction and administration of programs.

All "units" of the University of Alaska—including the three University campuses, eleven University-sponsored community colleges, and the Rural Education, Correspondence, and Cooperative Extension Services programs, use audio conferencing to provide distance education. Audio conferencing is used for university degree requirement courses, elective courses such as local government, farming, and homemaking; professional certification upgrading or maintenance courses for nurses and teachers; vocational training courses, and general interest subjects.

Each university unit decides what its service area needs are, and whether or not to develop courses for only its area or perhaps to design a statewide-mandated course. Once these courses are designed, the unit requests audio conferencing hours from the Network prior to the semester they are to be offered. After the hours are allocated, the unit schedules and administers its own academic program. Recognizing that new technology must be accompanied by new teaching methodology, UAITS provides assistance to faculty in developing, designing, adapting, and evaluating distance delivered courses. This assistance includes faculty forums; in-service workshops; teacher and student guides and handbooks explaining the use of the system; and, if requested, assistance in developing entire courses or programs. One such program developed with help from UAITS was an audio conferenced course entitled "19 Ways to Make Farming Pay in Alaska." Following this success, another community college offered a course, "Marketing Agricultural Products," via audio conferencing to farmers in nine communities across the state. Other recent audio conference courses have included subsistence resource development, beekeeping, marine mammal management, community health aide training, rural Alaska community action, marketing livestock, gardening, and Alaskan language and culture groups.

One-Way Video — Two-Way Audio

There is also a growing use of interactive systems incorporating live one-way video and two-way audio. Courses in nursing and paralegal studies are currently taught in this manner. A teacher conducts the live televised class with students who are provided with audio conference sets. Each class is broadcast to participating sites. The distant students see the live lecture and engage in dialogue with the teacher, the students in the classroom, and the other participating audio conferencing students.

"With audio conferencing, accessibility of education to rural students is greatly enhanced through their ability to receive instruction where they live and work."

The challenges to teacher and learner are significant. Teachers must be trained in the methodology of distance delivery: careful planning, clarity of delivery, thoroughness of supporting materials, sensitivity to the limits and advantages of the system, and understanding of the unique needs of the students. There must be close coordination between the distance teacher and the local education system. Students must assume a great degree of self-discipline, dexterity in study skills, and willingness to participate in the give-and-take process of the audio conference. The teacher-active, student-passive dynamic is deadly for the audio conference. Both teachers and students must be prompt in the interchange of supporting print materials.

The positive implications of audio conferencing for the distance delivery of instruction are highly relevant for developing countries. Audio conferencing is simple to use, can be accessed by existing telephone systems, and costs much less than the direct instruction which—although desirable—is often impossible to accomplish in countries with a widespread rural population and limited staff capabilities. With audio conferencing, accessibility of education to rural students is greatly enhanced through their ability to receive instruction where they live and work; individualized instruction is significantly enhanced, and the base of expertise is greatly broadened by securing instructors from many locations.

Developing countries show a growing interest in the LearnAlaska telecommunications systems. In the past 16 months, visitors from 25 nations have toured the Network and talked with staff of the University of Alaska Instructional Telecommunication Services, the LearnAlaska Network and the Alaska Department of Education. Staff from UAITS and LearnAlaska have also traveled to Indonesia, as well as England, to assist in the development of audio conferencing for instruction. ■

The University of Alaska welcomes the exchange of ideas and information with people interested in the field of tele-education. Their address is: Instructional Telecommunication Services (UAITS), Office of the Statewide Director, 3 Bunnell Building, Fairbanks, Alaska 99701, U.S.A.

Coppie Green is the Assistant to the Statewide Director of UAITS.

Rural Development Course at Cornell University

Cornell University will hold its annual course on *Communication Planning and Strategy,* July 14, through August 9, 1985, at Ithaca, New York. The course is intended for officials and decision-makers in rural development programs. It is designed to increase participants' understanding of how to incorporate systematic information and communication support for agriculture, health, nutrition and family planning projects. Topics include communication aspects of technology transfer, decentralization policies, and use of paraprofessionals in field operations, as well as principles of persuasion, and mobilization of information resources.

Field trips to Washington and New York City are planned, and will be tailored to individual participant's professional interests. There will also be several media workshops.

Instructional fees for the four-week course are US$1,400. Housing (including field trip) will be approximately US$645 (not including meals and other personal expenses.) Applications can be obtained from Dr. Royal D. Colle, CPS-85, Cornell University, 640 Stewart Avenue, Ithaca, New York 14850, U.S.A. Telephone: (607) 256-6500, Telex: 937478. Enrollment is limited to 40 persons and is usually filled by April 30.

The Measure, the Problem: Communication at Work in Ecuador

by Reynaldo Pareja

Diarrhea kills millions of children every year by dehydration. Most of these children could be saved if they were given the oral rehydration salts (ORS) being promoted in so many countries today. But a common problem for many ORS programs is how to be sure that the correct amount of water is used in preparing the solution. In villages there are few standard measures, and if too little water is used the solution can be dangerous.

Throughout the world, many types of containers have been used as standard measuring devices. In The Gambia, JulPearl (a local soft drink) bottles are used—three bottles-full make a liter. In Honduras, the standard liter Coca Cola bottle is used; in Costa Rica the ORS packet has been adapted to the size of a common baby bottle; and in Brazil the ORS packets are geared to the size of a special cup supplied with the packet.

In Ecuador a baseline investigation showed that, as in many other countries, no standard liter-sized receptacle was available throughout the country. To design and distribute a special bottle or jar would be too expensive. To solve this problem, Ecuador's diarrhea control program devised an inexpensive but colorful and instructive plastic bag.

When a mother comes to a health post seeking help for her diarrhetic child, she receives a folded plastic bag containing two oral rehydration packets. She is instructed how to use the plastic bag as a liter measure, and how to follow the printed directions on the bag. (See illustration) The instructions show her how to fill the bag with water to a clearly printed black line; empty the water into another container; pour in one packet of salts; and mix them. The mother then gives the child as much of the drink as he or she wants throughout the day. Advice about breastfeeding and feeding soft foods to the sick child is printed on the reverse side of the bag.

These same messages are repeated on dozens of radio spots that promote the liter bag, and teach listeners the mixing procedure and the administration steps. Radio broadcasts also describe the signs of dehydration and dangers of loss of body salts and water during an episode of diarrhea. A flipchart used in communities shows the same plastic bag and its use.

This practical, inexpensive Ecuadorian response to the measurement dilemma has proven to be a highly effective communication tool, as well as providing an accurate standardized measuring device. ■

Reynaldo Pareja is Field Director of the Mass Media and Health Practices Project in Ecuador and Peru.

Shown above are three of the eight illustrations that appear on the red plastic ORS bag. The reverse side also has information on how to care for a sick child.

INTELSAT Project Grant Awards

In conjunction with its twentieth anniversary celebration, INTELSAT is soliciting proposals for testing and demonstration of satellite technology in remote areas to promote social uses of telecommunications for health and education. Free technical advice and transmission time will be provided. The International Institute of Communication is assisting INTELSAT in the development of the project. For those interested in applying for a grant, the first round of grant applications for projected April 1985 start-up has passed. Applications must be received by March 15, 1985 for projects that expect to begin in July, 1985, and by September 15, 1985 for projects to start in January 1986. Grant applications can be obtained from INTELSAT, Project SHARE, 490 L'Enfant Plaza, S.W., Washington, D.C. 20024 U.S.A. Telex: 89-2707. Telephone: (202) 488-2300.

Publications to Note

by Arlene Horowitz

There is an abundance of riches to note this quarter. Each publication is well worth your attention. The Council of Europe's Foundation for Educational Research recently sent us their *Directory of Educational Research Information Sources 1983*. This is quite a useful compendium of timely information sources. While the countries doing educational research represented in the volume are mostly in the industrialized world, readers in developing countries can derive much valuable information from the lists of funding sources, international databases and bibliographies on educational research. The book is available in English only. Write to A.G. Kallenberg, Head, Documentation Department, Foundation for Educational Research, Pletterijkade 50,25 5 SH 's-Gravenhage, Postbus 19050, CB 's-Gravenhage, the Netherlands for price and shipping information.

For those readers who want more information about various regional development institutions, the following book will be of interest. The Southeast Asian Ministers of Education Organization (SEAMEO) has just published for the third time, their *Resource Book on SEAMEO*. SEAMEO publishes the *Resource Book* to "induce others to . . . promote cooperation among the Southeast Asian nations through education, science and culture. . . ." Part One gives the nature and history of the organization; Part Two discusses the various projects supported by SEAMEO; and Parts Three and Four explain its funding and organizational activities. To receive a copy, write to Southeast Asian Ministers of Education Secretariat, 920 Sukhumvit Road, Bangkok 10110, Thailand.

Annenberg/Longman has just published a fine handbook entitled *World Communications*. Unlike most collections of academic essays, this one is eminently readable. Its chapters include important essays on five global communication issues: Global Perspectives on Information; Transnational Communications: The Flow of News and Images; Telecommunications: Satellites and Computers; Mass Communications: Development within National Contexts; and Intergovernmental Systems: Toward International Policies. Many of the authors are well known to *DCR* readers. This 527-page book is well worth the relatively modest US$34.95 price tag. It can be obtained directly from Longman, Inc., 1560 Broadway, New York, New York 10036, U.S.A.

Last April, the International Colloquium of the University of Illinois at Urbana-Champaign sponsored a Midwest Regional Symposium on "Development Communications in the Third World." The conference proceedings have been published and are available directly from Earl D. Kellogg, 113 Mumford Hall, University of Illinois, 1301 W. Gregory Drive, Urbana, Il-

(continued on page 9, col. 2)

Message from Puno: *Radio Onda Azul*

by Jane Duran

Radio Onda Azul (Radio Blue Wave) is a church-sponsored community radio station based in the city of Puno, in the mountains of southern Peru. It is one of the few stations in Peru to transmit programs in indigenous languages, with its output divided between Quechua, Aymara and Spanish broadcasts. It is also one of a handful of community stations existing in Peru with a predominantly developmental purpose. Although *Radio Onda Azul* has been transmitting since 1963 with a strong emphasis on educational programming, it did not begin to function as a community station until 1981. During my visit to the station in 1983, I hoped to find out how community participation in programming evolved, and how it works in practice.

The Studio and its Productions

Radio Onda Azul operates with rudimentary studio facilities and a very limited budget allocated to it by the episcopate of Puno, and is supplemented by commercials. It broadcasts on medium wave, with a transmitted power of 1kW, reaching only parts of the department of Puno. The station consists of two small studios, an auditorium and offices built around a courtyard, and is located in the center of the city. What is immediately apparent to the visitor is that *Radio Onda Azul* does not operate as a professional enclave, but as an integral part of the community. Its doors are open and its listeners wander in and out, either to contribute to programs, or to join studio audiences.

A program called "Popular Saturdays," for instance, is a compendium of songs performed by amateur musical groups from both urban and rural communities in Puno. During a live broadcast which I attended, people of all ages crowded into the small auditorium, packing the aisles and doorways. Although some singers were nervous, and some occasionally strayed off tune, the audience was responsive and encouraging. Outside in the street and the courtyard, other groups rehearsed and awaited their turn. The program lasted several hours, and judging by the sustained enthusiasm of its audience, had great popular appeal.

"Auditions" is another community-based program broadcast every weekday by *Radio Onda Azul*. Each live broadcast of "Auditions" is produced and presented by a different community that constitutes both performers and audience. I joined the studio audience of a broadcast prepared by an urban community, Barrio Alto Santa Rosa. A group of students sang popular songs, a child recited his poem, the local leader gave a talk on the district and its problems of lighting and water, and the president of a mother's club explained the need for a center where they can have meetings and activities.

Community Participation—The Goal

Professional level programming is not the most important thing for this station. What matters is that problems and achievements are shared, that local talent is encouraged, and the community participates in program production.

This participation is woven into most aspects of programming. The station identifies and trains local news correspondents from the provinces. These correspondents work on a voluntary basis, relaying community news to station staff. Because of limitations on funds, the correspondents are unable to travel extensively to gather news. Despite this handicap, they play a crucial role in keeping communities in touch with each other.

> *". . . if a community invests in the equipment, it will be more likely to use it."*

Radio Onda Azul's Production Department now employs five "promoters," or station extension workers, to cover both rural and urban areas within the range of the station's transmitter. These promoters are responsible for organizing listener participation in program production as a means to community development. Of the four promoters covering rural areas, two are fluent Quechua speakers, and two are fluent in Aymara.

Engaging participation has been a slow process, and one which continues to develop and change. When promoters first visited rural communities, *campesinos* were suspicious and unwilling to answer questions about their communities. The question, "Why don't you want to talk?" did, however, elicit responses. The answers were broadcast, and this broke the silence.

Encouraging Community Investment

Promoters usually made contact with villages through local leaders or grass-roots organizations, though occasionally they approached villagers directly. They often found that it was easier to establish a relationship of confidence if they arrived without recording equipment. Promoters also found that the less organized communities tended to be less responsive to their visits. It was decided that priority would be given to those communities in the process of organizing themselves, in the hope that, through their example, the dormant communities would become interested in self-help activities, and in participatory radio.

Promoters believe that motivation for participation in station programming should come from the communities themselves. *Radio Onda Azul* does not rely on local facilitators, as staff feel that this would direct activities too much, and remove spontaneity. Nor does the station provide communities with recording equipment or materials, as it is expected that highly motivated groups will purchase these themselves. Promoters feel that if the community invests in the equipment, it will be more likely to use it, and care for it. Those communities which have acquired recording equipment receive support from *Radio Onda Azul* in the form of three-day, on-site production workshops.

Criteria for Program Selection

Now communities are more forthcoming about sending recordings to the station. Some are entire programs. Others serve as insert material such as talks, interviews, and sociodramas. The promoters monitor and select material to be broadcast. Beyond the basic prerequisite of intelligibility, they are not concerned with technical quality. The main criterion is: does this recording concern or serve the best interests of the community as a whole? Material can be rejected if it is not community-oriented.

This criterion is also applied to the content of live broadcasts involving contributions by members of the community. In a program called "Life of the *Campesino,*" representatives from rural communities come to the studio to give talks and participate in discussions. Initially, their contributions consisted of lengthy greetings to relatives and friends. Little by little these greetings were shortened, and the emphasis shifted to community projects. In a broadcast that I attended, one contributor talked about a road which his community was building; another announced a local meeting to discuss problems within the community; and a third gave details of an agricultural training course for *campesinos* planned by a local grass-roots organization.

Prior to 1981, *Radio Onda Azul* staff had no experience with community radio. They have learned by trial and error, and are constantly expanding the scope of their activities as new communities become involved in production. By offering communities a channel of expression, *Radio Onda Azul* is able to promote local culture. By providing a forum in which problems and projects can be explored, it acts as a catalyst for change. Its activities are based on the premise that communities have a right to participate in station programming, and to determine the form and content of their own social and economic development. ■

Jane Duran is a Media Officer in the British Council's Media Group, and advises on training and resources for radio and its applications for education and development. She has worked as a consultant and done training courses in Bangladesh, Nicaragua, Nigeria, and Peru.

A Communicator's Checklist

1 ***Pretesting Communication Materials: A Manual for Trainers and Supervisors,*** *by Ane Haaland, (Rangoon, UNICEF, 1984) 62 pp.*

This practical and insightful manual clearly explains how, when, and with whom to pretest print materials. Pretesting is the process of evaluating materials before they have been printed for mass distribution. When pretesting, individual messages are shown to members of the target audience for whom they have been developed. According to the perceptions and comments of the individuals interviewed, revisions are then made and further pretesting continues, until the content and presentation of the materials is clearly comprehensible and acceptable. Although this manual is oriented to the production of print materials with an emphasis on child health and nutrition, many of the techniques can be adapted to pretest other educational materials, such as radio scripts or theater presentations.

Pretesting, a vital stage in materials' development, has too often been overlooked. The traditional excuse of lack of resources is often synonymous with a lack of interest in, and respect for, the target audience. Many programs have printed and distributed educational materials, only to find they are ignored or rejected by the population. Designers of the materials then blame the target group for their ignorance and lack of appreciation. Responsibility must legitimately be assigned to those who designed the materials and failed to take into account the needs and perceptions of the audience. Without pretesting, simple errors that could have easily been corrected can render useless months of work.

The author illustrates the importance of understanding variations in cultural perceptions. People differ radically in the way they view, and subsequently interpret visuals. Those who have long been accustomed to print materials are quickly able to understand messages from a conglomeration of symbols, photographs, and/or drawings. Those not familiar with print materials may not recognize what a photograph or drawing is trying to depict. In order to convey a message, it may be necessary to teach people to "read" drawings.

Specific recommendations for improving or assuring comprehension of visuals include: omit background detail as it can distract from the message; use positive messages as "don't do's" are difficult to portray; and keep new ideas to a minimum as too many messages can be confusing and may overwhelm the "reader."

Guidelines to the pretesting process are given in the manual in a practical and concise manner. Particular attention is given to interviewing and the training of interviewers; the use of open-ended questions is stressed, and constructive examples provided. For example, interviews beginning with the question, "What does the woman have in her hand?" assumes that the interviewee has recognized that one of the forms is a woman. Some non-leading questions are: "What do you see in the picture?" or "Do you recognize anything here?" or "What do you think this looks like?" These questions allow the person being interviewed to give a more objective response than if she or he is led into the answers that the interviewer wants to hear.

The manual outlines a three-day workshop for training health workers in pretesting, within the context of the entire materials' development process. The workshop advocates actual pretesting practice with special emphasis on applied experience in the field.

Throughout *Pretesting Communication Materials,* specific examples are shared and appropriate illustrations enhance its readability. While the illustrations are amusing and clear, the layout could be improved so as to clearly differentiate captions from the rest of the text. Dynamic cartoon figures show common mistakes made by materials' developers in the past. Mistakes will continue to be made, but anyone who uses this manual will find how she or he can identify and correct them before materials are printed.

Available free of charge from: The PSC Section, UNICEF, P.O. Box 1435, Rangoon, Burma. ■

Reviewed by Lena Steckel, an Assistant Program Officer with PIACT/PATH. She has a Master's of Public Health degree and has worked in public health education in Togo, Africa.

(**Pubs to Note** continued from page 7)

linois 61801, U.S.A. The focus is primarily on agriculture and rural development. There is a thoughtful keynote address by Emile McAnany, "From Modernization and Diffusion to Dependency and Beyond: Theory and Practice in Communication for Social Change in the 1980s," that synthesizes many of the fundamental issues in development communication. Single copies of the proceedings will be available free-of-charge while the limited supply lasts. ■

IPDC Update: Fifth Council Session Meets

Since its establishment in June 1981, the International Programme for the Development of Communication (IPDC) has been making good progress in carrying out its mandate to enhance the communications capabilities of the developing world. From May 3 to 9, 1984, members of the Intergovernmental Council of the IPDC met at Unesco headquarters in Paris, France for their fifth session. The agenda comprised an assessment of the program through a study of the financial situation, the projects submitted to the session, and the evaluation and follow up of projects.

Acknowledging the growing effectiveness of the IPDC, Director-General of Unesco, Amadou-Mahtar M'Bow, noted that the program had become operational very quickly and by the fifth session had: financed fifty-five projects from its Special Account; found funds-in-trust support for nine projects; and adopted sixteen projects to be executed when financing could be obtained. He also noted that the IPDC had established a good groundwork for cooperation with intergovernmental and non-governmental organizations. In particular, IPDC had worked with other agencies of the United Nations system in the field of communication, including the International Telecommunication Union, the Universal Postal Union, the World Health Organization and the Food and Agriculture Organization, all of which had submitted project proposals.

Gunnar Garbo, Chairman of the Intergovernmental Council of IPDC noted that the outstanding feature of this developmental phase of program development has been the confidence placed by developing countries in the IPDC as exemplified by the number of projects submitted to it. The IPDC has been able to formulate projects for the majority of least developed countries (LDCs), in keeping with the guidelines established at its second session. It has also succeeded in establishing good working relations with major regional media organizations. In addition to the Pan African News Agency (PANA), Asian News Network (ANN), Federation of Arab News Agencies (FANA), the Latin American Special Information Service Agency (ALASEI), and their collaborating national news agencies, three regional broadcasting agencies: Arab States Broadcasting Union (ASBU), Asian Broadcasting Union (ABU), and the Union of National Radio and TV Organizations of Africa (URTNA) have submitted projects to IPDC. Major regional training institutions also have submitted projects.

With the increased visibility of IPDC, there has been a concomitant rising expectation of as-

(continued on page 11, col. 1)

(**RSM** continued from page 2)

interviewers, it might have been possible to tap opinions and attitudes which respondents were reluctant to express to persons they knew to be intimately associated with *RSM's* programs. Even so, the respondents were candid and forthright enough in their criticisms so that the information they provided concerning program shortcomings was instrumental in *RSM's* efforts to upgrade the broadcast services.

Unquestionably, the entire evaluation process was lengthened as a result of using a participatory approach. As faciliators, the FSU team members could not dictate evaluation policy, much as we might have wished to do so at certain junctures! A premium was placed on our persuasive ability. The degree to which we were able really to influence the evaluation process depended on how well we were accepted by the *RSM* staff members. Personnel relations became at least as important as technical expertise in the design of the study and its execution.

Since most of the *RSM* personnel involved in the self-study had had little experience with such evaluations, it was necessary to spend considerable time explaining strategic alternatives and transferring the necessary skills. Furthermore, the study had to be scheduled around the time available to the staff members. The *RSM* staff carried heavy production loads, and many had outside responsibilities in addition to their regular work at the radio station. Scheduling of the evaluation had to be done realistically—and humanely. By using external personnel, it would have been possible to conclude the study in a much shorter time.

Participatory evaluations can be risky, particularly for outsiders. Involving the entire *RSM* staff in the self-study seemed to be the key to our not becoming involved in office politics. As facilitators, we sought to become the catalysts as opposed to the brokers of change. At times we had to make compromises that appeared to sacrifice professional standards. Occasionally, the reliability of the data was reduced in order to get information which would have greatest utility. For example, the *RSM* staff members valued qualitative as opposed to quantitative assessments, although such material was exceedingly difficult to analyze and interpret. In addition to survey items designed to elicit specific codable responses, the staff wanted to add numerous open-ended questions. They were most interested in what could be learned immediately and anecdotally about their programs.

The key method used to gather qualitative and feedback information was group discussions. It was much more difficult to train the staff members to be good moderators than it was to teach them interviewing techniques. The staff members who had teaching backgrounds tended to resort to teaching methods in the groups' discussions. Those staff people who were experienced in conducting radio interviews tended to use their interviewing techniques with individuals rather than dealing with the groups as a whole.

The facilitators urged that the discussions be structured so the results might be comparable. However, *RSM* staff members simply could not resist allowing the discussions to become free-ranging exchanges of opinion that moved across many different areas. As a result, the moderators learned a lot about their programs and the reactions of the clients to the programs, but the information was exceedingly difficult to summarize. Consequently, summaries of the information were not very satisfactory either to the facilitators or to the staff members.

A participatory evaluation, like an external evaluation, reveals shortcomings within an organization. But with self-studies, critical assessments are particularly difficult to ignore. There is always the possibility that steps may be taken to control the evaluation and hide potentially embarassing revelations. This did not occur in the *RSM* evaluation.

Some Comparisons

In comparing our involvement with this self-study to the external evaluations we previously had done, we discovered that the latter tended to be preoccupied with the results of certain activities. In the self-study, the concern was at least as much with why things were occurring and how they were occurring. In terms of improving an organization, the "why" and "how" questions may be much more significant than the "what" questions.

At the same time, it is quite possible for a self-study to be more superficial than an external evaluation, but if the staff members support the self-study sincerely and become fully involved, the evaluation can probe to depths that no external evaluation can reach. Staff members know and understand their organization in a way that outsiders never can. One of the reasons external evaluations have had limited impact historically may be that staff members can easily perceive that the evaluators do not have adequate knowledge or understanding of the organization and the environment in which it operates.

In summary, a participatory approach can provide a valuable, holistic view of a communication system; one that sheds light on what is happening, how it is happening, and even why it is happening. If the guiding purpose of the evaluation is to help improve an organization, it not only is useful, but may be essential that key personnel, and preferably the entire staff of the organization become actively involved. ■

References:

1. David C. Kinsey, *Evaluation in Nonformal Education*, Amherst, University of Massachusetts, 1975, p. 1.
2. This list of characteristics was greatly influenced by the monograph by David C. Kinsey, *Evaluation in Nonformal Education*.

Charles B. Green and John K. Mayo are members of the Center for International Studies at Florida State University's Learning Systems Institute.

Miguel E. Vargas is Professor of Education at the Universidad Adventista Dominicana in the Dominican Republic.

Call for Papers

The School of Communications at California State University, Chico will edit Issue No. 2 of *Educational Media International,* the quarterly journal of the International Council for Educational Media (ICEM). Articles are being solicited of no more than four to five thousand words on the theme of the new information technology. Manuscripts from developing country media scholars, researchers and practitioners are particularly welcome. They can be written in French, Spanish, German, or English, but must be accompanied by an English version.

Suggested topics include: the new information media in business, education, and the home; teleconferencing, satellites, microcomputer networks, and interactive video; information technologies in medicine and health; training of the new information technologists; or case studies and future scenarios for use of information technology.

The submission deadline is March 15, 1985. Submit three copies, typed and double-spaced with footnotes, bibliographic references, and notes at the end of the article. Send to: Dr. Henry Ingle, Dean, School of Communications, California State University at Chico, Chico, California 95926-0145, U.S.A. Telephone: (916) 895-4015.

Two Agricultural Policy Seminars

The University of Minnesota has scheduled two Agricultural Policy Seminars for this Spring and Summer. The first, "Agricultural Research Policy Seminar," April 15-25, 1985, will be limited to 40 senior-level agriculture officers from the U.S. and developing countries.

The second seminar, "Agricultural Policy Seminar," runs from June 10 to July 13, 1985. Agricultural policy formation and its role in social and economic development will be covered in lectures, with participants developing a policy for their home country. For more information contact: Agricultural Policy Seminars, 405 Coffey Hall, 1420 Eckles Ave., St. Paul, Minnesota 55108, U.S.A.

To Our Readers

We have included a calendar in this first issue of 1985, and hope it will be useful to you throughout the year. Our regular-length publications, including *On File at ERIC,* will resume with the Spring issue.

(IPDC continued from page 9)

sistance from developing countries which has not been adequately met due to a lack of correspondingly increased resources. This continuing gap emphasizes the need for the Council to make choices in allocating resources according to agreed criteria and priorities, rather than spreading meager resources over all requests submitted, which has been the policy in the past. The budget adopted for 1984-1985, to be met out of the Special Account of IPDC, is as follows:

Projects	US$1,888,000
Preparatory assistance	90,000
Training	150,000
Promotion	40,000
Total	US$2,168,000

Funds from this account make it possible for the IPDC to support projects of established institutions in developing countries without undue bureaucracy, complicated negotiations, and without being required to use experts and institutions of the donor country.

Progress achieved since the fourth session of the Council was presented by Mr. Gerard Bolla, the then Assistant Director-General reponsible for the Communication Sector. He also identified general trends and orientations since IPDC's establishment:

1. The rapid increase in the number of proposed projects.
2. While the earlier project proposals had been largely for the development of news agencies, both national and regional, new projects tended to take other directions, such as production of audiovisual material for educational and cultural purposes.
3. There has been a gratifying increase in projects proposed for Asia, the Pacific, and the Arab States. This redresses an earlier imbalance in which a majority of submissions came from Africa and Latin America.
4. Of the 36 countries designated as least developed, 25 are now involved in IPDC projects.
5. There was a tendency toward an expansion in the area of training: approximately 75 percent of the activities within the projects financed from the Special Account or under funds-in-trust were in the area of training.

Some ne[redacted]
Council sess[redacted]
levels inclu[redacted]

- URTNA: [redacted] and prog[redacted] global sa[redacted]
- Unesco/[redacted] gradual [redacted] ters
- WHO/U[redacted] tional n[redacted] health [redacted]

- Book publishing training course for Asia and the Pacific
- South Pacific Commission: broadcasting training and development
- Training center for the development of graphic design and pictorial art forms for multimedia development.

Some new projects approved at the national level include:

Bangladesh: development of regional newspapers
Tuvalu: broadcasting development and training
Indonesia: mass communication training center
Mongolia: national news agency
Guyana: establishment of videotape production unit
Central African Republic: rehabilitation of radio and TV capability
Sudan: development of the Mass Communication Training Centre
Angola: development of the broadcasting center of the Angolan News Agency.

Also presented were the parameters of a feasibility study on establishing a database on international cooperation in communication development as requested at the fourth Council session. It was recommended that a three-tier operation be established at IPDC linking it with the main frame computer of Unesco; with databases in the United Nations family; with other data banks; and sell services of IPDC's database. It was decided that a feasibility study should be commissioned using the above objectives as a guideline.

With the imminent withdrawal of the United States from Unesco, which prevents further participation in any of its related functions, an element of uncertainty was present at this session. However, the delegate of the United States reaffirmed his country's faith in the IPDC and "pledged to explore all channels to help the Council achieve its great potential." ■

BEST AVAILABLE COPY

Four-Month Course on Distance Teaching

Since 1977 the International Extension Col[redacted]t of Education in [redacted]niversity of Lon[redacted]LIE) have jointly [redacted]istance teaching, [redacted] World countries. [redacted]ered and is sched[redacted]gh July 26, 1985. [redacted]ails can be [redacted]ry, Dept. [redacted], Univer[redacted] 20 Bed[redacted]nd. Tele[redacted]

Training African Communicators:

A Message to Media Trainers

Two publications recently coming out of Africa contained similar messages: African communicators need more and better training relevant to the needs of their people—with particular focus on the rural nature of the populations and economies of all African countries. One publication resulted from workshops funded by the International Programme for the Development of Communication. (See the related IPDC article in this issue.) Two workshops were held during the past 15 months to bring together African media trainers and practitioners. Both were organized by the African Council on Communication Education (ACCE). One was held in Nairobi, Kenya from October 8-16 and a second in Dakar, Senegal from Dec. 12-17, 1983.

At one of the workshops David Barry, Director of the Inter-African Centre of Studies on Rural Radio (CIERR), Burkina Faso, spoke of the need for a new type of communicator—a rural journalist who would better reflect and be knowledgeable about the habits, tastes, needs, and aspirations of the rural populations of his country. He offered a brief sketch of the ideal rural communicator for African countries: "a field person, fully cognizant of the realities of the rural world and capable of utilizing its language to disseminate and propagate specially designed development messages."

Retrain Journalists

The second publication is a paper given by E.O. Soola of the Department of Mass Communication at the Polytechnic, Ibadan, Nigeria. It was presented to the Bayero University Conference on Communication in May 1984. In it, he too called for training of development communicators. Soola said this would require a "reconditioning of the journalist if he is to change his current urban-oriented posture and apathy to the realities of (the) human condition in rural areas. The journalist must be trained to understand as well as appreciate the material conditions of the people . . . . to qualify him for attention and acceptance as an agent of change and development in the community."

A copy of the report on the two workshops held for African communicators entitled: "The New World Information and Communication Order—Implications for Africa," is available from the African Council on Communication Education, P.O. Box 47495, Nairobi, Kenya. For copies of E.O. Soola's paper, "Communication Policy and National Planning—An Agenda for the 80s," write to E.O. Soola, Department of Mass Communication, The Polytechnic, Ibadan, Nigeria. ■

BEST AVAILABLE COPY

Improving Worldwide Telecommunications: The Maitland Commission Report

The Independent Commission for Worldwide Telecommunications Development, better known as the Maitland Commission for its Chairman, Sir Donald Maitland, former British Ambassador to Libya, recently released its report after a year of research and meetings. Established in May 1983 by the International Telecommunication Union (ITU), the Commission's mandate was to determine the best ways to stimulate the expansion of telecommunications in developing countries, particularly through expanded public telephone service. Rather than authorize further research, the commission decided the most important thing was to propose ways to reduce constraints on the introduction and expansion of telephone systems.

According to the Executive Summary of the report, "While telecommunications is taken for granted as a key factor in economic, commercial, social and cultural activity in industrialized countries and essential to growth, in most developing countries the telecommunications system is not adequate even to sustain essential services." With the Commission's goal, ". . . .that by early in the next century virtually the whole of mankind should be brought within easy reach of a telephone," their recommendations establish guidelines for developing countries and assistance organizations to help reach that goal. Among the 23 recommendations were the following:

- The ITU, assisted by the manufacturers of telecommunications equipment, should consider compiling a comprehensive catalogue of telecommunications suppliers and systems currently in use to help countries choose appropriate technology.
- Developing countries should consider pooling their purchases of equipment, including terminals and components.
- When purchasing equipment, countries should ensure that contracts include commitments for the supply of spare parts, training, ordering, post installation, and maintenance.
- The manufacture of appropriate equipment in developing countries should be encouraged, and cooperative manufacturing efforts at the regional or sub-regional level also should be promoted.
- A Center for Telecommunications Development should be established by the ITU during 1985. Its mandate would be to analyze data on policies and experiences from around the world, to organize teams of specialists to offer advice to developing countries on creating and operating an effective public network, and provide assistance with specific projects.
- Telecommunications operators in developing countries should review training needs and resources, and prepare systematic training plans, using the resources available through the International Programme for the Development of Communication (IPDC) to update those needs.
- Major regional and sub-regional political and economic organizations should consider how research and development institutes might be established in developing countries.
- Developing countries, proposed R&D institutes should serve as a source of higher technological, supervisory and managerial training.
- Developing countries should review their development plans to ensure that sufficient priority is being given to investment in telecommunications.
- In order to immediately increase the flow of resources, involved countries and international agencies should give higher priority to telecommunications. Specific provision should be made for appropriate telecommunications facilities in every development assistance project.
- Proposals should be studied by members of the ITU, in collaboration with international finance agencies, to establish a revolving fund and telecommunications investment trusts as methods of raising funds for investment in telecommunications. ■

KIDSNET to Computerize Information on Children's Radio and Television

The National Foundation for the Improvement of Education, a U.S.-based organization created by the National Education Association recently initiated KIDSNET, a computerized database and clearinghouse. After an initial research and development phase of 18 months, KIDSNET will collect and disseminate information on children's radio and television programming available for schools, libraries, hospitals, museums and homes in audio and video formats. KIDSNET Executive Director, Karen Jaffe, hopes to link its users in a worldwide network concerned with innovative teaching and learning facilitated by instructional and commercial radio and television.

After 1985, KIDSNET will expand its services to the international marketplace, disseminating information on American programs and collecting information on programs from other countries. There is also a multitude of research and resources on the subject of children's radio and television which can be shared among countries.

Current financial support is being provided by foundations, but KIDSNET hopes to become self-sustaining through subscriber fees. For more information, contact Karen Jaffee, KIDSNET, 1201 16th Street, N.W., Washington, D.C. 20036, U.S.A. (202) 466-4252.

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
and Resource Center Manager
Kathleen Moran, Editor
Arlene Horowitz, Program Associate
Robert Vittel, Information Assistant
ISSN 0192-1312

AED
International Division
Academy for Educational Development

BEST AVAILABLE COPY

NEW YORK N.Y.
NON PROFIT ORG
U.S. POSTAGE
PAID
NEW YORK, N.Y.
PERMIT 001

Co
V. [redacted] ication;
T

development communication report

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

Spring 1985
No. 49

Longtime readers of DCR *will remember that the Clearinghouse was brought into being (as the Information Center on Instructional Technology) to assist the Office of Education of AID's Bureau for Science and Technology to disseminate information about the uses of communication technologies in formal education. While this initial focus has broadened to encompass many kinds of education, the Office of Education has continued to be a pace-setter in testing and validating the promise of educational technologies to improve the quality of education of rural school children throughout the developing world. Specifically, this has meant the adaptation of the theories of instructional design to radio, in increasingly complex subject areas, for primary curricula.*

In an attempt to bring our readers up to date with these developments, we have worked with the staff of the Office of Education to present a state-of-the-art review of what we are calling "interactive radio" for instruction. Evaluation results are coming in on two current interactive radio projects, and a new project, Radio Science, will be getting underway this year. The methodology and design of these projects is innovative and dynamic, and the successes they have realized should be considered by all who are concerned with providing equitable universal education.

Interactive Radio and Educational Development: an Overview

by Clifford H. Block

Instructional radio has been "reinvented," and now stands ready to serve as a powerful new tool for educational development. Today, it holds promise for alleviating some of the most pressing problems faced by educators throughout the world. Radio instruction can now, with assurance, be used to rapidly improve teaching quality, to increase educational access, and to introduce new subject matter.

This issue of *Development Communication Report* focuses on a decade of educational research, development, and evaluation of "interactive radio instruction;" a set of methods that is a major source of the revitalization of educational radio. When used with these methods, radio education is active, absorbing, and effective. The interactive radio approach has shown major student gains in nations as diverse as Kenya, Nicaragua, and Thailand, and in subjects as different as language and mathematics. A "community school" model is also in operation, in the Dominican Republic, teaching students late in their work day with radio classes organized by community aides.

This powerful new instructional tool is becoming available at a time when the search for improvement in primary education is gaining increased attention. While the developing nations have made enormous quantitative strides in providing educational access in the last two decades, both quality and efficiency have suffered. Failure, repetition, and dropout rates are astonishingly high, and most children fail to move beyond the first two or three grades. The skills of those who do go through the entire primary cycle are often below desired norms. And with population growth continuing, the prospects for improvement using conventional educational means are grim—in fact, educational conditions could well decline further.

The vigorous, systematic use of instructional radio now holds promise for breaking out of this cycle of decline. With this purpose in mind, the U.S. Agency for International Development (A.I.D.) started their program of develop-

(continued on page 10)

A Model for Interactive Radio Lessons: The Radio Mathematics Project

by Jamesine Friend

The Radio Mathematics Project was a highly experimental project designed to investigate the feasibility of using radio as a medium of instruction in the teaching of elementary school mathematics. The project, located in Nicaragua from mid-1974 to early 1979, was carried out by Stanford University under contract to the U.S. Agency for International Development. During its life, the project developed mathematics lessons for the first four years of elementary school. These lessons—daily radio broadcasts plus postbroadcast activities conducted by the classroom teachers—proved to be extremely successful in improving the students' mathematics achievement. Furthermore, the cost of widescale implementation of the materials was estimated to be well within Nicaragua's budget.

Radio Math's success can be attributed largely to the innovative style of the broadcast lessons, a style characterized as "interactive" in recognition of its mimicry of a conversation between students and teacher. The interactive lesson style is easily adapted to the teaching of many other subjects, and has been used, with minor modifications, to teach English as a second language (see the Radio Language Arts Project article in this issue), and initial reading (see the Radio-assisted Community Basic Education Project article in this issue). In all these settings, the lessons provide daily instruction, and are intended to *replace* rather than supplement existing instruction in the subject matter.

(continued on page 2)

In this issue . . .

Interactive Radio Overview 1
Radio Mathematics Model Project 1
Radio Language Arts Project 3
RADECO 5
On File at ERIC 5
Radio Science 7
Communicator's Checklist 8
Radio Project Evaluations 11
Interactive Radio Cost Estimates 12
The Fourth R–(Interactive) Radio . . . 13
Radio Math in Thailand 16

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(**Radio Math** *continued from page 1)*

Lesson Style

Each lesson consists of two parts, a broadcast part and a nonbroadcast part conducted by the classroom teacher. These two are complementary, with content divided so as to take best advantage of strengths and weaknesses of both radio and classroom teachers.

The broadcast portion of the lesson carries the major burden of instruction, so that the lessons are successful even in classrooms where the teacher cannot fully support the radio-based instruction. The nonbroadcast activities are similar to what teachers are accustomed to using. In many schools in developing countries, teachers are overburdened; they may have far too many students, or they may have students in several grades. Furthermore, in many countries, there are not enough credentialed teachers, and even they may be poorly trained. For these reasons, teachers cannot consistently contribute to radio-based instruction in classrooms, and the success of these lessons will depend upon how well the radio can teach with less than optimal support.

The Radio Lessons

The interactive radio lessons are designed to provide direct instruction to the students. The radio teachers (usually two or three) explain concepts, provide examples, and guide the students in the completion of exercises. Instruction is done more by examples than by verbal explanations. Instruction has the flavor of guided discovery. Vocabulary is highly controlled so that explanations and examples are phrased in language suitable for the children's level of development. Technical vocabulary is used sparingly, and only after the concept to which it refers is well understood. Sentences are short and conversational, as befits an oral medium. Most of the time the actors speak directly to the children in the classroom, assuming the roles of teachers. Outside of short interludes of dramatization, the action takes place in what is presumably a classroom.

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 5,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words.

Most of the instruction is oral. Worksheets are sometimes used to supplement the lessons, but only to provide practice exercises, not to provide printed explanations. In the mathematics lessons, worksheets are used only in the first grade; in second, third, and fourth grades, students copy exercises into inexpensive exercise books. In the Radio Language Arts lessons and in the Radio-assisted Community Basic Education reading lessons, worksheets are used at all levels, because the subject material cannot be taught well without using printed material. Other supplementary materials, besides worksheets, are used sparingly. In the mathematics lessons for second grade, twelve small posters were prepared but otherwise only bottle caps, seeds, and stones were used as counting devices. There are two reasons for restricting the amount of supplementary teaching materials. One is that the *cost* of such materials may be quite high; daily, nonreusable worksheets can double the recurrent cost of using radio-assisted instruction. The second reason is related to *logistics;* delivering such materials to isolated schools is difficult in countries where communication and delivery systems are not well developed.

Teachers are not asked to spend much time or any money in the production or acquisition of materials. Other projects sometimes require these commitments from teachers. This may work for small-scale projects in which a great effort is made to promote teacher interest and participation, but it is unlikely to work on a large scale.

Active Student Participation

The students listening to the radio lessons are expected to participate actively, responding aloud to oral questions, circling pictures on their worksheets, writing in their notebooks, reading numbers from the blackboard, counting seeds or sticks, and so on. Appropriate pauses are provided for student responses so that students can complete their exercises as the radio lesson is going on. These student responses are frequent—one every 20 or 30 seconds—and are the most noticeable characteristic of interactive lessons. Indeed, we call this radio application "interactive" precisely because of these frequent responses that give the radio lesson the appearance of a rapid-fire dialogue between radio and the students.

After every student response, the radio gives the correct response so that the children can immediately compare their own responses with the correct one. This is an adaptation, for radio, of the principle that immediate reinforcement of responses promotes greater learning. Since radio is a mass medium, reinforcement cannot be individualized, so instead of the classroom teacher telling each student whether or not his/her response is correct, the answer is simply announced and the decision about correctness is left to the student. This adaptation of the immediate-reinforcement principle to group use was designed by the Radio Mathematics Project after several months of experimentation with various ways of handling reinforcement.

Interactive radio students are intensely involved in each broadcast lesson. Although each exercise in each lesson follows a fairly stereotyped form, the children do not become bored, partly because of this intense involvement, and partly because there are frequent changes of topic.

In the Radio Math lessons, as many as a dozen topics might be touched upon in any 30-minute session, with only two to three minutes of instruction in each topic. This "segmented structure" is not simply to prevent boredom or to accommodate the short attention span of young children; it applies an important pedagogical principle: distributed practice leads to greater long-term retention than does massed practice. If the total instructional time to be devoted to a specific teaching objective is 30 minutes, the most effective use of that time is in three-minute segments taught on ten different days, rather than in a single 30-minute lesson. Distributed practice is particularly suited to the teaching of "skill" subjects like arithmetic and reading.

Instructional Design

Segmented structure is characteristic of the radio lessons used in all three projects mentioned. It was originally an adaptation of the format used by the "Sesame Street" television program, though with some important differences. Because of the students' age and their lack of exposure to children's programs, it was not necessary to carefully integrate an element of entertainment into the radio lessons. Although the radio lessons include elements that are clearly for motivation or diversion, they are generally not integrated into the instructional segments. Nevertheless, it was found that some diversionary activities provided a few minutes of respite for the students from the intense mental effort required during the instructional segments. Songs and physical activities were found to be the most successful forms of diversion for them. Activities such as jokes, riddles, stories, or music for listening are unnecessary because the children find sufficient motivation in the high degree of participation required by these lessons.

Research-based Lessons

Radio Math's lessons are reinforced by rigorous research to validate their teaching effectiveness. Before being broadcast, the scripts and tapes are reviewed and revised by project producers. After a lesson is broadcast, a random subset of children are tested about specific results intended from the lesson's segments. If achievement is substandard, the faulty segment is redone and broadcast in its improved form some weeks later. This on-going formative evaluation is a basic, innovative characteristic of this radio model; validating the overall series of radio lessons as an effective teaching tool.

(continued on page 14)

The Radio Language Arts Project: Adapting the Radio Mathematics Model

by Philip R. Christensen

In 1979, the U.S. Agency for International Development approved a direct follow-up to the Nicaraguan Radio Math Project for the purpose of applying and adapting the findings to a different subject area—reading/language arts, and a different region—Africa. The result was the Radio Language Arts Project (RLAP) in Kenya, which was directed by the Academy for Educational Development in cooperation with the Kenya Institute of Education. Running from 1980 through 1985, the project's specific goal has been to teach English to rural Kenyan school children in standards (grades) one to three using an intensive, radio-based instructional system. Daily, half-hour radio lessons are broadcast throughout each school year, supported by the classroom teacher and limited print materials. They help children acquire the speaking, listening, reading, and writing skills necessary to function in a school system where all subjects are taught in English after standard three.

The project's broader goal has been to test the feasibility of adapting Radio Math's instructional system design principles to a new subject area. These principles can be divided into three main categories. First, project staff implement the curriculum methodically through systematic planning, distributed learning, and cyclical instruction. Second, they make effective use of the radio medium with techniques such as intensive broadcasting, interactive learning, immediate reinforcement, an engaging instructional pace, and maximizing the time devoted to the task. Third, they use other instructional modes to complement the radio, including the classroom teacher, printed materials, and readily available props.

Adaptation Challenges

Both mathematics and English depend on children learning to apply a complex set of formal rules to a variety of situations. Mathematics, however, is more predictable than language. In part, this is because linguistic rules and their application tend to be less regular than their mathematical counterparts. Furthermore, language is a combinational skill. A finite set of rules govern how to join elements on two levels—form and meaning—to produce an unlimited number of sentences.

The RLAP team first confronted this difference when preparing the instructional design document known as the scheme of work. We took far longer than expected to complete the first year's scheme because it was so difficult to articulate a language curriculum with the precision necessary for an effective, media-based instructional system. One problem is that English cannot be organized into the neat hierarchy of categories used by Radio Math. Another problem is that language's open-ended nature means that specifying a detailed objective for each linguistic behavior, would require an encyclopedia-length volume.

Instructional Design Decisions

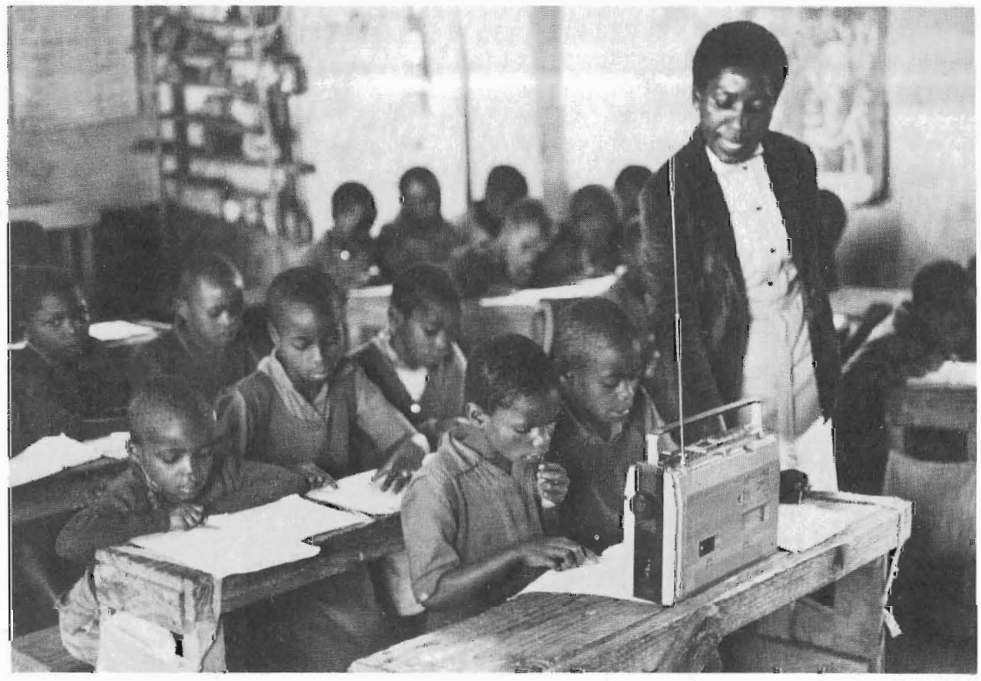
We finally chose an instructional design that divided the syllabus' content into units called frames. Each frame represents approximately one week's instructional activities, organized around linguistic functions and notions (for example, personal emotions). For each of the four language skill areas (speaking, listening, reading, and writing), the frame specifies the necessary grammatical structures and suggests relevant words from the year's required vocabulary. (A separate record-keeping system tracks the use of vocabulary items in each lesson, identifying those that have been mastered and those requiring more work.) Rather than behavioral objectives, the frame uses competencies that describe expected student performance in open-ended terms. Finally, the frame suggests a setting that writers can employ as a vehicle for using the specified language.

Immediate reinforcement is another important instructional design principle we called upon. In our first year of radio English lessons, we provided immediate reinforcement similar to the Radio Math approach in which students respond to a question, and the radio teacher immediately follows with the correct response. It is for the student to determine whether or not his or her answer was correct. By the middle of standard two, however, we began to encounter difficulties in situations where more than one answer was admissible. In such cases, we chose to have the radio reinforce the children with at least one correct answer, and sometimes two or three alternatives. In actual practice, we found that children who responded incorrectly the first time did use the radio's model to correct themselves. Children who had given a different variation of the correct answer, however, often had learned the relevant rules and maintained their response choice regardless of the radio's alternative suggestion.

A related difficulty arose as we moved into standard three. By this point in the curriculum, children had to produce more complex and lengthy language. The basic format for oral interaction between the radio and the children began to lose its utility. What works well for simple questions and answers is less successful when the students may take 20 or 30 seconds to produce any one of a large variety of reasonable responses. We tried to minimize these situations during the broadcast lessons, directing teachers to have children practice more complicated interaction during the postbroadcast lessons.

Still another challenge was defining the accepted regional standard for pronunciation and grammar. In Kenya, students are learning a colonial language that retains its importance only in certain settings, such as schools. British English was the accepted school standard prior to independence, and each ethnic group in the country has adopted somewhat different English usage. We therefore selected British English as our standard for correct grammar and spelling. The English spoken by educated Kenyans (represented by our studio actors and Kenyan professional staff) became the standard for pronunciation. This approach admits substantial vari-

(continued on page 4)



The teacher assists students as they listen to, and work along with, the radio English instruction broadcasts in a RLAP classroom in Kenya. Photo courtesy of Philip A.S. Sedlak.

(**RLAP** *continued from page 3*)

ation into the language model we present to children, but the variation corresponds to the reality of Kenyan English.

There are, of course, other differences between mathematics and language besides regularity. Although both subjects are rule-based, students learn the rules in very different ways. Mathematics instruction generally explains the rules explicitly for children to apply in drill and practice. In English, children usually infer the rules (and their numerous exceptions) from exposure to the language itself, mastering the pieces of the entire matrix by a process of successive approximations. They learn to speak by speaking, to read by reading. Acquisition and practice blend together.

Teaching English in English

Another unique aspect of teaching a language by radio is that the subject matter is also the means of communication. In Nicaragua, the mathematics lessons were produced in the children's first language, Spanish. In Kenya, with over 40 vernacular languages, it would be impossible to produce mother-tongue versions for every lesson. From the very first RLAP broadcast then, children learned English in English, with occasional translation help from the teacher.

Among other implications, this places severe constraints on instructional design. What the writers can say and how they can say it must not exceed the bounds of the children's English abilities. For this reason, first-year RLAP programs seem simpler and, perhaps, less sophisticated than the early Radio Math lessons. On the other hand, teaching English in English means that lesson planners can control the quality of language modeled for the children, exposing students to good examples while they are learning.

Involving the Teacher

One of the most important modifications to the Radio Math model, dictated by many of these differences across subject areas, concerns the role of the teacher. While both Radio Math and Radio Language Arts have the teacher lead postbroadcast classes using prepared lesson plans, Radio Math tried to reduce the teacher's responsibilities during the broadcast to turning on the radio and carrying out certain specified activities.

While Radio Language Arts teachers also must perform management activities, they play an important instructional role during the radio English lessons. First, they provide mother-tongue translation when it is impossible for the radio to communicate something important purely in English. Second, they correct children when the radio cannot (after writing exercises, for example).

Another significant difference between Radio Math and Radio Language Arts involves the use of printed materials. After standard one, the Radio Math system used no printed materials for students. It depended only on teachers' notes and a few classroom posters. The radio English lessons, on the other hand, depend increasingly on printed materials as they move from standard one to standard three. This is necessary because children cannot learn to read without having something to read.

Rather than making the questionable assumption that adequate textbooks will be available in every classroom, we developed special RLAP worksheets. Brief, very simple in design, and requiring no color printing, they will be bound into reusable student booklets and distributed to schools that use the radio method. The cost of printing and distributing these materials is far less than the cost of textbooks.

In these ways and others, the Radio Language Arts Project has built a new structure on the foundation laid by Radio Math. The results of its efforts to teach English by radio are very encouraging, showing significant gains in speaking, listening, and reading skills as well as strikingly high levels of satisfaction from school staff and parents. Two independent evaluations carried out for the Kenya Ministry of Education, Science and Technology have confirmed these findings and recommended that the RLAP method be adopted throughout Kenya. The Kenya Institute of Education already has begun the review process necessary for national implementation of this instructional system.

The Radio Math and Radio Language Arts Projects have created innovative systems for teaching two important components of the primary school curriculum. Furthermore, the RLAP has proven that the success of mathematics by radio can be transferred to other subject areas. It is now quite reasonable to predict that, with creative and thoughtful application of the instructional design principles validated by these two projects, other subject areas, other grade levels, and other countries can benefit from intensive radio-based instructional systems. ■

Philip Christensen is the Field Coordinator for the RLAP in Kenya. He has also worked as an instructional systems designer for many years.

Video Applications for WID

Overseas Education Fund (OEF) International is seeking information on all types of uses of video (skills diagnosis, training, motivation) in Third World development projects. These examples will be presented for discussion at special workshops to be conducted by OEF and selected Third World women at the Nongovernment Organization (NGO) Forum, concurrent with the United Nations Conference on Women in Nairobi, Kenya, July 1985. Please send any information and descriptions of such uses of video to: Deborah Ziska, OEF International, 2101 L Street, N.W. #916, Washington, D.C. 20037, USA or call: 202/466-3430.

OEF International is a 40-year old private, non-profit organization whose training and technical assistance programs focus on enabling low-income women in developing countries to earn income, increase crop production, and organize for community development.

"Information is the only resource which grows richer when it is shared."

Selected Bibliography on Instructional Radio

Friend, Jamesine, Searle, Barbara, and Suppes, Patrick. *Radio Mathematics in Nicaragua*. California: Stanford University Press, 1980.

Hancock, Alan. *Planning for Educational Mass Media*. New York: Longman, Inc., 1977.

Jamison, Dean T., and McAnany, Emile G. *Radio for Education and Development*. California: SAGE, 1978.

Jamison, Dean T., Klees, Steve J., and Wells, Stuart J. *The Cost of Educational Media: Guidelines for Planning and Evaluation*. California: SAGE, 1978.

La Radio Educativa. *CHASQUI: Revista Latinoamericana de Communication (Latin American Journal of Communication)*. No. 10, April-June 1984.

Mayo, John K., and Hornik, Robert C. "Evaluation and research in the planning, development and support of media-based education." *Final report of an IIEP workshop*. Paris: UNESCO, 1980.

McAnany, Emile G. and Mayo, John K. *Communication Media in Education for Low-Income Countries: Implications for Planning*. Paris: UNESCO, 1980.

Perraton, Hilary, ed. *Alternative Routes to Formal Education: Distance Teaching for School Equivalency*. Maryland: The Johns Hopkins University Press, 1982.

Schramm, Wilbur. *Big Media Little Media: Tools and Technologies for Instruction*. California: SAGE, 1977.

Searle, Barbara, Friend, Jamesine, and Suppes, Patrick. *The Radio Mathematics Project: Nicaragua 1974-1975*. California: Stanford University, 1976.

Suppes, Patrick, Searle, Barbara, and Friend, Jamesine. *The Radio Mathematics Project: Nicaragua 1976-1977*. California: Stanford University, 1978.

Wells, Stuart. *Instructional Technology in Developing Countries: Decision-Making Process in Education*. New York: Praeger Publishers, 1976.

Young, Michael, Perraton, Hilary, Jenkins, Janet, and Dodds, Tony. *Distance Teaching for the Third World: The Lion and the Clockwork Mouse*. London: Routledge & Kegan Paul Ltd., 1980.

Teaching Where There Are No Schools

by John F. Helwig and Jamesine Friend

In remote villages of the southwestern region of the Dominican Republic, children are receiving basic primary education by radio. The region is one with few qualified teachers and even fewer school buildings. The Radio-assisted Community Basic Education (RADECO) project aims to demonstrate that radio is an effective medium for instruction of children, and that it is cost effective.

The use of radio to reinforce and improve classroom teaching at the primary level has been tried and proven in radio education projects in Nicaragua and Kenya. In Nicaragua, mathematics lessons were developed and taught by radio to students attending regular primary school classrooms. In Kenya, where English is the language of instruction in all schools from the fourth grade through the university level, the radio English lessons are designed to help students develop a sound grasp of the English language. Both projects sought to demonstrate the educational and cost effectiveness of radio as a medium of instruction.

RADECO takes the experience of these two projects one step further: the basic curricula of grades one through four is taught exclusively by radio to children in rural areas where there are not yet formal schools. The project began in 1982, and is financed by the U.S. Agency for International Development. InterAmerica Research Associates provides project management and supervision, and the Dominican Secretariat of Education (SEEBAC) provides local staff.

Project promoter/supervisors assist in organizing an association of parents with children from seven to 14 years of age. The association makes available a "school"—usually a thatched-roof hut—and supplies batteries for the radio. A literate villager who has from six to nine grades of formal education, is recruited by the parents' association. This *radio auxiliar* is placed in charge of the RADECO "school". The community parents' association gives the *auxiliar* a small monthly stipend drawing from funds provided for this purpose by RADECO.

Each classroom is supplied with a radio, a small blackboard, and a limited supply of chalk and pencils. Each student is given a plywood clipboard to use as a portable desk. The language text is designed to fit on one-half of the clipboard and lies over the right page of the exercise book. In this way, children can more easily keep their lesson materials together in a crowded and often windswept classroom environment.

The success of interactive radio education, whether it is used to assist classroom teachers or as a substitute for classroom teachers, can be attributed largely to the innovative style of the broadcast lessons. The lessons are designed to provide direct instruction to the students, while at the same time requiring them to respond orally to questions, or write answers, or solve problems on a worksheet.

The Curriculum

There are four phases of activity in the RADECO project: script writing, radio production, evaluation, and supervision (or outreach). The curriculum is developed and lessons are written and then recorded for broadcast. Each daily radio lesson is one hour long and is divided into approximately one-half hour of mathematics and one-half hour of language. Social and general science subject matter is woven into these lessons as well. The mathematics lessons are based on those developed by the Nicaragua Radio Mathematics Project, which have been adapted to the official Dominican curriculum and adjusted for cultural and linguistic variations. Language used in the southwest region of the Dominican Republic, children's books, and the official curriculum were all carefully analyzed and used to develop this master plan.

Scripts are written to use two or more actor/teachers. Dialogues between the actors are developed to explain concepts, provide examples, and guide the students in the completion of exercises. Sentences are short and conversational, and designed to invoke interaction. Most of the utterances are directed to the children, although for didactic purposes, there may be occasional comments between the radio actors.

The radio lessons are based on the guided discovery method. Because examples are used to convey general principles, and students actively participate even in illustrative examples, the lessons sometimes convey the impression that they are comprised entirely of drill-and-practice material with no explanations. To the contrary, exercises are carefully planned sequences of examples designed to lead students to deduce the principles involved.

Worksheets are provided to supplement the lessons or are used as practice sheets. In the mathematics lessons, worksheets are only used at the first-grade level. Children must copy exercises into their own notebooks at the second- through fourth-grade levels. Worksheets are used with the language lessons at the first-grade level, but a text is being prepared for the second-, third- and fourth-grade levels. When it is completed, it is expected that two children will share a text. Each page will contain the material for one daily lesson. The student will do the required written work in his or her own notebook.

Students are expected to participate in the radio lessons by responding aloud to the radio teacher's questions or by following commands. They are expected to respond quickly and often—a total of 60 to 90 responses per 30-

(continued on page 12)

On File at ERIC

Recent entries in the ERIC (Educational Resources Information Center) files concerned with educational radio include two reports on teaching English by radio in Kenya, an evaluation of a two-way radio project in Australia, a manual for planning radio campaigns, and a guide for evaluating broadcast radio and television educational programs. All five are available on microfiche and in paper copy from the ERIC Document Reproduction Service (EDRS), P.O. Box 190, Arlington, Virginia 22210, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping.

- Onganga, Obiero O. *An Evaluation of the Effectiveness of Radio Programmes in Teaching English Language to Class Six Pupils in Primary Schools in South Nyanza-Kenya. African Studies in Curriculum Development & Evaluation, No. 46.* 1982. 81pp. (ED 235 788)

(This evaluation did not encompass the Radio Language Arts Project in Kenya referred to elsewhere in this issue)

The effectiveness and efficiency of Kenyan educational radio programs for teaching English in standard 6 classes were assessed in a research project which was undertaken as part of a training program jointly organized by the African Curriculum Organization, the Kenya Institute of Education, the University of Nairobi, and the German Agency for Technical Cooperation. Additional study objectives were to determine the extent of radio program use and to examine the problems associated with such use. Teachers of standard 6 classes in 50 schools in the South Nyanza District who used the English language programs were asked to participate by responding to a questionnaire, and by being observed during the presentation of a radio lesson. Data were gathered on such items as content coverage, relevance to pupil workbook, language level, enjoyment and interest, radio reception, dialog quality, support materials, distribution of audio equipment, and the classroom teacher's part in the program presentation. Results indicate that classroom teachers leave the majority of teaching to the radio teacher, when they should be creating an environment to help students use radio instruction effectively and developing their own supplementary materials. It is recommended that programs be designed to stimulate exploratory and critical attitudes and to suggest projects. Appendices include the questionnaire for teachers and the researcher's evaluation scheme, as well as sample exercises for use with radio lessons. Available from EDRS in microfiche for 97¢ or in paper copy for $7.40.

- Imhoof, Maurice and others. *English by Radio: Implications for Non-Formal Language Education. Occasional Paper #12.* 1984. 49pp. (ED 243 470)

A five-year research and development program, known as the Radio Language Arts Proj-

(continued on page 6)

(**ERIC** *continued from page 5)*

ect (RLAP), was conducted in Kenya to develop, implement, and test the effectiveness of an instructional system that uses radio to teach English as a foreign language in the first three grades of primary school. The initial project year was spent in establishing and field testing the RLAP program. Beginning in 1982, daily 30-minute English lessons were broadcast to grade 1 students in 31 project schools located in seven districts. Grade 2 lessons were broadcast to the same group of children in 1983, and grade 3 lessons in 1984. Radio was the major medium of instruction, but teachers had an important role during the broadcasts, as well as in pre-and postbroadcast activities. Based on initial results from a standard achievement test and on results from a questionnaire distributed to teachers and headmasters after the first year of broadcasting, it was found that students showed substantial achievement gains and that the program was very well received by school personnel. This report discusses the use of instructional radio in various Third World countries. It also describes the effectiveness of radio in classroom language teaching, using RLAP as a case study, and suggests some implications of the RLAP instructional radio methodology for nonformal language education. An 11-item bibliography and background information on the authors are provided. Available from EDRS in microfiche for 97¢ or in paper copy for $3.90.

- Conboy, Ian. *Two-Way Radio in Schools (or, The Loneliness of the Long Distance Learner). An Evaluation of a High Frequency Short Wave, Two-Way Radio Trial.* 1983. 97pp. (ED 238 634)

The Country Education Project in Victoria, Australia, tested the use of two-way radios to bring educational resources to isolated children studying correspondence courses in small rural high schools and to increase interaction among rural schools. Eight rural Victoria schools and the Secondary Correspondence School in Melbourne used two-way, high-frequency short wave radio transceivers for 18 months. Data were collected from log books, observation, interviews, and questionnaires completed by 11 rural teachers, 22 Correspondence School teacher/supervisors, and 38 students. The Correspondence School teachers used the system an average of 25 to 30 times per month for curriculum meetings and tutorial sessions averaging 15 to 30 minutes in length. The subjects taught most frequently by radio were French, legal studies, art, politics, and Italian. Students used the system for formal subject meetings and for informal socializing. Rural teachers sometimes used the radio for meetings with neighboring schools. All users were enthusiastic about the radio system and felt it improved subject understanding. Although it increased their workload, teachers felt the system allowed more in-depth treatment of some subjects and better motivation, and diagnostic and remedial work. Respondents noted problems with reception, scheduling, and the lack of accompanying visual information, but most participating schools have purchased the cost effective equipment. Available from EDRS in microfiche for 97¢ or in paper copy for $7.40.

- Crowley, David and others. *Radio Learning Group Manual. How to Run a Radio Learning Campaign. 2nd and Revised Edition.* 1981. 187pp. (ED 237 282)

The Third World countries of Botswana and Tanzania have used Radio Learning Group (RLG) campaigns effectively to get a limited amount of important information to a very large group of people at the same time. During campaigns voluntary participants, who are organized in groups of five to 20, meet twice a week for about five weeks to listen to radio broadcasts about topics of national importance, and to study supporting printed materials with the aid of a group leader. The group feeds questions and comments back to the government. Intended for organizers, teachers, administrators, and students of adult education, this manual explains in detail the ten steps of organizing a campaign; the development of materials coordinated to the radio broadcasts; the field work essential to a successful RLG campaign; the training necessary for personnel at the national, district and town, village and ward, and group leader levels; and the evaluation of the campaign. Short sections provide suggestions for starting with experiments and pilot programs, following up with action, and consulting about the projects. Appendices include examples and flow charts from RLG campaigns in Botswana and a brief bibliography. Small black and white cartoon characters guide the user through the manual. Available from EDRS in microfiche for 97¢ or in paper copy for $14.40.

- Smith, James A. *A Guide for Evaluation of Broadcast Radio and Television in the Delivery of Informal Education: A Graduate Project.* 1982. 75pp. (ED 243 448)

This guide focuses on appropriate techniques for the evaluation of electronic media educational programs. Such evaluation helps to provide the educator with the feedback that is missing whenever there is no direct contact with students, and also with information on the relative worth of an educational program. This four-part guide prepared as a graduate project at the University of Alaska includes: (1) a statement of purpose and a description of radio and television as educational delivery systems with emphasis on their use in programs for farmers by the Cooperative Extension Service in the United States; (2) a brief review of evaluation systems as applied to education, with a discussion of some of the evaluation models that may be applied to electronic media educational delivery, and a recap of several evaluations of educational television; (3) a practical approach to the evaluation of electronic media delivery of extension programs with a detailed discussion of each of the phases of evaluation, plus a section on implementing the evaluation; and (4) a summary of evaluation as applied to electronic media with a checklist to serve as a guide to the evaluator. Appendices contain sample forms and examples of evaluation reports. Thirty-six references are listed. Available from EDRS in microfiche for 97¢ or in paper copy for $5.65.■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210 USA.

Rural Communication Award

The International Programme for the Development of Communication (IPDC) recently announced the award of the first US$20,000 IPDC-Unesco Prize for Rural Communication to the Kheda Project, a rural television project in India. The project provided 400 villages in the Kheda district with equipment enabling villagers to produce programs on local issues, health, and agricultural matters.

The Prize will be awarded every two years. Its purpose is to recognize meritorious and innovative activities by individuals or groups of persons to improve communications, chiefly in the developing countries. Qualification criteria are that entrants be nationals of member states of Unesco or organizations with headquarters in such states; and that they have distinguished themselves by "one or more outstanding initiatives to promote the development of rural communication." Newspapers, films, radio, television, traditional or folk medium, and multimedia programs will be considered.

Nominations should be submitted to the Chairman of the Intergovernmental Council of IPDC by the governments of the member states of Unesco. For more information write to: IPDC, Unesco, 7, place de Fontenoy, 75007 Paris, France.

Development Communication Monograph Available

The Clearinghouse is making available a publication of its parent organization, the Academy for Educational Development, that reviews the way in which the field of development communication has grown and anticipates its future role. *Beyond the Flipchart* will be useful to anyone looking for a clear discussion of how media have been applied to, education, agriculture, health, population, and other development sectors, and how the techniques of social marketing are being integrated into successful development communication programs.

This 40-page monograph is available, prepaid, from the Clearinghouse for US$5.00 (multiple copies US$3.00). Readers in developing countries may request it without charge.

Radio Science: Completing the Interactive Radio Instruction Curriculum

by Jean Meadowcroft

Through science we attempt to discover and explain matters through disciplined inquiry. Science education is critical to a country's development both because it trains people how to use this knowledge to improve daily life, and it stimulates thinking skills which lead to independent learning. Widespread scientific and technological knowledge among people of a country is a necessary requirement for development.

In many primary schools, particularly in less developed countries, science is poorly taught. Teachers often do not have sufficient knowledge of science. They are limited as well by inadequate school facilities and teaching materials, and in some cases, the idea that science is too complex and sophisticated. Consequently, science teaching often relies too heavily on facts, and is presented in a way that makes it difficult for students to use it in their daily lives.

The interactive radio model is expected to change this. It will be used to produce and present science in the classroom in a way that will make students listen, learn, and think about the natural world around them.

Science Education: A Background

In the 1960s and 1970s, two A.I.D.-supported African programs made significant progress in developing science curricula and materials. These were the African Primary Science Program (APSP), and the Science Education Project for Africa (SEPA). APSP redesigned science education so students would understand their environment better, and introduced an experimental, discovery approach to teaching science. By 1970, APSP had established science centers in seven African countries, and had developed teachers' guides and science books. SEPA trained science educators and helped to build networks among 13 nations, established two science education centers, and published numerous teaching guides and sourcebooks for teaching science. Organizations, including the World Bank, UNESCO, the British Council, and Peace Corps have endeavored to improve science education, particularly through teacher training and providing science equipment. These efforts improved science education, but more effective means of delivering science education to the classroom is still needed.

Radio Education

The interactive radio instruction model has proven to be effective, efficient, and inexpensive, as demonstrated in the Mathematics, Language Arts, and Community Basic Education projects; and its adaptability confirmed as shown in the Thai Math project. Other articles in this edition of *DCR* show how this model is more effective and efficient than traditional teacher and textbook models in achieving improved student learning. Once programs are developed, it also is inexpensive. Recurrent costs for radio mathematics in Nicaragua, and in the Dominican Republic, are projected to be less than US$1 per student per year. In the forthcoming Instructional Radio Dissemination project, packages of combined mathematics and science instruction are planned. Adaptable to many countries with only slight changes, these packages will be even less expensive to operate on a recurrent cost basis.

Radio Science, then, will consolidate and build upon previous science education projects and apply the interactive radio model to deliver improved science education widely, rapidly, and directly to teachers and students in the classroom.

Project Description

Activities have just begun in the Radio Science project. The contractor, the Education Development Center, Inc., will be responsible for its development over the next five years. As with some of the previous interactive radio projects, the purpose of this project is to develop and test four grades of instructional programs for primary school students. Its success will be measured by two criteria:

- That pupils receiving radio science education show significant gains in learning when compared to control classes of pupils taught by customary methods.
- That the recurrent costs are low, and administration of the radio programs is manageable for Ministries of Education in less developed countries.

There will be four areas of project activities: instructional programs, orientation and institutionalization, evaluation and research, and dissemination.

Instructional Programs: Project staff and host country educators will prepare a course of study based on the national primary school science curriculum. They also will develop low-cost, locally produced instructional aids. The science curriculum will be adapted to the interactive radio format, and be produced—one grade each year over a four-year period. Initially, at least twenty schools will receive these radio science programs, receiving twenty- to thirty-minute radio lessons several times a week. It is anticipated that by the end of the five-year project there will be over one hundred participating schools.

Orientation and Institutionalization. Initially, there will be a month-long workshop for national staff and project technical specialists, with follow-up workshops each year. This will help to build a common base of knowledge among international and national educators, science specialists, and other staff, and build a team among them. The international staff will present the interactive radio methodology and science education studies; the host country staff will provide information on local schools, national science curriculum, the local environment and ecology. This team will pool its knowledge to produce lessons based on universal science concepts which will be applicable to many different rural environments.

Before broadcasts begin, brief workshops will be given to show teachers how to use the radio science programs. Ministry of Education district supervisors, school directors, and other officials will be included in the workshops to inform them about the project, and to build a local constituency to support it. During the school year, there also will be weekly broadcasts for the teachers offering suggestions on how to use the programs.

Radio Science staff and Ministry of Education officials will hold semi-annual meetings. This will help to build a local network of educators who understand the project and can continue the radio programs after the project is completed.

These efforts are expected to result in the establishment or strengthening of already-established Ministry of Education centers for radio education and for science education resources.

(continued on page 15)

Extension Strategies and Goals Conference

The Agricultural Extension and Rural Development Centre (AERDC) of the University of Reading in England is holding an international conference from Sept. 15-21, 1985 as part of its 20th anniversary celebrations. The title of the conference is "Investing in Rural Extension: Strategies and Goals." For the past 20 years AERDC has been involved in post graduate training, in-service training courses at AERDC and abroad, and has participated in consultancies and development projects around the world. Participation in the conference will be limited to 150. Please contact G. E. Jones, AERDC, The University of Reading, London Road, Reading RG1 5AQ, England, for information and applications.

Attention Educational Planners

If your ministry would like to consider adding an interactive radio component to its activities, the Clearinghouse will be pleased to provide you with illustrations, pamphlets, teacher's guides, sample tapes, a film or video on the Radio Math Project, and a forthcoming film on the Radio Language Arts Project to assist you in the planning process.

A Communicator's Checklist

1 **Broadcasting in Education: An Evaluation,** by Anthony Bates (London, Constable and Company, 1984), 272pp.

For many, the link between broadcasting and education is an assumption. On the face of it, this assumption seems sturdy enough. You can put the best teachers on the air. You can assure the same curriculum over a broad area. You can save money compared with alternative strategies. You can provide in-service training to teachers by broadcasting excellent lessons. You can provide equal education to all.

Evaluating this assumption is what Bates does in this book, and as anyone who has been involved in educational broadcasting knows, the assumption proves less sturdy than may have been hoped. Bates provides a sober tour of the educational-broadcasting "busyness," evaluating as he goes with a keen eye sharpened by his years as an educational broadcaster and consultant in the developing world. Bates provides the reader with a thorough acquaintance with the struggles of the educational broadcasting world, in both developed and developing countries. He puts the usual assumptions to the test, to find out what really counts in a successful application of broadcasting to education. Bates cites some projects that have demonstrated desired results and, from these, offers guidelines to the reader:

1. Successful broadcasts are fun to watch or listen to. Bates points to "Sesame Street" and the British series "On the Move."
2. Successful broadcasts are expensive. The shows have to be done well, and good results cannot be attained cheaply. Poorly designed and poorly produced broadcasts have caused some people to doubt whether educational broadcasting has any learning value.
3. Successful broadcasts are integrated into broadcasting and education structures. Broadcasters and educators must both be involved; neither can rely on his/her own expertise. Bates details a common reluctance among broadcasters to accept feedback from educators who hesitate to produce broadcasts in collaboration with non-broadcasters. The same thing can be said of many educators; they "know what good teaching is" and they are wary of collaboration with broadcasters.
4. Successful broadcasts have specific objectives built around a curriculum designed for the target audience.
5. Successful broadcasts use pretesting and formative evaluation. This is the area where assumptions are rigorously tested. Methods for an educational broadcast initially flow out of the wisdom, experience, and judgment of the collaborative educator/broadcaster team. It is these methods that are tested, prior to and during the series. Having specific measurable objectives beforehand is the prerequisite for pretesting and formative evaluation. Bates notes, "Systematic pretesting of programmes is still strongly resisted by many producers and broadcasting managements; it adds to costs, slows up the rate of production, and requires a different form of production scheduling. Above all, it challenges the professional assumptions of producers." The Nicaragua Radio Math Project and the Kenya Radio Language Arts Project are two examples of the full and fruitful incorporation of pretesting and formative evaluation into the production schedule.
6. Successful broadcasts are not received in isolation. That is, people do not learn much when they watch or listen alone. The excitement generated by an engaging program is multiplied many fold by the presence and involvement of others. In a developing country classroom, the enthusiasm generated by a group provides learning support to each child—whose surroundings may otherwise offer very little reinforcement to educational ideals.
7. Successful broadcasts are well marketed. The target group is alerted to the broadcast, prepared for the broadcast, and disposed to receive the broadcast. Once the series starts, the broadcasts themselves are the prime marketing mechanism, to hold and to attract a wider audience. In the formal education setting of developing countries, the crucial "marketing" is done among education officials and classroom teachers.
8. Successful broadcasts have maximum exposure. This means adequate air time at appropriate hours, lots of programs, and some repetition. For educational results to be measurable, more than a one-shot enrichment broadcast is necessary.

To achieve excellence in educational broadcasting, the very best from broadcasting must combine with the very best from education. What Bates contributes is a thorough appreciation of how difficult that achievement is, and a distillation of useful lessons, so that the difficulties of the past not be repeated. He makes clear that the link between broadcasting and education cannot be assumed, but can be achieved by a focus on results and a willingness to evaluate all assumptions, in terms of those desired results. ■

Reviewed by Peter Spain, a researcher and writer, currently with U.S.A.I.D.'s Bureau of Science and Technology/Office of Education.

Available for £7.50 from Constable & Co., Ltd., 10 Orange St., London WC2H 7EG, U.K.

2 **Organizing Educational Broadcasting,** by D. Hawkridge and J. Robinson. (Beckenham Kent, England, Croom Helm Ltd., 1983), 302 pp.

This is an eminently readable book, almost totally free of statistics and the jargon one often encounters in writings on organization and policy analysis. The authors draw on 12 case studies and their personal experience and knowledge to build a lucid, systematic discussion of issues that appear to be germane to educational broadcasting today. The case studies, together with an update on some of the original case studies by Jack Lyle, comprise the latter half of the book.

Beyond a short introductory chapter there are seven other sections, ranging from the context of educational broadcasting to finance. All are informative; some are more thoroughly grounded in empirical case material than others, hence more comprehensively elaborated. The discussion of the context of educational broadcasting is one of the best I have seen of a vastly complex set of factors, rendered plain by clear writing in the service of well-organized thought. The chapters on forms of governance and autonomous production and distribution, and on utilization, are also outstanding. But all chapters will reward a careful reading.

The authors have attempted to draw lessons from very disparate situations which have been reported and evaluated differently from each other. I was left with a sense that their concluding guidelines for practice in each chapter were sometimes more clearly related to the issues and questions they raised, and perhaps to their personal experience, than to the empirical information in the case studies. The fault lies in paucity of comparative data, not in the cogency of the discussion.

The book is well-worth reading. I recommend it to anyone involved in development communications, and especially to those embarking on educational broadcasting projects. ■

Reviewed by Paul Spector, president of the Institute for International Research in McLean, Virginia. He has supervised more than 60 overseas development projects, several of which have included work in broadcasting.

Available for £12.95 from Croom Helm Ltd., Providence House, Burrell Row, Beckenham Kent BR3 1AT, U.K.

3 **The Radio Programme: An AIBD Manual for Media Trainers,** edited by Howard Gough. (Kuala Lumpur, Malaysia, Asia-Pacific Institute for Broadcasting Development, 1982), 247pp.

No one can deny that the very best way to learn anything is to DO it, and certainly in the area of radio production, no amount of book learning can ever replace actual hands-on experience, so perhaps it would be fair to classify this AIBD manual as a *reminder* book rather than a training manual.

In under 250 pages, the book attempts to cover every aspect of radio planning, production, on-air techniques and editing procedures. The editor freely admits that it only skims the surface of many subject areas, suggesting, for example that "sections on basic skills and formats are more comprehensive (than the section on news), though still summarized."

As a summary, however, the book is excellent, and is obviously compiled by broadcasters with a great deal of combined knowledge and experience. All the basic knowledge is there, from reminders on the importance of researching the audience BEFORE making a program, to information on the best types of microphone to use for an interview; from notes on control room procedures, to illustrated information on how to splice tape.

It is probable, however, that the novice producer, using this book as a teacher, might run into some problems. Frequently, the book will give good advice, such as "There are several ways of turning pages of scripts silently," without answering the question 'how?' Examples are frustratingly lacking in several places where the trainee would most like to have them, although other sections are equipped with very helpful examples. While the manual acknowledges that its "notes are intended for use in the training of generalist producers," and adds that "For the training of specialists, trainers should refer to specialized reference texts," it is somewhat tantalizing to be presented with excellent examples in some areas and be denied them in others.

The general layout of the book presents some difficulties, too. The "notes have been placed in four categories and printed in ink of four different colors," which is essentially a good idea. The difficulty arises from the fact that unless the reader keeps referring back to the Table of Contents, there is no way of knowing what each color indicates. Since none of the notes fall precisely into any one category, it would have been preferable to have a running head on the pages indicating that specific notes were on "Planning" or "Production," etc.

Similarly, the use of boxes throughout the text is inconsistent. Where they are used to separate pictures from text, their aim is clear enough, but when they are used to isolate various bits of print, they are confusing. Sometimes the box is used with the heading "CHECK" to enclose questions for the consideration and knowledge testing of the reader; at other times, questions are enclosed within a box without the heading "CHECK." Sometimes a chapter begins by putting all examples of correct procedure into boxes, and then suddenly switches to the inclusion of incorrect procedure in the boxed format as well. Sometimes examples are italicized; sometimes they are not. Readers eventually find their way through these inconsistencies, but the book would have gained a great deal by better overall planning and editing.

Nevertheless, this is a book that should be in the possession of every radio broadcaster who aspires to do quality broadcasting, and it should be in constant use. For the beginner, it would be best used as a supplement to a very good teacher. For everyone else, it should be required reading—on a regular basis—for every radio producer with less than 20 years experience. The book's chief contribution to broadcasting literature is that it serves as an excellent checklist of all the things that a producer of quality programs should and should not do. If every radio producer currently putting programs on the air would follow the rules set down in this manual, the standard of radio production throughout the world would undoubtedly rise.■

Reviewed by Esta de Fossard, a Senior Communications Officer at the Academy for Educational Development. She has done radio education consulting in Africa, Asia, and Latin America.

Available to readers in the Asia-Pacific region for US$8.00, elsewhere for US$10.00 from Asia-Pacific Institute for Broadcasting Development, P.O. Box 1137, Pantai Bahru Post, Kuala Lumpur, Malaysia.

4 **Telecommunications: Issues and Choices for Society,** by Jerry Salvaggio (New York, Longman, Inc., 1983), 182 pp.

This collection of essays reviews some of the opportunities and many of the policy problems posed by advances in telecommunications. Many of the problems are posed in terms of protection of privacy, minimizing the problems of surveillance, and promoting freedom and opportunity. With few exceptions, the new media are not tied to developing nations in this volume. More seriously, the discussions are neither linked to the history of the media (except for Schiller's essay), nor to the social structures in which these media are being developed and implemented.

Unfortunately, the theoretical base for studying telecommunications rather than mass media is very weak. As a result, it is somewhat awkward discussing the "new media" as it is not entirely clear, aside from the physical infrastructure, what is being talked about. Are telecommunications media somehow distinct from other problems of technological development and transfer, or do they simply represent one category? Do these media promote new social activities or functions, or do they permit existing functions to be performed in new ways? This collection tackles the transformations in telecommunications from a number of approaches with varying degrees of success.

Herbert Schiller presents a critical view of the media in terms of their relationships to power and privilege. He makes clear that the media are not available to most of the world's population, and more importantly, are tied to the military and intelligence communities which exercise dominance over the majority. While the critique is strong, the solutions are not. This is an inherent problem of radical critiques as guides to policy—they provide important insights but leave us in a difficult position, attempting to take specific actions to create change.

From a totally different perspective, Daniel Bell attempts to tie media use to social context. Bell writes that "The revolution in telecommunications makes possible both an intense degree of centralization of power, if the society decides to use it in that way, and large decentralization because of the multiplicity, diversity and cheapness of the modes of communication." Bell lauds innovation and minimal public regulation as a means of allowing individuals to create new communities through innovation.

Bell's views are important as they have been influential in developing the notion that technology can lead social change, while also indicating the major instrumental problems to using technology which might present its adaptation or disrupt the existing social structure. While much of Bell's writing provides important insights into technologies' potentials, it ignores the major structural constraints on the use of media in creating new communities, or in preserving the monopoly on power of existing communities. There is no discussion of how to bring the majority of the population of the U.S., let alone the rest of the world, into the new technology, particularly given the requirements for education, knowledge about the intricacies of information search, and most importantly, the economic and political resources to use the information.

Joe Pelton provides a mixture of technological boosterism and caution, with the emphasis on the latter. Pelton discusses the creation of worldwide environments shared via communications. Unfortunately, it is not always clear what this means. What *exactly* does it mean for 1,000,000,000 people to watch the same television program? Does it foster universality? Or can global communications actually fractionalize constituencies?

The policy discussions in the book are generally not very strong. Far too much emphasis is placed on public policy, without a good historical analysis of how telecommunications has developed. This is not to downplay the importance of government-sponsored research and development. However, one does get the sense, particularly in the chapter about Japan, that the concern with public policy is often excessive or misdirected.

Public policy is important in terms of social concerns about telecommunications technologies, particularly their affects on privacy, but in a broader sense than generally presented in this volume (excluding chapters by Schiller and Slack). It is hard to avoid the cliché that technologies per se do not infringe on privacy—

(continued on page 10)

(**Overview** *continued from page 1)*
ment—not simply to do educational radio a little bit better, but to make possible a set of new strategies for educational development. With these strategies, well-crafted daily radio lessons provide sturdy support for teachers in the basic school subjects, teaching the core of each subject. They also reach out to areas where fully-trained teachers are not available and to adults in their homes.

Design Research

To this end, A.I.D. has invested a substantial effort for over a decade in the development and testing of the programs, to which educators and governments in cooperating countries have added immeasurably. The objective has been to design a method of educational improvement that is effective, easy to manage on a large scale, and affordable. Now that most of the research and development has been done (work in science education continues,) those goals have been met, and adoption of the techniques supports one of the lowest-cost interventions available in the entire world of education.

Adoption can involve varying levels of local adaptation. Some nations may wish, initially at least, to use the actual radio tapes for the entire four- to five-year primary school curricula in mathematics, English, or Spanish language training (and later in science). These are available through A.I.D. Others will want to revise the tapes, either in the local language or to introduce local examples; for these nations, the scripts, supporting written materials, and the underlying instructional designs are available. Still others may wish to apply the instructional principles developed through these projects to create entirely new instructional series.

The cost of adaptation will vary greatly depending upon the approach that is taken. For simple use of the available tapes, and the provision of classroom radios, a recent analysis in an African nation shows that per-student costs would be no more than 40 cents per year over the current system. Even these costs can be decreased with reduced student failure and repetition. Furthermore, the community school model, as exemplified in the Dominican Republic, is much less expensive than traditional schooling.

Project Acceptance and Expansion

Teacher attitudes toward this new approach, unlike with some other technologies, have been enthusiastically favorable—in large part because of the enlivening effect on the students themselves. Achievement scores have shown a 25 to 50 percent improvement over regular classes. But even more gratifying has been the delight of children as they participate in these lively, engaging classes.

There also is a great potential for expanded adult education through interactive radio instruction. In countries where these programs have been broadcast, thousands of adults have become regular listeners. If combined with newspaper supplements or distribution of associated written materials, adult literacy and numeracy might be greatly improved.

There are other very good models for radio use as well, as exemplified by the radiophonic schools in Latin America, and other pioneering programs carried out in Africa and Asia. The techniques of interactive radio build on this work, then add to it new educational methods developed both from cognitive psychology and from the communication arts. An example is the Children's Television Workshop which created "Sesame Street." In addition, measuring the effectiveness of teaching is fundamental to the interactive radio methodology, which offers the potential for continued improved teaching in the future.

The evidence is now in from numerous interactive radio experiments and pilot projects. They have laid a foundation for a renaissance in classroom radio use by meeting fundamental education needs. The incorporation of these approaches into the mainstream of education is the next step, and we look to the *DCR* readership as partners in this effort.

Clifford H. Block is the Associate Director for Development Communications, Bureau for Science and Technology, Office of Education, A.I.D., Washington. He has directed the implementation of interactive radio projects throughout the developing world.

Communication Conference in People's Republic of China

The First International Communication Conference will be held in Shanghai, China between August 4-10. The human and social contexts of communication will be explored. Future research in the areas of mass media, intercultural/international communication, and speech communication will also be discussed. Interested Americans and Europeans contact: Fred Casmir, Division of Communication, Pepperdine Univ., Seaver College, Malibu, CA 90265. Pacific Basin persons contact: Dr. Malcom Pettigrove, Canberra College of Advanced Education, School of Liberal Studies, P.O. Box 1, Belconnen, A.C.T., Australia, 2616.

Martha Stuart

The Clearinghouse joins others in the field of international communications in mourning the recent death of Martha Stuart. We applauded Ms. Stuart in her efforts to make video technology available to villagers so they could speak on their own behalf, and are pleased to learn that her daughter will continue to provide this valuable service.

(**Telecom** *continued from page 9)*
private and public agencies do. Technologies are often developed by agencies which lack a strong commitment to privacy or individual freedom, leaving those who have such commitments to attempt to alter the technologies' implementation or use. As Schiller correctly notes, it is vital to examine how communications technologies are tied to the existing social order to determine how they are being used within that order. Concerns about privacy and freedom are important, but they should not be excessively focused on media anymore than concerns about crime should focus on controlling the trade in burglary tools. Starting with a political commitment to freedom and to individual and collective opportunity, with an operative notion of what these mean, is the strongest approach to analyzing and developing public policy in the media.

For developing nations, much of this discussion is academic as public policy is largely concerned with developing a basic infrastructure for services which are largely assumed in the industrial nations. However, given the large capital requirements, market development, and structural changes which will be necessary for a developing nation to move quickly into the new "information" society, far stronger commitments to public policy creation and implementation will be needed than has been seen in the U.S. and many of the other industrial states. And, as has been discussed in much of the literature on communications and development, this commitment must extend to the overall problems of equity and opportunity in development, not simply to the introduction of media into a social context which, through its rigidities, inhibits economic and social development. ■

Reviewed by Douglas Goldschmidt, a telecommunications economist now working independently in New York. He was the former associate director of the Rural Satellite Program at the Academy for Educational Development.

Available for US$24.95 (cloth cover) from Longman, Inc., College Division, 1560 Broadway, New York, NY 10036 USA.

Call for Papers

The Eighth Annual Forum of the Pacific Telecommunications Council will be held from January 12-15, 1986, in Honolulu, Hawaii. Three sub-themes to the Conference theme, "Evolution of the Digital Pacific," will be considered: 1) current telecommunications developments in the Pacific; 2) future developments including computer-communication convergence, artificial intelligence; and 3) training and education needs, and programs relevant to current and future needs. One-page outlines of proposed papers are requested by June 15, 1985. For more information contact: PTC '86, 1110 University Avenue, #308, Honolulu, Hawaii 96826, USA. Phone: (808) 941-3789, Telex: 7430550PTC.

Evaluations of Three Interactive Radio Projects

by Barbara Searle

A characteristic feature of the radio instruction projects funded by the U.S. Agency for International Development is the inclusion of significant funds for evaluation. As a result, we have substantial information about the implementation and impact of one completed project, Radio Math, and emerging documentation for two on-going projects, Radio Language Arts and Radio-assisted Community Basic Education (RADECO). The evidence gathered to date allows us to draw several firm conclusions about the use and effectiveness of interactive radio instruction.

- Students can and do learn primary-school subjects when taught by interactive radio. Often they learn more than students studying without radio lessons.
- Trained teachers and untrained classroom proctors can use radio lessons effectively with little training or special assistance.
- Interactive radio lessons are seen as useful by teachers and proctors and are used voluntarily, provided that the quality of radio reception is acceptable.
- The cost per student per year to deliver radio lessons—after curriculum-development work is completed—is modest since few supplementary learning materials are required.
- In a grade-one classroom comparison with textbook use, interactive radio has been shown to be significantly more effective in raising student achievement.

Other findings seem to be emerging from these projects as they progress. The first is that the instructional method is robust. That is, the instructional principles first developed for teaching mathematics in Nicaragua (see the article on Radio Math in this issue) work for other subjects, and in other cultural settings.

A second tentative conclusion concerns group instruction. It is generally accepted that group lessons cannot adapt to individual differences among students. Evidence from Nicaragua suggests that interactive radio lessons improve the achievement levels of slower students, as compared with the performance of similar students in non-radio classrooms. Two explanations for this are: the carefully crafted instructional messages are more effective with slower students than usual teacher instruction; and teachers, freed from the necessity of teaching the faster students, can devote more time to those with difficulties.

Another tentative finding is that students from rural schools show greater achievement gains than students from urban schools, thus narrowing the gap that exists between the two groups.

Evaluation Design Problems

Evaluating the effectiveness of instructional programs is complicated by several issues. No two instructional programs have the same objectives, use the same teaching strategies, or cover the same material. Thus, in designing a test to compare student achievement on two instructional programs, great care must be taken to make it fair to both groups. Also, in developing countries, experimental programs are likely to reflect not only how much the students learn, but also how often they attend, how likely they are to drop out, and how experienced they are with taking tests. There is usually substantial turnover during the school year, so it is often difficult to interpret test scores, and particularly to conclude that students in one program learn more than those in the other program. Higher scores mean that those who took the test learned more of what was *tested*.

". . . instructional principles first developed to teach math in Nicaragua . . . work for other subjects, and in other cultural settings."

A final concern is that control groups be tested before the lessons become available. When radio programs are broadcast openly, there is considerable likelihood that people (both in and out of school) other than the experimental group will listen to them. But this time lapse opens the way for events other than the instructional program to cause differences between the two groups. (The Nicaraguan revolution was one such unexpected event.)

Radio Math

A brief survey follows of evaluation results from the three interactive radio projects: Radio Math, Radio Language Arts, and RADECO.

For five years, the Radio Math project in Nicaragua developed interactive radio lessons for primary-grade levels one through four. The effectiveness of the instructional programs was assessed by comparing achievement levels of radio classes with similar classes taught in the usual way. Considerable care was taken to avoid the pitfalls noted above. Score differences indicate that grade one lessons were most successful in raising student achievement. For several reasons grade four results are less sturdy, among these is that lessons were evaluated during the first year of the revolution, while the control group was tested the previous year.

Many other questions regarding student achievement were investigated during the Radio Math evaluation. Among them were:

1. How does performance compare on topics that were taught and on those that were not taught by radio lessons? For all four grades, experimental students did much better than control students on topics taught by radio. For grades one and two, experimental students did somewhat better even on topics *not* taught by radio. The results demonstrate that, at least for primary mathematics, interactive radio was more effective than the usual teaching methods, and students were not selectively disadvantaged because some topics were left out of the radio lessons.

2. How does interactive radio compare with other teaching aids in raising student achievement? Achievement gains from radio lessons and in textbook classrooms were compared in a special experiment run with grade-one classrooms. The results showed control classes with 44.3 percent correct; textbook classes with 48.7 percent correct; and radio classes *62.1 percent correct*. Thus, at least in this situation, interactive radio was shown to be far more powerful than textbooks, which the World Bank has in the past identified as the single most effective tool in raising student achievement in the developing world.

3. Are achievement gains found for students of all ability levels? It is significant that even though group instruction potentially holds back the fastest students, the top third of experimental students still scored higher than the top third of control students. Also, the lowest third of students at the two grade levels tested made significant gains.

Other studies showed that teachers liked using the lessons and that the broadcasts also appealed to, and were listened to, by the community at large. On the other hand, despite the achievement gains, use of radio lessons was found to have no impact on school promotion rates (which are teacher-determined) and little effect on attendance and dropout rates.

Radio Language Arts

The Radio Language Arts project teaches English as a second language to lower-primary students (standards one through three) in Kenya. The program teaches both oral and text-based skills, following the official Kenyan curriculum.

Achievement at the standard one level is measured by tests of oral and reading comprehension. As in Radio Math, the control classes are tested the year before broadcasting begins to avoid contamination of the results. Control classes are in the same schools as experimental classes. In addition to testing achievement, the project is collecting data on teacher and community attitudes toward the program, and data on student attendance, repetition, and dropout.

Test results show that students using radio lessons perform substantially better than control students on the listening tests and somewhat better on the reading tests. The effectiveness of the interactive radio method is once again confirmed by test results showing that even with

(continued on page 12)

(**Results** *continued from page 11*)
less instruction in reading than the control group, the radio students score higher.

Preliminary survey results indicate that headmasters, teachers, and parents are pleased with the program, testifying to the greater fluency in English of the students who are using radio lessons regularly.

RADECO

RADECO is taking interactive radio out of the classroom and introducing it to the community, testing the hypothesis that the instructional method is sufficiently robust to be used by proctors drawn from the community, and without specialized training. The experiment is being run in rural areas of the Dominican Republic where there are no schools, or where children must work during regular school hours. The goal of RADECO is to teach the children who attend its classes as much as they would have learned in basic skills had they gone to regular schools. Therefore, the comparison group for evaluation purposes is first-grade students in schools in areas similar to those covered by RADECO.

The results of the first-year evaluation show a substantial difference between the experimental and comparison groups, in favor of the experimental group. However, the posttest was administered to all students via radio and, in retrospect, the project staff thought this might have given the radio group a significant advantage. Nevertheless, the outcome of a reanalysis still favors the radio student. Interpreting these results most conservatively, it seems clear that students studying by radio are learning at least as much as students going to school in these rural areas of the Dominican Republic.

The results from the RADECO project are the most powerful demonstration to date that the instructional method used in these interactive radio programs is capable of providing effective instruction in basic skills, whether or not a trained teacher is present, and without significant investment in accessory instructional materials. ■

Barbara Searle is with the World Bank in the East Asia & Pacific Education Division. She was the director of the Nicaraguan Radio Math Project, and was affiliated with the Institute of Mathematical Studies in the Social Sciences at Stanford University.

Notice

For more information on the use of interactive radio for instruction in developing countries, please write to: Dr. Clifford Block, Bureau for Science and Technology, Office of Education, Rm. 609F, SA-18, Agency for International Development, Washington, D.C. 20523, USA.

Interactive Radio

Estimated Recurrent Costs for First-Grade Radio Math in Thailand

Assumptions:
- Only future recurrent costs are considered
- Programs are used in 30,693 schools with 45,413 first-grade classes totaling 1,081,733 students
- Every first-grade section in a school currently has a radio
- Nonreusable workbooks are given to all students
- Radios last about 5 years; batteries last for about 100 hours
- All teachers are given manuals which last an average of 2 years
- 34% of all schools have electricity
- Radios will be used 6 hours per day among several classes. Only ½ hour will be 1st-grade math, so only 1/12 of cost attributable to Radio Math
- Teacher orientation is part of regular ministry costs

Costs per student per year (US$)

		Per Student
Student Costs:		
workbooks		.35
Classroom Costs for 24 Students:		
teacher manual	.44	
radio (annualized including maintenance)	.85*	
power (batteries)	.32	
program revision	.02	
	$1.63	.07
Transmission Costs		.01
Program Costs:		
administrative personnel		.01
	Total:	$0.44

*Radios used for 11 other programs

Project Evaluation and Microcomputer Courses Planned

The University of Minnesota is offering several development-related courses in the coming months. "Microcomputer acquisition and uses in development," will be held August 19-Sept. 6, 1985 and Oct. 12-Nov. 1, 1985. This course is designed to guide individuals and organizations in developing areas of the world to plan, acquire, implement, and manage a microcomputer system. No prior computer experience is necessary.

The "Development Project Evaluation Seminar," Sept. 16-27, 1985, will focus on how to make project evaluations useful, practical, and accurate. A step-by-step approach will be taken in looking at project evaluation techniques from conceptionalization to applying findings for program improvement and policy decision making. For more information and registration materials for both courses contact: Fred Hoefer, 405 Coffey Hall, Univ. of Minnesota, 1420 Eckles Ave., St. Paul, MN 55108, USA, Telex/TWX: 298421 UM COL AG.

(**RADECO** *continued from page 5*)
minute lesson. Correct answers are given immediately by the radio teacher, applying the principle of immediate reinforcement. It is left to the students to determine whether or not their own answers were correct.

The RADECO lessons are not all work and no play. A method for incorporating diversionary activities first used by the Nicaragua Radio Mathematics Project has been adapted to RADECO's needs. Several segments of the one-hour lesson are devoted solely to entertainment. The most successfully used forms of entertainment are songs and physical activities. Children's songs and patriotic anthems are taught and sung frequently. In-place exercises offer the children an opportunity to stand up and stretch their bodies. Sophisticated motivational techniques are unnecessary since the children are fully absorbed in responding to the radio instructors. There are, however, many musical cues that alert the children to what they should do next—pick up their pencils, turn over their worksheets, or put down their clipboards.

The *radio auxiliares* conduct 20- to 30-minute postbroadcast activities following each daily broadcast. In these sessions, children review vocabulary and do math exercises which the *auxiliares* copy onto the blackboard from guides prepared for them. The lessons are broadcast

Cost Estimates

Estimated Recurrent Costs to Disseminate Radio English Lessons to all First-Grade Classrooms in Kenya

Assumptions:
- Only future recurrent costs are considered
- Programs are used in 11,966 schools with first-grade classes totaling 890,000 students
- Every first-grade section in a school will have a radio (12,000 now in schools; 10,250 to be added for full implementation)
- Reusable worksheets are provided to every student
- Radios last about 5 years; three sets of batteries per year are required
- Three 30-minute programs are broadcast daily throughout the school year
- An existing radio channel is available and has been boosted, at no cost to the project, to reach the entire population

Costs per student per year (US$)

		Per Student
Student Costs:		
worksheets		.06
Classroom Costs for 40 Students:		
teacher's manual	.15	
radio (annualized)	7.00*	
radio maintenance	2.50*	
power (batteries)	2.81	
teacher training	.03	
	$12.49	.31
Transmission Costs		.02
Program Costs:		
administrative personnel		.01
	Total:	$0.40

*Costs of 10,250 new radios for full implementation, used exclusively for English lessons

in the late afternoon, a time when the children have finished their daily tasks. Most of the children work on coffee farms, in sugarcane fields, or family cottage industries which characterize this region. Some of the children are offspring of Haitian immigrants, and speak Creole. The RADECO programs use Spanish, the Dominican national language, and include lessons to help Creole speakers master Spanish. The RADECO program not only fulfills an educational goal, but a social one as well by teaching children of immigrants Dominican culture and history.

Evaluation Phase

Both formative and summative evaluation is undertaken in the RADECO project. Approximately ten of the "schools" are randomly selected as experimental or "formative evaluation" schools. Project evaluators visit each "school" once a week to observe student behavior and record their learning progress. They return another day in the week to administer a short test covering the material taught during the previous five schooldays. This information helps the curriculum writers decide what subject matter to discontinue because students have adequately assimilated it, and what subject matter to continue focusing on because they are having trouble with it. Students are tested at the beginning and end of the school year in all RADECO schools. Similar testing is also undertaken in regular schools in the southwest region of the Dominican Republic. Summative evaluation is then able to provide comparative data from RADECO and regular SEEBAC schools, showing how RADECO students compare in academic achievement to regular school students.

Broadcasts of RADECO lessons were initiated in February 1983 to over 400 students in 20 schools within a radius of 50 kilometers of the city of Barahona. Children in these schools will complete the third grade in late 1985. In November 1984 the project was expanded to include over 1000 students in 45 "schools" in a 100 kilometer radius of Barahona.

John Helwig has worked as an educational development specialist since 1963 for USAID in all of the Central American countries, Venezuela, and the Dominican Republic. He has worked in educational planning, teacher training, university teaching, out-of-school educational programs, distance education, and radio education.

Jamesine Friend was the Overseas Director of the Radio Mathematics Project in Nicaragua.

The Fourth R—(Interactive) Radio

by Peter Spain

The classroom is typical of those in developing countries. Dirt floor, mud-brick walls, no lights. The shuttered windows keep out weather and light. On this day, the windows on one side are kept closed to cut a chilly wind. The benches are rudimentary, as are the few teaching materials and the chalkboard. Into the small, dark room are crowded 42 pupils.

Not so typical is the radio receiver the teacher is adjusting. While radio has been used in a limited number of developing-country settings for twenty years, its impact has not been overwhelming. Improvements in learning have occurred, but not to the degree that educators in developing countries have rushed to adopt radio. Early hopes pinned on radio for great leaps forward in educational efficiency have faded, and radio has taken its place on the shelf along with many other good-but-not-revolutionary educational innovations.

This radio classroom is not like any the observer has seen before. When the program starts, a rapid-fire dialogue between the radio and the children begins, punctuated by music and little dramas, with regular pauses for the children to answer and receive immediate reinforcement for their answers. The students are following the adventures of a boy, a girl, and their family. They are singing songs, and responding orally, physically, and in writing to the incessant, engaging pace of the radio. They are involved, they are enthusiastic, and they see immediate results from their work.

This is a classroom in the U.S. Agency for International Development (A.I.D.)-sponsored Radio Language Arts Project (RLAP), now completing its third year of broadcasts in Kenya.

Most exciting to any observer is the enthusiasm and involvement of the children. They exhibit an animation and an activity level that gives promise of increased learning and that bears witness to a lesson they have already taken to heart—that learning can be fun. This is in striking contrast to many developing-country classrooms, where rote learning prevails and passivity is the daily bread of children. (Even in other developing-country radio classrooms, children are expected to listen to the "master teacher" on the radio, who teaches in the same mode as a classroom teacher, though perhaps with more creativity and imagination. Still, for children, the message is: if you want to learn—listen. Passivity prevails, and the difference can be seen on the faces of the children.)

A second exciting aspect of the RLAP is the creative use of radio. What is happening in this Kenyan classroom had never been tried even in the developed world. In developed countries, where radio is part of the background noise of life, the assumption has been that you could

(continued on page 14)

(**Fourth R** *continued from page 13)*

not teach effectively with radio. A supplement, yes, but not the main vehicle of instruction. Consequently, in the developed world, radio was never enlisted into the educational system as RLAP has been in Kenya. What is going on here belies the old belief that radio cannot carry the burden of classroom instruction.

Radio Transformed by Interaction

What marks the RLAP is *interaction*. The program draws in the children as active participants in a cleverly designed, pedagogically sound dialogue that faithfully covers the Kenyan language curriculum for standard three (the third primary grade). In its agreement with the Kenya Ministry of Education, Science and Technology, the RLAP has committed itself to assume the main instructional responsibility for teaching the language curriculum.

The teachers work in concert with the program, guided by special teachers' guides that have been prepared and distributed by RLAP. The teachers call on individual children, as cued by the radio. They oversee the childrens' written responses on their worksheets. In the course of the broadcast, teachers monitor the childrens' papers more closely than they normally could if they were doing the teaching unaided. While the radio instructs the entire class, the teachers walk up and down the aisles, offering individual supervision as needed.

Interactive radio represents a quantum jump in the use of radio for instruction, an innovation that has transformed radio, the dowdy step-child of the information age, into an exciting educational tool that makes a quantifiable difference.

RLAP was built on the experience of a mid-1970s A.I.D.-funded project that developed the interactive radio technique to teach mathematics in primary schools in Nicaragua. Radio Math's achievement was to dispel the many doubts among educators and broadcasters that "you can't teach mathematics by radio." Neither A.I.D nor the project contractor, Stanford University's Institute for Mathematical Studies in the Social Sciences had been sure that you could either, but the value of trying was clear. A.I.D. had long had a seminal role in developing new ways of applying media to meet education and development needs. The pressing need for better quality education and greater access to schools had not proved amenable to traditional solutions. Once Radio Math's interactive method produced consistently superior results among children in the radio classes versus the children in conventional classes, the next research task was to adapt it to other primary subjects.

Rising from the ashes, skeptics this time warned that "you can't teach language by radio." Mathematics, with its logical structure and quantitative nature could be taught by radio, but less quantitative subjects such as language could not. RLAP succeeded by adapting the interactive nature of Radio Math, and further refining its formative evaluation technique. The challenge is to involve the children in a conversation with the radio, which demands precision timing and rigorous observation of how children respond to radio prompts.

Measuring for Success

Through trials and observations, repeated pretesting and classroom monitoring, creativity and expertise in instructional design, RLAP designers have reached the precision required in effective interactive radio. It is this precision that results in the enthusiastic involvement of entire classrooms of children.

An assessment carried out in collaboration with the Center for Applied Linguistics has shown that RLAP children have consistently learned more than the children attending conventional schools. The Center's assessment has provided evidence similar to that found in Radio Math—namely, that superior learning is consistently and significantly associated with radio teaching.

Formative evaluation is built into the project design to get improved learning results. Project designers do not wait until the end of the school year to see if their programs are working. Test results are of little help to the project after instructions have ended. Once the broadcasts are produced with the desired level of precision, once the children are involved and responding, the formative evaluation process begins. Evaluators immediately begin to question how much the children are learning and if they understand the curriculum as it is delivered to them in this new form.

Adaptation

The Radio Math and Radio Language Arts Projects have produced packages of educational material that can be adapted to the primary curriculum in other regions or countries. Thailand has introduced Radio Math, and a number of other countries have taken the first steps to introduce Radio Language Arts, Radio Math, or both.

When television was introduced in developed countries, many people predicted the demise of radio. But radio adapted, found new ways to work and new roles to fill, and is flourishing today. Had we stopped to reflect on radio's resourceful adaptation then, when pushed by TV, we might have asked earlier: "what can radio do if pushed by the educational demands of the developing countries?" Because of cost considerations, television and other communication technologies are not likely to supersede radio in these countries for some time. This innovative use of radio should, therefore, serve the developing world for many years.

In the dim light of that rural Kenyan classroom the case for what interactive radio can do is made best—nothing compares to the enthusiasm, the zest for learning that has been tapped in the otherwise all-too-typical rural schoolroom. ■

Peter Spain is currently working with A.I.D. to introduce and expand the use of interactive radio in schools in developing countries. He has been a researcher and writer in the development communication field for 15 years and has worked in Asia, Africa, and Latin America.

International Training Opportunities at Colorado State University

The International Training Programs at Colorado State University offers a wide selection of nondegree training opportunities for mid-career foreign nationals. Also available are regular Summer short courses for both degree and nondegree students. Courses are offered in engineering, agriculture, forestry, and natural resources. For registration information contact: Dr. J. Oxley, Office of International Training Programs, 314 Aylesworth Hall, NE, Colorado State Univ., Fort Collins, Colorado 80523, U.S.A. Phone: (303) 491-7892. Telex/TWX: 9109309011 CSU CID FTCN, Attn: Intl. Training.

Please note in the article "Spreading Good Ideas: Adapting Illustrated Materials" in the Winter *DCR* #48, the Overseas Development Administration (O.D.A.) of London, England should have been included as a major supporter of the PIACT/PATH program. O.D.A. has been a pioneer in supporting the development of family planning materials for illiterate populations in Africa and Asia.

(**Radio Math** *continued from page 1)*

In summary, a series of design considerations underlies the Radio Mathematics Project lessons:

- Children learn best when they actively participate in the learning process.
- Immediate reinforcement of responses enhances learning.
- Distributed practice is more effective than massed practice.
- Explanations and examples must be appropriate to the level of development of the student.
- Supplementary materials should be held to a minimum in order to reduce costs and to minimize delivery problems.
- Teacher training should be kept to a minimum so as to reduce costs.
- Teachers should not be required to spend more time in preparation than they would if not using radio lessons.
- Teachers, schools, and students should not be required to purchase more supplies than they would otherwise.
- Content of the lessons should not be threatening to the teachers.
- Content of nonbroadcast activities should be well within the teaching abilities of the teachers.
- If possible, the lessons should be appropriate for use by adults and by children who cannot attend school, but who can listen to the broadcast lessons.
- Formative evaluation can validate teaching effectiveness. ■

Jamesine Friend has worked in education for 20 years. She was the Overseas Director of the Radio Mathematics Project in Nicaragua.

(**Science** *continued from page 7)*

Evaluation and Research. Formative evaluation of the radio programs will provide continuous feedback on student learning to guide the development of future programs. It provides feedback both on the lesson formats being used, and on student mastery of concepts being taught. In Radio Science, formative evaluation will also systematically gather information from teachers, school directors, students, and where possible, parents on their attitudes toward and suggestions about the radio programs. This data will indicate ways of improving the format and content of the lessons, and of more fully integrating science into daily life. Summative evaluation will determine yearly learning gains by students when compared to the control group. We expect that Radio Science, like the other radio projects, will result in increased student learning gains, and also narrow the gap between rural and urban student achievement.

There will be three small-scale research studies done in conjunction with the project that will further explore science education in developing countries. The first study will be a diagnostic assessment of primary school science and curricula in the host country and in the region, in order to suggest the optimum grades in which to use radio science programs. The first grade in primary school concentrates on reading and mathematics. Since many students must also make a transition from their mother tongue to the national language, the radio science programs may be targeted for the higher primary levels. Second, a small research study in cooperation with national educators and scientists will aim to learn more about the ethnoscientific concepts children have, how children learn school-taught science, how much they retain, and how they apply science education to their daily lives. The third study will experiment with the use of newer technologies, such as low-cost electronic devices, to better understand the process of science learning.

Dissemination. In its second year, the project will begin publishing occasional papers on project findings. Later, two conferences will be held at the project site. Furthermore, informational materials, including a film or video, and packets of sample project materials will be developed and distributed to Ministries of Education in other developing countries. We expect these efforts to result in other nations using the Radio Science programs.

With the Radio Science project, the Interactive Radio Instructional Curriculum is complete. An Instructional Radio Dissemination project will offer information and technical assistance for the establishment of programs in mathematics, language arts, science, and basic community education programs in at least four other sites. ■

Jean Meadowcroft designed and is currently the Project Officer of the Radio Science Project. She is an Assistant Education Development Officer at the Office of Education, A.I.D. Washington.

(**Thai Math** *continued from page 16)*

The BSPP mathematics lessons include a 25-minute radio broadcast and a 15-minute post-broadcast session led by the classroom teacher. For this session the teachers use a manual provided by the BSPP which gives a complete set of instructions for activities to follow the broadcast.

The Radio Broadcast

The part of the mathematics lesson covered by the radio is mostly in the form of a dialogue between the "radio teacher" or other radio characters, and the students in the classroom. Some of the activities during the radio programs are oral, with the entire group of students answering the radio teacher together. Other activities are written, with each student writing in his notebook or BSPP-supplied worksheet according to directions given by the radio teacher. A third kind of activity requires physical participation by the student, such as manipulating objects according to directions from the radio.

At the time of the radio programs the teacher is freed from the usual activity of standing in front of the class to lecture and write on the board, as the radio is doing the teaching during this period. This gives the teacher a unique opportunity to observe the students and help those who are having problems. If a teacher has to teach more than one grade, as happens in a few rural schools, then he may spend part of the radio time teaching another class. The teacher should also be listening to the programs, paying special attention to the teaching methods used. During the postbroadcast session, many of the techniques used in the radio program can be applied.

Each program is divided into segments of between one to five minutes. Some segments are purely mathematics instruction while others have entertainment to help motivate and relax the students. Much of the entertainment is aimed at promoting learning through songs and physical exercises.

Useful Tool

The BSPP mathematics lessons are a very useful tool designed to make the teachers' job easier at the same time as helping them teach mathematics more effectively. The programs are very easy to use, requiring no more than one day of special training. The radio programs and the postbroadcast sessions cover the entire mathematics curriculum from the Ministry of Education. The first-grade programs require individual student workbooks provided by CET, as well as a teacher's manual: the higher grades need no preprinted student material, only a teacher's manual and regular student notebooks.

All lessons were designed following a few basic principles of good primary school teaching. Chief among these principles are:

1. Students learn best when they are actively involved in the learning process. In the radio lessons there is very little explanation, with most of the teaching done in the form of a dialogue.
2. Students learn a topic best when the learning is distributed over a longer period of time. Instead of teaching the various topics in blocks or chapters, the BSPP lessons often teach several topics at the same time, but learning each topic may require as long as the entire school year.
3. Primary school students need great amounts of practice to reinforce the basic learning process. Because the radio lessons are organized to use broadcast time effectively, it is possible to include much more practice and review than is usually done by the classroom teacher.
4. Learning must take place in small increments. The teaching of each topic in the BSPP lessons has been well planned so that each step follows logically from the previous steps and there are no gaps that would lead students to make faulty generalizations.
5. Materials must be tried out and the results observed in the classroom. Extensive classroom observation of BSPP programs has guided the direction in which the programs have been developed.
6. Students learn best when instruction is related to everyday life. BSPP lessons are based on concrete experiences and there are many examples and problems illustrating practical application of the mathematical skills and concepts that the students are learning.

Experiment Results

To date, there have been two kinds of evaluation of this experiment. One has measured student achievement in the group of schools using the radio programs and has compared the results with a similar group of control schools using regular mathematics texts.

Results show that BSPP experimental schools did better than the control schools in every region in all three years. Also, the difference between experimental and control schools was greater in the northeast than in Bangkok. This means that the radio programs are helping to promote regional equity in the Thai primary education system.

The results from teacher questionnaires have also been very positive. Teachers and headmasters are enthusiastic about the BSPP programs. Apart from praising the fact that the programs teach mathematics effectively and they are easy to use, they have also mentioned a number of other benefits. The programs promote discipline and punctuality in both students and teachers—the programs must start at a given time and students and teachers must organize themselves accordingly. In the northeast, teachers also say that the programs help students to speak and understand standard Thai. All teachers agree that the programs improve students' mental agility and self confidence. ■

Klaus Galda is currently the director of the Radio Science Project. He was the field director of the Radio Math Project in Nicaragua and consulted for UNESCO in the Thailand Fifth World Bank Education Project, and for the RADECO Project in the Dominican Republic.

Learning Math by Radio

by Klaus Galda

This article appeared in a somewhat longer version in the British Council's journal Media in Education and Development *(Vol. 17, No. 3, March 1984). It is reprinted here by permission of George Grimmett, Editor. This project is an example of an adaptation of the Radio Mathematics Project initially used in Nicaragua. The Institute for Mathematical Studies in the Social Sciences at Stanford University worked with Thai education officials to adapt this program to the Thai culture and to the official Thai curriculum. Some changes were necessary to reflect the differences in the official Thai curriculum. The change in cultural setting did not create a big problem, and Thai children responded very well to the dialogue approach used in presenting the mathematics lessons over the radio.*

During the past half a century Thailand's educational system has undergone great changes and made tremendous progress towards the goal of universal education. There is free access to schooling for all Thai children, especially at the primary school level, regardless of their social or economic status. Within the past 20 years a massive school building program has also provided generally adequate physical school facilities at the primary level and the student-teacher ratio in Thailand is one of the lowest in the developing world.

In spite of these wonderful accomplishments certain problems persist. Perhaps two of the greatest are the lack of training among a large number of primary school teachers, and the problem of serious regional inequities in the schools. These problems are not unrelated as, on the whole, the more favored regions also get the best trained teachers. Many educational innovations, new curricula and new materials have had disappointingly little success in improving the quality of Thai primary education, mainly because of the inability of most teachers to use these innovations as they were intended.

As far as regional inequity is concerned, a set of studies carried out by the National Education Commission in the 1970's demonstrates that in most school subjects, and especially in the key areas of Thai language and mathematics, achievement levels in the northeast are only about half those in the more developed regions of Bangkok and the central plain. There is no evidence that this gap has been significantly narrowed in the past ten years. Of course educational reforms could only hope to decrease the inequity, not to eliminate it.

It is clear to most educators that the introduction of new materials on their own will only serve to increase the disparities, since the already better trained teachers will know how to use new materials more effectively. On the other hand a massive in-service training course for hundreds of thousands of primary school teachers would be very expensive, almost impossible to administer, and probably take too much time away from the teachers. So it seems that an ideal solution for the two problems would be an approach which would work equally well in all classrooms and train the teachers indirectly over a long period while they are actually teaching.

Fifth Education Project

During the late 1970s, the Ministry of Education together with the World Bank planned the Fifth Education Project for Thailand. One of the main objectives of this was to strengthen the educational radio system. One of the outcomes will be a network of 11 radio transmitters, covering virtually the entire country, exclusively dedicated to educational programming. Specifically in the case of primary school education, it was felt that educational radio could be an important tool to help solve the problems of inadequate teacher training and regional inequity discussed above.

With these considerations the Centre for Educational Technology (CET), a division of the Department of Nonformal Education, launched the Basic Skills Pilot Project (BSPP) in 1980. The BSPP was to develop an extensive set of radio programs, as well as accompanying printed material, to help overcome student learning deficiencies in the two basic subject areas of mathematics and Thai language. By serving as a pedagogical model for the teacher, the programs would also help to train untrained teachers without taking them away from their usual classroom duties and without making additional demands on them. This article will describe the mathematics programs developed under the BSPP.

Initially the BSPP was set up as an experimental project in early 1980. The first set of programs, 160 lessons for second-grade mathematics, was broadcast from May 1980 in two geographical regions. One radio station in Bangkok broadcast the programs for Bangkok and outlying areas, while the other station in Maha Sarakham, broadcast to schools in two northeastern provinces. The two regions chosen represent the extremes in Thailand, with the first region having generally the most favored schools and the second region having the least favored.

In 1981 the first-grade programs were developed and broadcast to the same schools. In 1983 the project expanded and broadcast programs for grades one, two and three to about 50 experimental schools in five provinces. Beginning in late 1983 CET distributed radio receivers to all public schools in Thailand and the programs were available for use in all primary schools in 1984.

(continued on page 15)

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
and Resource Center Manager
Kathleen Moran, Editor
Robert Vittel, Information Assistant
ISSN 0192-1312

AED
International Division
Academy for Educational Development

Radio Mathematics; Language Arts Instruction; Radio-assisted Community Basic Education; Radio Science Instruction; Interactive Radio Evaluations; Instructional Radio Costs.

development communication report

Agency for International

1255 23rd Street, N.W.
Washington, D.C.
20037 USA

Summer 1985
No. 50

Communications Strategies for Agriculture: Hybrids of a Different Kind

by William Smith and Howard Ray

Two decades of experimentation have enriched our understanding of how to organize and use communication to support agricultural development in a wide range of settings and conditions. Many of the old principles of good communication have proven true; others have been expanded and made even more effective. Particular projects, like the Basic Village Education project in Guatemala and the Masagana 99 project in the Philippines, have demonstrated to us how ideas borrowed from fields such as advertising and marketing can be effectively added to large scale programs of agricultural development. The key change has been a shift away from media-specific planning, toward a systems approach to communication, which uses radio, print, and other channels as part of an interrelated network of inputs targeted at specific changes and driven by a farmer orientation.

These three elements—a farmer orientation, targeted change, and an integrated media network are the fundamental organizing principles around a growing set of hybrid communication strategies.

Farmer Orientation

The farmer is not a receptacle into which new agricultural technologies are poured, but an active catalyst whose needs, constraints, attitudes, and vocabulary orient and drive the communication component. Communication is not a link to the farmer, it is a link between the farmer, researcher, planner, and extensionist.

Our tools for understanding the farmer's perspective are growing. Our dependence on formal survey research and anecdotal information is giving way to smaller, behavioral studies. Concept testing, focus group interviews, behavioral trials, and intercept interviews are specialized names for a new genre of sound village research techniques. These behavioral studies help to identify hidden constraints a farmer may encounter in trying a new innovation, and to help understand less visible incentives which inhibit or promote adoption. They help us select vocabulary which the farmer will understand, and integrate the new innovation into the farmer's own view of his problems and needs. They help us ask not only "How good is the new idea?" but "How good will the farmer think the new idea is?"

We know for example that there are five basic reasons why any new idea might not be accepted: (1) a farmer may not have the skills or knowledge to use it; (2) he may not have the tools or materials to apply it; (3) he may see no benefit from using the new idea; (4) he may receive benefit from doing something quite different; or (5) he may perceive the new idea not only as having no benefit, but as punishing in some way—more work, more costly, less status, etc.

Traditionally, the job of agricultural communication has been to motivate the farmer to "want" to use a new idea and then to teach him the skills or knowledge to apply it. Behavioral studies help us explore what "want" really means and to help determine how to best teach the new skills. What benefits will the farmer experience? How can we describe the relative costs and benefits to the farmer in the most

(continued on page 2)

In this issue . . .

Agricultural Communication 1
Zaire Health Campaign 1
Educational Radio in Africa 3
Development and Commercial Films . . . 5
On File at ERIC 6
Peruvian TV Health Spots 7
A Communicator's Checklist 8
REDUC Reference Service in L.A. 11
Briefly Noted 12
PCS/URTNA Workshops in Africa 13
Nutrition Resources 15
Assessing PANA 16

A Health Campaign in Zaire

by Iain McLellan

In the central African country of Zaire a government department, several international aid organizations, and church-sponsored groups have coordinated their development support communications (DSC) campaigns to better disseminate health information. This interorganizational cooperation will enable participating groups to learn from each others' experiences in DSC, and to avoid costly duplication efforts.

Santé pour Tous, the nucleus of this coordinated effort, is a primary health care and preventive medicine project that is sponsored by Zaire's Department of Health, and the U.S. Agency for International Development (A.I.D.), and administered by *l'Eglise du Christ du Zaire* .

In addition to its main focus—improved primary health care—under the umbrella of *Santé pour Tous* is a vaccination campaign, a family planning project, and a nutrition and agricultural promotion project. Each has a different organizational structure and separate funding sources, but to facilitate coordination of DSC activities, representatives from these organizations sit on each others' boards.

Santé pour Tous centers are located in 50 rural health zones across Zaire. Each health zone has a central hospital and field office. These offices are equipped with battery-powered film and slide projectors used to train nurses, birth attendants, and village health workers in primary health care and DSC techniques.

Sharing Communication Materials

These same materials are also used by the other organizations participating in the *Santé pour Tous* project for their village-based DSC activities. Additionally, Community Development Committees, comprised of health professionals and village leaders have been established in many rural health zone villages to coordinate campaigns and projects at the local level. A village committee first decides upon a health issue that concerns village residents, then they

(continued on page 10)

A publication of the Clearinghouse on Development Communication
Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

(Ag Com *continued from page 1*)

persuasive way possible? What costs will the farmer pay for giving up what he is already doing?

While these questions seem, and in fact are, simple, they are rarely asked in a systematic way. Our focus has often been on the innovation rather than on the farmer. We describe the benefit of a new seed variety or new pesticide from our perspective ignoring costs, often of a social nature, which the farmer considers too high.

A second major area of improvement has been our recognition that all farmers are not alike. Our mass media broadcasts have tended to lump farmers together, focusing more on their similarities than on their differences. We have too often allowed our view of mass media as a big audience medium to dictate what we say and to whom we address our messages. But we now know how to segment broadcasts and direct them to special farmer groups. We can develop differentiated message strategies for different groups of farmers and can use techniques such as message tone, characterization, and scheduling to reach important subgroups with more relevant and persuasive information.

Targeted Change

The second basic principle which is changing our view of agricultural communication is a focus on selecting and assigning a priority to the content of agricultural messages; targeting areas of opportunity rather than using a hit-or-miss approach to information diffusion. Concretely we know that effective agricultural communication is responsive to seasonal variation in the farmer's needs.

We also know that for a new behavior to become routine, people need to do it many times, to get support from several places, and to have the support (or reward) as close to the new behavior as possible. This presents a real problem in agriculture. A new seed variety doesn't yield its better results for weeks, or even months. The reward in improved yields is affected by many things outside the control of the seed developer or the farmer. Drought, flooding, unexpected rises in fertilizer costs, and a lack of credit can obliterate the most carefully applied new practice. We have also learned that disseminating simple media messages about the wonders of a new seed variety will produce only frustrated and incredulous farmers. Clearly, the messages we decide to present must be analyzed from this perspective and carefully selected to ensure that observable outcomes are perceived as rewarding for the farmer. This means planning a comprehensive communication strategy which helps the farmer deal with seasonal problems as they are encountered. Farming is not like taking medicine—you do not get better after taking two tablets. It is an integrated and cumulative process which is necessarily reactive to unpredictable events. But we cannot teach everything at once, so we must carefully decide what is needed now and focus on that advice as a primary target.

Media Network

Finally, no single media channel is powerful enough to accomplish the job. Dozens of studies were carried out in the 1950s and 1960s to determine "What is better—radio, TV, print, or the extensionist?" The answer is now clear. "What is better?" is the wrong question. The right question is "What is better for what purpose?" And some clear answers are emerging.

Broadcast media is better at reaching a lot of people quickly with fairly simple ideas. Print media is best at providing a timely reminder of information we cannot expect someone to remember without reinforcement. And, interpersonal communication, including extensionists, group meetings, community organization, and demonstrations, are clearly the best way to teach and develop credibility.

Perhaps a more important finding is that we need all three of these components to make an effective program. We need to reach many people quickly; they have to have some reminder of what we have told them; and they have to believe in us if they are going to take our advice. Effective communication is like a three-legged stool. If you are missing one leg you have an unstable foundation.

". . . . we need a specific systematic way of ensuring that our priority messages . . . are going to interact with each other to promote change."

A new set of questions has resulted from these findings. How do we best orchestrate various inputs to maximize their impact and minimize our costs? We cannot use all channels all the time, because using all channels would be too expensive. We have to carefully select elements from each of the media groups and then integrate them so that they multiply the importance of each other.

We need what communication specialists call a channel strategy. Channel strategies are situation specific. They grow from an understanding of a particular country, a particular program, and a particular audience. They are based upon preprogram research into questions like: "Who listens to what?" "Who reads?" "What are the costs of each media channel?" "How complicated is the advice we have to give?" "How accustomed to and/or tired of radio or print messages, is our audience?" "Whom does our audience trust for advice on a given topic?" and many others.

Suppose we have a country where farmers do not read very well; indeed, they are not used to printed instructions of any kind. We want to tell farmers that there is a pest problem, and that we have a pesticide solution. We want to teach them to mix the new solution—and it is very important that they mix it in exactly the right amount water and apply it at the right time. Our extension network is spread too thin; they simply cannot reach enough farmers in time to control the pest problem. A communication strategy is put together in which a simple printed flyer with the mixing instructions is designed and distributed in large numbers to local stores, extensionists, and other field workers. First, we use short radio broadcasts (spot announcements) to tell farmers we have a pest problem, a pesticide solution, and that the flyer is available at local stores. At the same time, extensionists are training small groups of farmers dispersed throughout the region, in how to mix and use the solution. Each trained farmer receives a colorful flag to fly over his house as an identifying marker that he is one of the "expert mixers" of the new pesticide. A second set of radio programs not only tells farmers how to mix the pesticide properly, but informs them that the "flag farmers" in their community have been trained and are sources of advice on how to apply the pesticide properly. Each "flag farmer" is given dozens of the flyers to distribute to neighboring farmers as reminders of how to mix and apply the pesticide. Special radio programs are produced to teach farmers in isolated areas how to use the flyer, and to remind them of what they have learned from their neighbors.

This simple example illustrates how each of the media channels—print, radio, and interpersonal interact cumulatively. It is drawn from a concrete experience in West Africa. The Ministry of Health of The Gambia wanted to popularize a new medicine for diarrhea, and within a five-week period managed to teach almost 60 percent of the women in the country to prepare and give the new medicine using the approach described above.

Many agricultural problems are more complicated and long term than our pesticide example. Other channel strategies would be necessary and are possible. The key new insight is that we even need a channel strategy—a specific, systematic way of ensuring that our priority messages, directed at selected audiences, are going to interact with each other to promote change.

(continued on page 10)

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. Subscriptions are available free of charge to readers in the developing world.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Radio and the Educational Needs of Africa

by Alex T. Quarmyne

The following is an abridged version of a speech presented at the "New Directions for Education by Radio" Conference held in Nairobi, Kenya, Sept. 23-28, 1984. This conference was jointly sponsored by the Ministry of Education, Science and Technology, Republic of Kenya, and the Office of Education, Bureau for Science and Technology, U.S. Agency for International Development. It represents A.I.D.'s continuing effort to disseminate the "interactive radio instruction" methodology applied in the Radio Language Arts Project in Kenya, Nicaragua, Thailand, and the Dominican Republic. (See the Spring issue of Development Communication Report.*)*

". . . the democratization and renovation of education [is needed] to enable all African children and adults to exercise fully their right to education."

This is the first priority need as defined by African Ministers of Education and economic planners as voiced at a conference held in Harare, Zimbabwe in 1982. Democratization of education rests principally on the spread and maintenance of its delivery system. The traditional mechanisms of education, mainly schools, are structurally incapable of carrying out this task of democratization. There is no African government that could build the classrooms, train the teachers, and provide the support required to educate all its young citizens, let alone its adults, and much less to a given measure of competence. Education of the scale and the type required by Africa cannot be accomplished through and in the classroom alone.

A Tool for Democratization and Renovation

Radio is one of Africa's great wasted resources. It was enthusiastically hailed by African governments at independence as a powerful instrument for education both in its broadest and more limited sense.

It was the perfect medium for an impoverished, disadvantaged continent. It could instantaneously and simultaneously reach geographically dispersed populations. It did not require literacy of the receiver—nor even of the sender.

National development plans have consistently provided for improvement of the broadcasting transmission infrastructure. Most African countries are today able to distribute radio programs to over 90% of their populations and at least seven countries have 100% radio coverage.

A total solution to the once most difficult problem of reception facilities is now within our reach. Although in many African countries the unreliable supply of batteries still limits the potential number of working receivers, even this shortcoming is soon expected to be overcome with the introduction of solar-powered radio receivers.

Radio in Africa can thus be said in practical terms to be a high-access medium from the point of view both of distribution and reception. No other medium, channel, or technology offers so feasible a promise for the democratization of education. Apart from individual capacity for learning, nothing need constrain the radio listener from benefitting from an educational program—not age, not sex, not the lack of certificates or transport or clean clothes, and all the other barriers that effectively select who may benefit from traditional modes of education.

As Wilbur Schramm points out and today we are able to concede:

> ". . . . of course students can learn effectively from the media, from ANY medium . . . . . and what the media can do, they can do as well as a classroom teacher, sometimes better."

Certainly, we cannot afford not to heed common sense or to listen to reason. A question often raised is that of cost-effectiveness. It is relatively simple and straightforward to apply the criterion of cost-effectiveness to situations in industry. In education, however, it is not that straightforward; and in considerations leading to the choice of one communication medium over others for educationl application, it is even more complex.

From the results of many educational radio projects around the world and other studies, it is now generally accepted that, particularly in situations such as we have in Africa where educational radio does not imply the creation of separate networks of production and transmission facilities, much higher cost-effectiveness over traditional classroom teaching can be guaranteed. It is also clearly established that the cost-effectiveness of radio in education can be as high as five times that of television.

Here then is a wonderful scenario for radio as the ultimate tool for the democratization and renovation of education in Africa. The only thing missing is the action. To say that there has been no action may appear not to do justice to the work of the hundreds of men and women who have over the years worked with dedication in some form of educational broadcasting. They would be the first to lament with me, however, that their efforts have not led anywhere near democratizing and renovating education.

Going through a list of some 23 projects which have been labeled as educational radio projects in Africa over the past two decades, there are only five which I am able to identify as having successfully fulfilled their objectives or as being in the process of doing so. Five out of 23 is certainly not an impressive score.

A Few Success Stories

There was a time when the popular belief was that as an instructional tool, radio as a stand-alone system was a poor performer. However, there have been successful attempts to counter this argument. Among them, Tanzania where educational radio was part of a focused national campaign supported by a strong political organization. Another was in Mauritius, where the Mauritius College of the Air successfully used radio, TV, and correspondence material in its educational programming. Again, this was a product of the highest level of national commitment. Both also exemplified involvement at the grassroots and operational levels from the beginning, and were supported by formative research.

Today, in the light of dwindling human and financial resources in most of Africa, the use of educational radio as a stand-alone system seems to present a feasible strategy. The use of radio as a stand-alone system, however, requires creative compensation for interpersonal and other support inputs. Such compensation must necessarily be based on sound pedagogical principles. It therefore demands the most intimate collaboration between broadcasters, stretching their craft to the limit, and educators, testing the validity of their teaching skills. This is what the Language Arts Project in Kenya has so impressively demonstrated.

Our experiences with the few truly successful projects we have had so far tend to indicate that it is not only a particular type of approach which works. One major feature which is common to all successful projects is the use of specialists, who employed sound educational and communication research techniques for the design of the projects, for the development of the programs, and for the assessment of their effectiveness.

(continued on page 4)

Do You Have a Radio Question?

The Spring issue of DCR was devoted to a state-of-the-art review of "interactive radio" —an instructional design applied to radio to improve education in developing countries. If you have any questions about this new methodology or how it might be adapted to your country's educational needs, we encourage you to send them to us. Starting with the Fall issue, our radio experts stand ready to respond to your queries. Direct your questions to:

"Radio Question"
Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037
U.S.A.

(**Radio** *continued from page 3*)

We have also discovered that for a project to succeed, it does not have to be of any particular type. Classification of types of educational radio programs is often done for the purpose of facilitating analyses, but has never been seen to be a success-determining factor.

All we are able to identify at this time is the role that should be played by educational and communication research during the planning of the project, the development of the broadcast program (through formative research), and the use of summative research tools to measure effectiveness.

But are these findings really new? I submit that they are not. They have been with us and demonstrated to us many times over. We now have all the answers.

Why the Failure of Radio in Education?

Strictly speaking, educational radio in Africa cannot be said to have failed. The fact is, there has been very little serious educational radio effort in Africa. There have been and are a number of educational radio projects and programs, but many have been short-lived, short-sighted or both. Often they have been mere reproductions of the traditional classroom formats. In no way could these be said to be contributing to the democratization and renovation of education. A number of other projects have been planned and executed purely as experiments or research ventures. Nevertheless, there are a multitude of reports of countless seminars with the ever-present title "The Role of Broadcasting in Education" which assert that educational radio has failed because of budgetary constraints on program production, the lack of listening facilities, or the shortage of trained personnel. Year after year, this same list of "problems" surfaces and nothing ever seems to be an adequate solution—not the use of low-cost portable production equipment, not the provision by government of free receivers, not even the increase in the number of communication graduates.

"The use of radio as a stand-alone system . . . requires creative compensation for interpersonal and other support inputs."

All one has to do is to listen to any program labeled "educational" on any African radio service and to reflect on the teaching and learning processes, and one is bound to come to the conclusion that we are not only stagnating but probably actually retrogressing. In most cases you are even lucky if you find a program you can actually listen to.

Where attempts might have been made to use radio seriously for education, these have been undercut by the entry of its more glamorous sibling, television. Following patterns established elsewhere, both educators and broacasters in Africa started looking to television for solutions to educational problems. These were of course not practicable as the Ivory Coast experience has so painfully finally driven home to us. But the magic of television lingers on, to the disadvantage of radio. As one African Director of Broadcasting put it, "I am not yet able to run radio and they are asking me to submit proposals for television."

The Task Ahead

Radio has been proposed in the discussion as the optimum medium or technology to achieve the dual goals of educational democratization and renovation in Africa. But is educational radio in Africa in its present form ready to accept this challenge? My answer is no. There are obviously more fundamental reasons for our failures than those we have traditionally presented at the many conferences and seminars. I would like to submit two of these reasons for your consideration at this conference.

The first problem is with the human factor—the educator and the broadcaster. The educator will not give an inch from his arena of classroom teaching to facilitate wider learning; the broadcaster will not share the mystique of the craft to put it to substantive use. Each displays a degree of inflexibility which suggests a lack of understanding of the purposes of his or her individual discpline, however he or she may have mastered its form.

We require a renovation of the broadcaster and the educator themselves. From the broadcaster we require a commitment to, and a change of attitude towards education. Similarly, from the educator, we require a commitment to, and a change of attitude towards radio.

Secondly, we require democratization of radio itself. Democratization of educational radio will require the decentralization of production and transmission facilities. It will require opportunities for citizens to have closer access to the program-building machinery and to help ensure that programming reflects their concerns and their communities' educational needs.

Unfortunately, in this regard our continent still has a major problem. The truth is that most of the time broadcasters themselves do not study educational radio, its potential and its implications adequately enough to be able to make convincing proposals to their governments.

The underutilization of radio to date would seem finally to indicate that we have allowed ourselves to be awed by its potential. But let us remember that in the same manner that we have so far limited this potential, we also have it within our power to harness it to our ends. To continue to steer the now-familiar old course and attempt piecemeal remedies along the way will never get us there. Africa has not yet truly discovered educational radio. Let this be the start of that discovery. ■

Alex T. Quarmyne is the Unesco Chief Technical Adviser at the Zimbabwe Institute of Mass Communication, Harare, Zimbabwe.

Low-Cost Collapsible Sound Studio

The Clearinghouse recently received an interesting set of plans for a low-cost collapsible sound studio. It was originally designed for Mahaweli Community Radio in Sri Lanka which needed a sound-proof portable cubicle that could later be moved to a permanent site. This 2.1 x 3.6 meter studio can easily be dismantled and transported. The total cost, using locally available materials wherever possible, was US$1200, (excluding air conditioner).

For a free copy of the complete construction plans, request "A Low-Cost Collapsible Sound Studio," Broadcasting and Rural Development Working Paper No. 2 from: Unesco Consultant, Mahaweli Community Radio, Gampola Road, Peradeniya, Sri Lanka.

Rural Reconstruction Training Courses Offered

The International Institute of Rural Reconstruction, Silang, Cavite, Philippines, announces its schedule of International Training courses to be conducted during 1985 and 1986. Courses are designed for Third World nationals who are currently working in either middle- or senior-level management positions with rural development organizations in the Third World.

Applicants must have at least three years of experience in rural development work and a related academic background. They must be formally nominated by their organization, and must be in good health to stand the rigors of an intensive course which includes living and working in rural communities. Courses offered are:

Advanced Course in Rural Reconstruction, Oct. 14-Nov. 23, 1985 and Feb. 10-March 21, 1986
This six-week certificate course for middle-level managers places particular emphasis upon rural reconstruction implementation strategies in order to enhance attitudes, skills, and knowledge that prepare participants to become more efficient, effective, and committed managers of development programs.

Senior Manager's Seminar, Nov. 3-18, 1986
This is a four-week certificate course to provide a forum for sharing and analysis of current rural development practices which will increase awareness of, and capability to deal with changing realities and emerging issues in the Third World today. Major emphasis is on participant sharing, rural development issues and strategies, critical areas, and program planning and evaluation.

For further details contact: Director, Training Division, IIRR, Silang, Cavite, Philippines 2720 or Vice President, U.S. Office, IIRR, 1775 Broadway, New York, N.Y. 10019, U.S.A.

Commercial Cinema: A Medium for Development Communication

by John Riber and Steven Smith

Commercial cinema, with its well-established distribution network of cinema halls in many developing countries offers an exciting opportunity to present potentially sensitive development issues. In Bangladesh, the commercial cinema is very popular. The country's thriving film industry annually produces about 40 feature films which are distributed to more than 250 cinema halls across the country. Historically, cinema in Bangladesh has been strictly an entertainment medium, sharing a tradition with the Indian film industry. The formula film dominates—overflowing with melodrama, heroes, heroines, villians, and extravagant love song-and-dance routines. As in other countries, cinema in Bangladesh transcends the boundaries of local social mores, and even the poorest villagers can escape into a world where events occur that would not be tolerated in real life.

In 1982, Worldview International Foundation (WIF), an international voluntary organization whose activities focus on practical participation in the information process, established a media center in Dhaka, Bangladesh in order to use the film medium to disseminate development messages.

WIF first worked with the Ministry of Education (MOE) to promote literacy. They collaborated in making a short film, *It is Dawn; Open the Door* (*Bhor Holo, Dor Kolo*), for cinema hall viewing. To ensure that the literacy film had the same appeal as the feature attraction it would precede, entertainment was fully integrated into the production. Following the typical commercial film formula, a love story, with dancing, singing, and fighting, paralleled the developing social message—that those who achieve literacy will be rewarded.

Social Marketing in Films

Using the social marketing approach to promote a development theme, the producers were able to plug into a commercially successful network that assured them of reaching a large, attentive audience for a very low cost. An estimated eight million Bangladeshis have seen this literacy film in cinema halls, mobile film projection vans, and on TV. Evaluation of the project showed that 95 percent of the surveyed audience enjoyed the film and understood the intended message. Furthermore, the film was so popular that it was submitted as the Bangladesh entry at an international film festival in Moscow.

WIF's next project was considerably more challenging. Population Services International asked WIF to produce another film, for the Social Marketing Project (an A.I.D.-funded family planning communication project), this time with a family planning theme as the social development message. Although family planning is not encouraged in this Islamic nation, by using the commercial cinema medium where sexual themes are commonly featured, the possibility of introducing the controversial topic of family planning could even add to the film's popularity.

The script was developed from research conducted by Manoff International Inc., an American social marketing agency who worked closely with MRCB, a Bangladeshi market research agency. They identified the target audiences and the constraints against using contraceptive methods in Bangladesh. Then messages were designed to address these issues. One constraint was the hesitancy of husbands and wives to discuss family planning with each other. Research suggested that contraceptive methods might be used more frequently if this constraint could be overcome, so the decision was made to use this issue as the film's theme.

A love story entitled *Together* (*Amra Dujon*), was developed. The social message revolves around a newlywed couple; both are hesitant to immediately start a family, but neither feels comfortable discussing his/her feelings on the subject with the other because of strong cultural taboos against such a delay. As the story develops, the barriers are surmounted and this "model couple" begins to discuss the issue—using singing and dancing to express their concerns about family planning. Although the contraceptive method they have selected is not revealed (this would not be accepted even in a commercial film), it is made clear they are resolved to practice family planning.

Meanwhile, a parallel plot developes as a villain, an evil moneylender who resents this marriage because of his own desire for the heroine, interprets the couple's failure to produce a child as impotency on the part of the hero. The villain's continued pursuit of the heroine leads to action-packed fighting, a house burning, and ultimately to his comical humiliation; all key ingredients of a traditionally successful Bangladeshi commercial film.

Understanding audience expectations in a commercial cinema context is the key to successfully adapting this medium for social development messages. Although some foreign technical assistance was provided, the success of the two films described above depended on how their themes were adapted to the traditional feature film format. Alamgir Kabir, a leading film director in Bangladesh selected popular stars for the films, and in keeping with expected, though seemingly conflicting messages, dressed the village heroine in elegant clothing and jewelry. This reinforced her role as the stereotypical heroine of the film.

Viewers in developed countries who have been exposed to documentary films can appreciate them as a medium for learning. In developing countries, on the other hand, few people are exposed to the documentary film format. Movie-goers have paid their hard-earned money to be entertained, not educated. For this reason, a documentary-type film, lacking the escape and excitement viewers expect will not succeed in a commercial environment.

To date, commercial cinema has been an underutilized medium for development messages. WIF's experiences demonstrate how effective, well-conceived social messages can be presented in a commercial cinema context. It is

(continued on page 6)

Standard commercial cinema filming techniques are used to produce movies with social messages in Bangladesh.

(**Cinema** *continued from page 5*)
hoped this will encourage others to use this widely available channel of mass communication to disseminate other social messages. ■

Amra Dujon *is a 30-minute Bengali-language color film available with or without English subtitles in 16mm film, or video: 1/2" Beta or VHS, or 3/4" Umatic from DSR, Inc., Box 281, Columbia, Maryland 21045, U.S.A. Information about* It is Dawn, Open the Door *is also available from DSR, Inc.*

John Riber is an independent filmmaker working with Environment-Conservation Media Services, Madras, India. He established and administered the Video Media Center in Dhaka, Bangladesh from 1982 to 1984.

Steven Smith is currently working with DSR, Inc., and as a consultant on Third World information, education, and communication projects.

Microcomputer Course Offered

A course on *Microcomputer Acquisition and Uses in Development*, to be held Oct.12-Nov.2, 1985 at the University of Minnesota, is now open for registration. This course will guide individuals through the process of acquiring, implementing, and managing a microcomputer system. The course is designed for developing country senior- and middle-level managers with administrative and planning responsibilities. Participants are assumed to have had no prior computer experience. The course cost is $3000 per person, including lodging. For registration information contact: Fred Hoefer, 405 Coffey Hall, Univ. of Minnesota, 1420 Eckles Ave., St.Paul, Minnesota 55108, U.S.A. Telex/TWX: 298421 UM COLAG. Phone: 612-373-0725.

Call for Papers

The International Communication Association (ICA) invites you to submit your proposal for a paper, program, special session, workshop, or tutorial for its 1986 Annual Conference to be held May 22-26, 1986 in Chicago, Illinois, U.S.A. ICA comprises eight divisions and some special interest groups representing a variety of focuses in communication. Proposals are due Nov. 1, 1985.

For submission guidelines and further information write to:
ICA Headquarters, P.O. Box 9589, Austin, Texas 78766, U.S.A.

On File at ERIC

by Barbara Minor

Documents on agriculture and health education in developing nations that have been recently entered in the ERIC (Educational Resources Information Center) files focus on agricultural extension service and basic education, agricultural marketing principles, and several facets of health education. *All five of these documents are available in microfiche and four in paper copy from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping.*

- Perraton, Hilary and others. *Basic Education and Agricultural Extension. Costs, Effects, and Alternatives. World Bank Staff Working Papers, Number 564.* 1983. 297 pp (ED240 253)

The five papers in this collection examine the methods, costs, and effects of traditional agricultural extension services and basic education and present three case studies illustrating different approaches to using mass media for rural education. The first paper reviews the literature on the effectiveness of agricultural extension, and reports that extension agents' studies of internal efficiency have been generally critical, while evaluators of external efficiency (mainly economists) show much more positive results. It is suggested that extension agents often have irrelevant evaluation criteria and economists generally overestimate the specific impact of extension services. The literature on the comparative value of mass media and traditional approaches is reviewed in the second paper, which emphasizes ways in which mass media have been used for agricultural extension and for basic education, ways in which mass media have been linked with group and individual study, and the costs of using mass media as compared with other approaches. The remaining three papers present case studies of mass media use by a government department, the Extension Aids Service of the Ministry of Agriculture of Malawi; a nongovernmental organization, INADES Formation, in West Africa; and a semigovernmental agency, the Lesotho Distance Teaching Center. Available from World Bank Publications, P.O. Box 37525, Washington, D.C. 20013, U.S.A. for US$15.00; or from EDRS in microfiche only for 97 cents.

- *Agricultural Marketing Principles: A Training Manual. Training for Development. Manual No. T-31.* 1984. 157pp. (ED 251 698)

This module contains basic materials to enable the workshop facilitator to teach concepts in agricultural marketing to Peace Corps volunteers. Introductory materials include general suggestions for the facilitator, a checklist, and a suggested timetable for a two-week workshop. The course is organized by 11 concepts: needs assessment, market familiarization, basic terms and concepts, marketing in action, the production-marketing-consumption system approach to agricultural commodities, characteristics of commodity systems, behavior of market participants, simulation of a marketing system, identification of alternatives in previously identified marketing situations, role of Peace Corps volunteers in agricultural marketing, and sharing resources and plans for action. The module provides objectives, teaching techniques, materials needed, suggestions to the facilitator, handouts, worksheets, and visual aids for each concept. Lectures are minimal; content is presented primarily through learning experiences. An appendix contains additional visual aids, a bibliography, and supporting materials. Available from EDRS in microfiche for 97 cents or in paper copy for $12.65.

- *Health and Sanitation Lessons (Africa). Appropriate Technologies for Development. Reprint Series, Number 27.* 1978. 114 pp. (ED 243 818)

This book presents 43 health, nutrition, and sanitation lesson plans originally developed by Peace Corps volunteers in Niger and recently translated from French by Graeme Frelick for use in The Gambia. These lessons can be used in a variety of ways, in home visits, pre-/postnatal consultations, well-baby clinics, and primary schools. Unlike most traditional health lesson plans which emphasize the lecture method, these plans stimulate and encourage full client participation. Although designed in 1971 for Sahelian countries, these lessons can be adapted and modified, as appropriate, to serve as guides for health programs and materials development in other countries. Included are sections on antenatal care, childbirth, home visits, and maternal and child health clinic visits. Appendices provide sample recipes for weaning foods, a nutrition lexicon, and information about complementary proteins. Available from EDRS in microfiche for 97 cents or in paper copy for $9.15.

- *Community Health Education in Developing Countries. Appropriate Technologies for Development. Peace Corps Manual M-8. 1978.* 208pp. (ED 243 819)

This manual was developed by Peace Corps for those interested in promoting change to improve health conditions in their communities. Parts I and II focus on fundamental health education processes and discuss techniques and approaches for working with community members to plan and develop programs that are responsive to the community's expressed needs and goals. Part III presents another aspect of educational programs, that of transmitting information about health topics. This section includes specific reference materials on selected health topics relevant to developing countries, and it also discusses methods and aids for presenting such information to individuals or groups. Part IV deals with four common community health problems: nutrition, maternal and child health, control of communicable diseases, and accident

(continued on page 12)

Mass Media in Peru Promotes "Responsible Parenthood"

by Judy Brace and Reynaldo Pareja

Peru is currently embarked on a mass media campaign under the auspices of the Ministry of Health (MOH), to promote a variety of health-related activities to raise the level of consciousness and knowledge of low-income parents about family planning, immunization and oral rehydration. A joint effort between the Ministry, the U.S. Agency for International Development (A.I.D.), and a private advertising agency, has resulted in a series of TV spots, and a graphics package, grouped under the umbrella theme of "Responsible Parenthood," to encourage a thoughtful approach to the bearing and raising of children.

Because television spots are not as frequently used as radio spots for social service messages, our readers might be interested in the development of these spots.

The National Population Council (CNP) strongly advocated adoption of an overall theme of "Responsible Parenthood," and the MOH concurred. The elements that would be covered by this theme and reflect this responsibility would be family planning, oral rehydration, and immunization. That is, responsible parents decide on the number of children they can raise properly, they vaccinate their children, and they give oral rehydration solution to a child with diarrhea.

The mass media campaign activity was based on the results of fairly extensive audience research data that established knowledge and beliefs in the areas of family planning, immunization, and oral rehydration. With these data, message designers, working with a communications consultant, were able to develop media themes, test and correct them, and finally to air them.

Since responsible parenthood was to be the umbrella theme for all the spots, an introductory spot was designed to enunciate the components of responsible parenthood, and to establish a song and some recognizable phrases that would carry through to all the other spots. The elements of responsibility included adequate food, good education, health care, appropriate clothes, adequate housing, and much love. The overall song phrase adopted was "...loving and caring for the children that the couple decides to have."

The audience research identified two appropriate audiences at which to aim the family planning messages: those who want no more children and those who are using traditional contraceptive methods. For the first audience, TV spots were designed to reach 1) the woman, 2) the man, and 3) the couple. For the second audience, the spots were designed to reach the couple with an emphasis on either the male or female role. In each case the free services of the health centers were promoted.

The campaign was based on findings from both quantitative audience surveys and from focus group surveys. (In a focus group, six to 12 participants guided by a moderator, discuss topics relevant to the investigation underway. The participants are selected from representatives of the target audience on which the investigation is focused. Usually the findings from several groups are necessary for adequate research coverage.)

The Peruvian focus groups revealed information about contraceptive habits, male attitudes toward their wives' use of contraceptive methods, that there is a folk vocabulary for family planning activities (to incorporate into the spots to make them acceptable), that the quality of service given in the health centers conditions the continuing reliance on the center for future health services by its clients, and finally that the most credible source of information about family planning services would be a mature female doctor, herself a mother. (A former radio actress, now a gynocologist, was found to take this media role.)

Pretest Adjustments

The creative design team of the advertising agency, with the information from these surveys, then developed TV storyboards (a series of sketches or photographs prepared during the planning of a film or videotape to illustrate the sequence of the visual information to be conveyed). Four versions were developed for the umbrella spot on responsible parenthood, and one was selected after informal pretesting, for presentation to the MOH and CNP. In addition, several storyboard versions were made for five other target area spots.

After presentation to the MOH and CNP, suggestions were incorporated into the storyboards, which were then translated into animatics (the photographing of drawings or sketches by a movie or video camera in such a way as to simulate movement, which, accompanied by a narrative, becomes a "draft" version of the film or video product being planned). The animatics were taken into the field for pretesting by a research group.

The results of the pretest were very useful in selecting the final approach to be taken. Without a pretest, major mistakes would have been made. For example, an animatic that showed men talking about the family planning aspect of responsible parenthood over a pool table was rejected by the pretest audience as representing too many negative factors. So the setting of this spot was changed. A combination of male and female voices giving the message was preferred to a male-only narration. Chance encounters, in the animatics, between neighbors or relatives that gave rise to discussions about family planning were interpreted to have hidden or clandestine meanings, and were dropped or altered to clarify the situations.

The TV spots used the visual image of rabbits to suggest uncontrolled reproduction, and the narrative reminded the viewer to "remember the rabbits"—that responsible parents do not have children in an uncontrolled manner.

It had been planned to use the TV spot's symbol of rabbits in the radio spots as well, until the pretest of the radio messages revealed that reference to rabbits, without the visual image of rabbits in the arms of narrators, was too harsh, and was rejected by the pretest audiences. This was a surprise to the message designers, who had assumed that production of radio spots was simply a matter of transferring the TV images to a radio format. The pretest showed a clear distinction between the two media, requiring separate and unique content.

(continued on page 10)

Oral Rehydration Therapy Conference

The second International Conference on Oral Rehydration Therapy (ICORT II) will be held December 10-13, 1985, at the Hyatt Regency Washington in Washington, D.C. More than 90 countries are expected to be represented at this meeting, which will focus on implementing ORT programs, and report on the progress and new developments in ORT since the first conference in June 1983.

Topics for discussion at the conference include: communications and social marketing; distribution and logistics; health personnel training; supervision and monitoring; evaluation and cost issues; and integrating ORT with other health activities.

Simultaneous translation will be available in French, English, Spanish, and Arabic. There is no attendance fee.

The conference is sponsored by the U.S. Agency for International Development in cooperation with the International Centre for Diarrhoeal Disease Research/Bangladesh, the United Nations Children's Fund, the UNDP, the World Bank, and WHO.

For registration material please contact: Ms. Linda Ladislaus, ICORT II Conference Staff, Creative Associates, Inc, 3201 New Mexico Ave., N.W., Suite 270, Washington, D.C. 20016.

A Communicator's Checklist

1

World Communications: A Handbook by George Gerbner and Marsha Siefert (editors), (New York: Longman, 1984) 527pp.

This book is the result of an international conference on New World Information/Communication Order (NWICO) issues held in May 1980. It is important to note the date because it marked the high point of NWICO debate in Unesco. At that time the release of the MacBride Report was imminent and the Unesco Belgrade conference promised some important changes in the information order. Western nations seemed about to make concessions to Third World demands for better balance in information flow and faster transfer of technology.

It is unfortunate that the production process of almost four years (the book was published only in 1984) makes much of the material seem outdated in the light of subsequent events: few changes in either world orders of economy or information, the U.S. withdrawal from Unesco, a world recession especially dramatic in the Third World, and a proliferation of technology but without special concessions for the Third World.

The book suffers from a second drawback. It contains 54 chapters in the 485 pages of text, or an average of nine pages per chapter including references. There are few chapters that can afford to give the detail to make sense of the many important and complex issues they tackle. For example, it is dubious that anyone who is not already well versed on the subject can get anything from the six-page chapter in which Agrawal valiently attempts to summarize the vast Indian Satellite Instructional Television (SITE) project. Or what can be gotten from the four-and-one-half pages by Gorove who attempts to summarize the legal and political issues of the 1979 WARC (World Administrative Radio Conference) where NWICO issues were discussed on the technical level? There are many other examples, but these illustrate the basic problem.

There is a positive side to the book. First, the comprehensive nature of the contributions, which are placed in five sections, gives the reader a guide through important NWICO issues of the time. These sections are: 1) Global Perspectives on Information; 2) Transnational Communications: the Flow of News and Images; 3) Telecommunications: Satellites and Computers; 4) Mass Communications: Development within National Contexts; and 5) Intergovernmental Systems: Toward International Policies. The editors make an effort to provide coherent sets of chapters within these sections, but there are a number that seem out of place. Also, there are obviously weaker chapters that must be put somewhere but their inclusion hurts the overall quality. The editors must be complimented on the technical quality of their editing, the useful appendices (especially the glossary of confusing United Nations acronyms and the esoteric terms of high technology), and the relatively successful effort to make so many chapters fit some reasonable framework without long introductions.

It would be impossible to summarize the vast array of topics, but let me give a list of some chapters that I believe are still useful in this post-information order age. Many of the NWICO debate chapters and those dealing with the MacBride Report are of historical interest, but not as relevant to 1985 as some had hoped five years ago. In section one, the Cruise-O'Brien chapter on information in North-South negotiations is still important even though it has yet to be widely implemented. Also, the Amunugama chapter detailing the cultural issues of the information order debate remains in focus today. The work on news (mostly content analysis) in section two contains some useful empirical data, but it seems repetitious in the light of other studies that have shown the imbalances in news coverage. The proof of imbalance is clear enough by now; what is needed are some policy suggestions as to how best overcome the problem. Unfortunately no chapter in this section really addresses this policy issue. Section three on telecommunications is about technology changes, and the Hamelink, Dordick, Melody, and Rice and Parker chapters all contain useful insight and data very relevant today. Section four on mass communications and national development should be the most relevant to practical communicators in the Third World, but unfortunately it is not. There are a number of reprints in this section (Hornik and Atwood and Mattos come to mind) or simply chapters of marginal quality. The chapters by White and Motta which begin and end the section make the most sense in their theoretical frameworks and the policy implications they draw from them. Finally, section five on intergovernmental systems has much on NWICO and Unesco issues as well as the 1979 WARC, but much of the writing seems now out of focus. However, Pelton's chapter is perceptive about INTELSAT in foreseeing the problems it is now facing with increasing international competition from the private sector, especially in the U.S. Levin's observations about contradictions in U.S. internal and external communications' policies are useful reminders that the International Telecommunications Union (ITU) sessions of WARC are still ongoing and that U.S. policies are still suffering from these shortcomings. Block's chapter on the International Program for the Development of Communication (IPDC) that was created in Unesco as a more pragmatic way for Western nations to help solve information order problems now seems overly optimistic. IPDC has not received nearly the level of aid promised by beleaguered Western nations when it was created. It suggests that once NWICO pressure was off, things returned to normal.

This book would be a useful library reference and in this sense may be correctly labeled a "handbook." Although there are some useful and even important chapters, the brevity of treatment means that readers who wish to get a deeper knowledge of an issue will have to go elsewhere. ■

Available for $34.95 from Longman, Inc., 95 Church Street, White Plains, New York, New York, 10601, USA.

Reviewed by Emile G. McAnany, Professor of International Communications at the University of Texas, Austin, Texas. He has written extensively on the effects and uses of communication technologies in developing countries.

2

Bibliotech: The 1984/1985 Computer Cookbook, by William Bates. (New York: Quantum Press, 1985).

This book may finally be the pill that cures severe cases of technophobia and technophilia —and that happy balance alone is worth a good bit. But there is more: *Bibliotech* is visually appealing, extraordinarily well written, and "humanizes" the computer revolution by setting computers in a context of getting work done. Unlike the usual perspective that believes history began with the invention of the microchip, Bates does not confuse Silicon Valley with the Garden of Eden. His description of the "invention" of programming is a good story and a good example of the style and tone of the book:

> "Ada, the programming language, is named for Augusta Ada, Countess of Lovelace...the assistant of Charles Babbage, inventor of an analog calculating machine that is sometimes considered the first computer. Ada's mother was a nonconformist, and encouraged all of Ada's intellectual interests, including...mechanics and mathematics. In 1834, at 19, Ada married William King, later the First Earl of Lovelace, and eventually bore him three children.
>
> "Ada's work, however, was not hampered excessively by motherhood. Introduced to Babbage, she translated his trea-

tise on the analytical machine into French, adding her own notes that were the first description of what in the 20th century is called computer programming.

"Like many mathematicians, Ada was fascinated by gambling, and carried on a passionate correspondence with Babbage in an effort to work out a foolproof method of betting on horses, evidently without success. In her 30s, Ada gambled heavily, borrowing from her mother to hide her losses from her husband. She died young, at age 36, in 1852, a hundred years before her time."

Ada, the programming language, made its public debut as the darling of the Defense Department in 1980.

This little bit of computerbilia gives credence to the claim that this book is "the classic informal encyclopedia of personal computing." It is organized alphabetically by topics such as "bubble memory," "database managers," "the handicapped," "Japanese computers," "software piracy," "robots," "video disks," and "wordprocessing."

For each of the 100-plus entries, there is a discussion of the role played by the computer, amply illustrated, with appropriate references (including software), and a description of related technology. The six-page section on spreadsheets includes a list of Visi-Calc commands, a glossary of spreadsheet terms, and a description of the Lotus 1-2-3 program that is slowly but surely nudging Visi-Calc (and its relatives) out of first place.

As an "introductory text" to the world of microcomputers, this may be among the finest books I have come across, especially for the person whose background or interests are not highly technical. ■

A French edition will soon be published by Hachette Informatique, 79 Boulevard St. Germain, F75006, Paris, France.

Available in English for US$14.95 from Quantum Press/Doubleday, 245 Park Avenue, New York, NY 10167, USA.

Reviewed by Patti Lowery who has written and edited in the fields of health care, training, and international development. She was the former editor of *Micros in Management*, a newsletter devoted to microcomputer applications in developing countries.

3 **Communication Strategies: A Guide for Agricultural Change Agents,** by Herbert F. Lionberger and Paul H. Gwin (Danville, IL: The Interstate Printers and Publishers, 1982), 239pp.

Lionberger and Gwin have produced a well-written, clear summary of the U.S. extension model with a perspective adapted to the Third World setting. They provide a good explanation of the extension system from research and development (both pure and applied) through dissemination and integration of innovations.

Their book contains chapters on: 1) Assessing Change Variables in Local Communities; 2) Development and Delivery of Science Based Information the New Way; 3) Applications from Diffusion Research; 4) Problems in the Linking (i.e., the Extension System); 5) Interpersonal Communication; 6) Mass Media Channels as Communication Assists; 7) Planning Communication with Small and Mass Audiences; and 8) Selecting Change Strategies and Going to Work. Each chapter features a summary of recommendations for change agents and a list of references for further reading.

Communication Strategies is well-illustrated with both diagrams and drawings from Third World rural settings. One of its best features is a "Highlights" section at the beginning of the book with summaries of the main points from each chapter. There is also a welcome ten-page Glossary at the end.

The book's stated objectives are "(1) to develop an understanding of change processes and conditions as they apply to agriculture; and (2) to formulate strategies for implementing planned change that will help agricultural advisors with their mission to improve world food production and perhaps most of all help farmers achieve their own objectives." All in all, Lionberger and Gwin have done a good job of making communication, extension, and social change research relevant and accessible to the practitioner.

But it is a particular kind of practitioner. The book is aimed at "agricultural change agents, such as extension agents, farm advisors or county agents, agricultural missionaries, and others who are dedicated to developing world food supplies and helping people in other ways." However, the agricultural change agents the authors seem to have in mind are college educated. Despite the fact that this book is relatively free from social science jargon, it is still for the more sophisticated reader. The typical agricultural extension agent in much of the Third World, with 6 to 12 years of schooling and a limited vocabulary, will likely find this book too demanding. Indeed, a colleague who recently conducted a course on application and diffusion for Third World extension administrators reported that the book was too complex for his trainees and was used as background reading, a role in which it served very well. He also reported that it was useful to the trainers in reviewing theory and practice and in preparing training activities which translated this theory and practice into terms relevant to the Third World trainee.

The authors mention many of the critiques of the U.S. extension model and discuss the necessity of adapting the model to the realities of the Third World setting where infrastructure may be weak, necessary inputs nonexistent, research not relevant to farmer needs, mass media limited, and extension agents poorly trained and supported. However, they do not seem to ask themselves if this model is appropriate under such circumstances. Many authors have argued that utilization of the extension model results in a knowledge gap. The wealthier, better educated farmers are better able to try and to adopt innovations, the result being that the rich get richer, the powerful more powerful, and the poor and powerless more so. Another argument against the extension model is that its top-down approach reinforces the subservient and dependent role of the subsistence farmer. These results weigh against the utilization of the extension model, critics say, and for the use of communication models more relevant and responsive to the realities of Third World rural development.

Lionberger and Gwin clearly believe that the U.S. extension model is appropriate for developing countries and that it can be adapted to the specific conditions in the Third World. For example, they recommend gearing research toward the development of technologies that benefit the "littles" more than the "bigs," to use their terminology, with appropriate support services like small farmer credit and communication programs aimed specifically at subsistence farmers. They make a point of saying that "change strategies must be selected in the context of what is locally available, possible, and feasible." They discuss, for example, alternative strategies for the selection, training, and coordination of extension agents and for the utilization of media, depending on local conditions. One strategy which Lionberger and Gwin suggest for successfully meeting the needs of farmers is the participation of those farmers in helping determine research and information needs, and in helping the researchers and advisors communicate the new information appropriately. The authors make a concerted and well-reasoned effort to draw lessons from the mistakes of past attempts at too rigid an application of the extension model. The communication specialist who agrees that the extension model is appropriate for, and can be adapted to, Third World agriculture development will find many helpful hints for doing so.

Based on the assumption that the U.S. extension model can be adapted to the developing country setting, *Communication Strategies* offers a clear explanation of how this model works, ideas for adapting it to local conditions, and discussion of problems inherent in the evolving extension programs of Third World countries. This *Guide for Agricultural Change Agents* is a useful reference for technical assistance personnel and Third World professionals attempting to facilitate the growth of extension programs in developing countries. ■

Available from Interstate Printers and Publishers Inc., 1927 N. Jackson St., Danville, IL 61832, USA., for US$8.95.

Reviewed by Nancy Swing, an independent consultant in development communication and member of the adjunct faculties of the School of International Service and the School of Education at The American University, Washington, D.C.

Low-Cost Telecommunications on the Way

Earlier this year a transmission was relayed that represents a breakthrough in the use of low orbiting satellites for worldwide communications. Using amateur radio frequencies, inexpensive transmitters and receivers, and a personal computer, a team of technical volunteers from the U.S. and Canada sent messages from Hawaii to the University of Surrey in Guildford, England via a tiny satellite orbiting the earth over the poles at an altitude of 429 miles (690 km).

The messages—digitized "packets" of information—were stored in the satellite's on-board computer. A few hours later, as the satellite passed over Guildford, the letter-perfect messages were downloaded and printed out automatically by the Surrey ground station's small personal computer.

The system, called PACSAT, will offer telecommunications networking at a fraction of the cost of conventional telexes once it becomes operational. Ground station equipment, costing not more than $2,000 and capable of operating on batteries or solar power, can be carried in a briefcase. The first full-service PACSAT satellite is scheduled for launch in early 1987.

Volunteers from Volunteers in Technical Assistance (VITA), a private voluntary development agency in Washington, D.C., Radio Amateur Satellite Corp. (AMSAT), an international association of "ham" radio operators, and Interpares, a private Canadian agency engaged in community-based development cooperated in design and launch efforts.

(**TV** *continued from page 7*)

Armed with the feedback from the pretesting phase, actual live videotaping with actors began and nine spots were prepared: four on family planning, three on oral rehydration and two on immunization. These are currently being aired nationwide in Peru, on three TV channels, with time paid for by the MOH with A.I.D. funds. Informal evaluation of the spots has shown them to be so successful that funding is being sought to extend the airing of these spots for six months longer than the initial six-month broadcast period. ■

Judy Brace is director of the Clearinghouse on Development Communication, at the Academy for Educational Development. She has written extensively on communication application issues in developing countries.

Reynaldo Pareja is the current Mass Media and Health Practices Project Field Director in Ecuador for the Academy for Educational Development. He has been extensively involved with field applications of public health communications throughout the developing world for the past five years.

(**Health** *continued from page 1*)

select DSC materials from the local field office that are most relevant to that issue. A campaign is mounted to inform residents how to best deal with the problem. After their own campaign is over, the committee shares their experience with neighboring villages.

For example, after a DSC-supported campaign helped to reduce the number of waterborne diseases in one village (by installing a filtered water source), members of the development committee from that village visited neighboring villages to discuss their successful campaign, using the same DSC materials they had used in their own village.

DSC resource materials have been developed by organizations such as INADES, a resource center sponsored by the Catholic Church, RATELESCO (Zaire's educational radio and television authority), OXFAM, UNICEF, WHO, and other international organizations. Many of these materials are then adapted to the local culture and distributed to the various field centers. For example, a flip chart on prenatal care developed by a Peace Corps Volunteer for one health center was reproduced and distributed to all 50 rural health-zone field offices. Slide shows, flannelgraphs, and filmstrips are similarly duplicated and distributed.

Special care is taken to ensure that the materials are timely and relevant to the villagers' needs. Each item is pretested by communication specialists to see how the message is interpreted at the village level. Copies of a poster showing a man holding a baby were widely distributed only after pretesting found that this unconventional image was culturally acceptable, and that it effectively conveyed the desired message that fathers, too, are responsible for monitoring and maintaining their childrens' health.

Among the many types of DSC materials used, flipcharts and flash cards have been the most widely distributed. Approximately 60 percent of the village-level nurses use them regularly. Slide shows are frequently used as well. Always popular in the villages, they can be geared to particular village needs, and can be paced to encourage discussion during the slide show.

Traditional forms of communication also have been used to disseminate *Santé pour Tous* messages. For instance, plays, songs, and role-playing have been integrated into health practitioner training programs because trainers know from experience that modern communication devices, although effective, can break down—whereas songs and plays require only human participation to get the message across, and can easily be adapted to particular village needs.

Participants in the *Santé pour Tous* project believe that with continued improvements in the system, their efforts to encourage grass-root participation will outlast existing support structures, because the necessary framework will have been established at the village level for mobilizing local residents who then go on to share their experiences with others. ■

Iain McLellan is a freelance journalist currently with Radio Canada International and a research fellow with the International Development Research Centre in Canada.

(**Ag Com** *continued from page 2*)

Summing Up

A new kind of agricultural communication program is now emerging. It represents a hybrid system which brings together what we have learned about making better media products, with new ways of organizing and integrating media and new approaches to understanding and persuading our audience. Three fields—instructional media, social marketing, and behavioral psychology are contributing to our ability to use communications more effectively in support of agricultural development.

Many of these "new" ideas have been part of excellent programs in the past. They have emerged as the product of common sense and practical experience. But now we have a solid theoretical basis for understanding when they work and how to improve and extend their impact.

The axis of effective agricultural communication is the farmer, his needs, attitudes, perceptions, and behaviors. Our communication strategy must be comprehensive, combining a detailed understanding of our advice, its cost and benefits as perceived by the farmer, how it will be delivered, and what consequences it will produce. The approach must be balanced and complete, not emphasizing one element to the exclusion of another. We need new research techniques which permit us to more easily measure the farmer's response to communication programs so that mid-course corrections can be made as needed. These techniques must be practical, reliable, affordable, and applicable. The resulting messages must be simple, clear, relevant, and repeated often if they are to be heard, understood, and accepted.

Two decades have gone by since the first large-scale programs of international agricultural communications. Other fields, particularly health and population, have demonstrated that new communication stratregies are not only possible, but cost effective. We know now to set more realistic goals and not to expect that communication will solve problems alone. As part of the overall coherent program of agricultural improvement, communication has a role to play, a role at which it is becoming better and better. ■

William A. Smith is a senior vice president of the Academy for Educational Development. Howard Ray is Director of Agricultural Sciences and Technology at the Academy for Educational Development.

A New Source of Information on Latin American Education

by Ernesto Schefelbein

The expansion of a cooperative abstracting network now provides greater access to a large number of biographical references on Latin American education for people working to improve that region's educational system. This classification project was undertaken by REDUC (*Red Latinoamericana de Documentación en Educación*), an educational research and development network for Latin America and the Caribbean. It is a private nonprofit system covering 15 countries and 20 associated centers. More than 6,000 reports on educational topics have been abstracted and are now available.

Abstracts are published at each of the national centers for distribution among their national universities and libraries. Participating countries include Argentina, Bolivia, Chile, Costa Rica, the Dominican Republic, Ecuador, Nicaragua, Panama, Paraguay, Peru, and Venezuela. Both the ongoing search for relevant Latin American educational materials, and support for broader use of the centers are encouraged at National Research Meetings (ENI—*Encuentros Nacionales Investigadores*); through preparation and diffusion of relevant state-of-the art reports; and by supporting specialized networks. Each country has one or more centers that perform these functions in association with REDUC, which are in turn coordinated regionally by CIDE (*Centro de Investigacion y Desarrollo de la Educación*) in Santiago, Chile.

As well as being responsible for Chile's center, CIDE's role is also to integrate the entire system; introducing a common index by topics, education levels, and authors, and diffusing this index throughout Latin America. Additionally, CIDE is to act as technical support to the other national centers and to make certain that CIDE norms are maintained in processing and retrieving information.

Among CIDE's key supporters are the United States Agency for International Development (AID) and Canada's International Development Research Center (IDRC). A.I.D. support for the network began in 1981 with a grant to CIDE to assist in establishing six centers. With this support, CIDE also established a central microfiche file/database and carried out a series of regional and subregional meetings. Under a follow-on grant, A.I.D. will support the expansion of the network to four new countries, increase REDUC's database, provide assistance to members' centers in installing microcomputers and in training center personnel to carry out microcomputer searches, and provide assistance in directing educational research information to decision makers.

Network Organization

The purpose of the national centers is to make available locally the findings of educational research in Latin America, and to provide an overview of the educational situation in the region. However, the centers' existence and development alone is not enough to create a network. There must be an active exchange of information among these centers as well.

REDUC has both active and passive centers. Fifteen active centers collect papers and produce abstracts and bibliographies. The five passive centers collect educational materials and send them to CIDE where they are processed and published.

It is expected that national networks, similar to REDUC's regional network, will eventually be created. The experience of Peru could serve as a model. Peru is already operating an internal educational information network with five national centers that are integrated into CIDE, and several other provincial centers that are supported exclusively by internal funds. These national networks will contribute to a system-wide distribution of all REDUC materials.

Each national center has put onto microfiche the available references from national education reports published during the last decade. The bibliographies are indexed by 37 topics as well as by authors and educational levels for ease of retrieval, and to identify where further research in the educational system is needed.

Press clippings represent the main source of information about current educational policies in Latin America, because there are few formal reports available on this issue. Most research centers and libraries have press clipping files but without a topical index, retrieval would be impossible. Seven countries have classified their press clippings using the above-mentioned topical classification system. Over 10,000 press items clipped from 23 newspapers in seven Latin American countries are now accessible through the system.

Analytical Abstracts and Indexes

Each 400-word abstract includes a brief description of the document, the sources used, the method (or contents); and the main conclusions. Sometimes it may be too expensive to keep copies of important documents, so if a copy is not available at the center, the abstract indicates where one can be obtained.

CIDE publishes an annual Latin American Index of all Educational Analytical Abstracts prepared by the network for the entire region. This Index lists each abstract, classified by author and topic, enabling a researcher to identify suitable materials and to locate abstracted materials by the number and name of the center that produced the abstract.

National Education Research Meetings

With REDUC's assistance, participating countries' Ministries of Education have successfully sponsored nine National Educational Research Meetings between 1980 and 1983. As a result, there is greater visibility of and respect for ongoing educational research in Latin America and the Caribbean. In the future, there will be biannual National Educational Research meetings in participating countries to continue this exchange among the research community. The success of the educational information network depends on the ability of decision makers, documentalists, and researchers to communicate with each other. National meetings play a key role in bringing these groups together.

Papers presented at these meetings are published in their entirety by a few of the national centers, but most centers cannot afford to do this. Instead, they prepare abridged versions of their countries' papers and make these available at a lower cost, encouraging wider dissemination of this information.

REDUC has not only stimulated the diffusion of educational research, it has also stimulated its development. A solid infrastructure for research is now available based on a large body of historical and current materials available to participating countries.

The REDUC project represents better dissemination of important educational information, and contributes to the improvement of educational systems in Latin America. ■

Ernesto Schefelbein is an educational economist who works at the World Bank. He writes on educational planning and finance.

World Congress on Education and Technology

From May 22-25, 1986, the World Congress on Education and Technology will meet in Vancouver, Canada to consider the issues related to technology and our changing world. Participants from around the world will discuss the impact of new technology on education systems, on world cultures, and on global society in general.

As part of the "Innovations and Applications" theme, the Congress will feature an exhibit of high technology equipment and services relating to education and culture from around the world.

Questions concerning this conference can be sent to: Congress Coordinator, British Columbia School Trustees Association, 1155 West 8th Avenue, Vancouver, British Columbia, Canada, V6H.

Briefly Noted

by Judy Brace

Readers will recall previous references to materials produced by the Bangkok office of UNDP. We have received a number of new publications from the Development Training and Communication Planning (DTCP) unit that should prove valuable to many of you. These publications are intended to share the DTCP experiences so as to strengthen national and regional communication and training capabilities for rural development programs.

Guidelines for Planning Extension Programmes sets forth basic principles and planning steps of extension programs in a clear fashion, concentrating on objectives and the process to achieve them whether it is for an agricultural, health, or family planning program.

Making Rural-Based Development Projects More Effective is a brief paper that draws on the research findings of DTCP over the past five years. In answer to the question, "What makes rural development projects succeed or fail?" DTCP's findings are that there must be adequate government or private services at the village level (technology, supplies, information, fieldworkers, etc.), and there must be participation on the part of villagers in the development effort. Without both of these contributions a project will fail. "More projects fail because of inadequate services . . . at the village level than for any other single reason." This paper does not indicate how to make projects more effective, it simply points the direction to take.

The first in what appears to be a series on *Training for Rural-Based Development Projects* poses a number of questions about training and its effectiveness in development. It calls for a new look at the results of large investments in training and asks if, in fact, these results justify the expenditures. The paper looks at training as a very expensive form of communication, requiring "physical facilities, teachers, and a great deal of time on the part of both the students and teachers." Perhaps there are other, more efficient alternatives. One is proposed here—a human resources development model—in a simple outline form. Future papers will address individual steps of that model.

A case study documents *The Evolution of the Vietnam Audiovisual Centre* and how it developed from a media production unit for UNFPA in 1981 to a national audiovisual center for the entire country by 1984. The materials produced and the training courses offered are listed.

Those readers who would like a guide to preparing a training workshop will appreciate the report, *Workshop for Subject Matter Specialists to Strengthen Fortnightly Training*, that documents the training of trainers for Nepal's Agricultural Assistants. The trainers were taken through the planning, preparation, and presentation of a two-week training session which they would subsequently conduct. The process was divided into 11 steps which can be followed to design training for any type of content specialist.

In an attempt to clarify the issues inherent in any discussion about microcomputers, DTCP shares its own experience with micros for improving its management capabilities. Their report, *Microcomputer Primer: 1st Edition, a Layman's Guide for Selection and Use of Microcomputers in Developing Countries*, addresses the various uses of micros, the hardware components, kinds of software programs, as well as whether to buy a micro, what to buy, and "getting started." There are a number of reassuring comments and suggestions, and a shared spirit of adventure that should encourage all potential users.

For all of the above publications, and for a copy of their publications list, contact: Publications Editor, UNDP/DTCP, P.O. Box 2-147, Bangkok 10200, Thailand.

For planners and engineers wishing to strengthen the community participation and health education components of their water supply and sanitation programs, WASH (Water and Sanitation for Health Project) and IRC (International Reference Centre) have published a handy *Directory of Organizations Involved in Community Education and Participation in Water Supply and Sanitation*.

The directory contains an overview of 124 organizations in 56 countries as well as 10 international organizations with experience in socio-educational programs and research in water and sanitation. For each organization information is given on address, contact persons, affiliation, working scope and languages, activities, publications, and services.

Apart from being a useful aid to people looking for support to increase community participation in their projects, the directory also aims to stimulate technical cooperation within and between the developing countries.

The price is US$10.00. Non-commercial organizations and individuals from developing countries can request a complimentary copy. Write to I.R.C., P.O. Box 5500, 2280 HM Rijswijk, The Netherlands. ■

Press Fellowships Available

Applications for the Alfred Friendly Press Fellowship Program are now being taken for 1986 awards. Friendly, a Pulitzer Prize-winning journalist, devoted his life to good writing, honest reporting, and maintaining a free press. This fellowship for practicing journalists, provides a working visit of six months in the U.S. and covers all normal costs including round-trip and U.S. travel, and a monthly stipend. Fellows will work directly with media organizations throughout the U.S. as contributing reporters. Applicants should have six years of reporting experience, and must currently be employed as a print or broadcast journalist in an independent media organization. Journalists from developing countries are encouraged to apply.

For further information and application forms contact: AFPF Program Office, c/o Institute of International Education, 1400 K Street, N.W., Washington, D.C., 20005, U.S.A.

(**ERIC** *continued from page 6)*

prevention and meeting emergencies. Six appendices are included: (a) a discussion of how to construct a sample survey for the population; (b) examples of survey questions; (c) examples of several kinds of educational materials and aids; (d) a bibliography of sources of materials and information; (e) a glossary of terms used in the manual; and (f) preliminary guidelines for immunizations and health education. Available from EDRS in microfiche for 97 cents or in paper copy for $16.15.

- Stambler, Moses. *Health Education for Health Promotion in Less Developed Nations.* 1984. 52pp. (ED 244 879)

Designed for policy makers and health education professionals, this paper presents a rationale and strategies for adapting health education to meet the needs of developing countries. Emphasis is placed on the need for health promotion rather than prescriptive health education. The first of two main sections discusses perceptions of health problems; biomedical components related to health care in less developed countries (demographic factors, malnutrition, unsanitary living conditions, and lack of medical care); weaknesses in USAID and other agency approaches to health education; and historical changes in the training and use of health personnel and resources. Eight health manpower objectives are included. The second section considers changes from health education to health promotion. The role of the Alma Ata Conference (1978) in setting the stage for a participatory approach to health education, the relationship between behavior modification and health promotion, and policy reformulation priorities involved with health promotion are outlined. A chart illustrates differences between health education and health promotion. Also discussed are nonformal and formal school-based health education programs, cognitive bias in traditional school health programs, social variables in health education, the role of teacher training institutes in developing teachers as health agents, and recommendations for curriculum innovation to incorporate the new health promotion approach. The Self Discovery Project developed in Georgia to incorporate the new involvement approach to health promotion is reviewed, as well as similar programs in Tanzania and Brazil. Available from EDRS in microfiche for 97 cents or in paper copy for $5.65. ■

Reviewed by Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, U.S.A.

Addressing Health Communication in Africa

Several workshops held in Anglophone and Francophone Africa in recent months exemplified a unique collaboration between the media and health sectors in these two regions. Jointly formulated and executed country-specific plans emerged from these workshops that have been designed to educate and inform the public about family planning as a contribution to good family health.

The workshops were organized as part of the Family Health Broadcast Project of The Johns Hopkins University's Population Communication Services (JHU/PCS), launched in July 1984 with the Union of National Radio and Television Organizations of Africa (URTNA). This project comprises a number of activities designed to increase radio and television coverage of family planning and population issues in Africa including the two workshops mentioned above; a newsletter, *Family Planning Broadcast Bulletins*, containing broadcast-ready information; funds and technical assistance for radio programs; and distribution of innovative radio programs to member countries throughout Africa.

The purpose of the workshops was to acquaint regional broadcasters and family planning experts with the JHU/PCS/URTNA project. Anglophone URTNA members met in Nairobi, Kenya, Nov. 19-23, 1984 and Francophone members met in Dakar, Senegal, Feb. 11-22, 1985. Participants in both workshops included radio and TV producers responsible for health education programs; family health experts in ministries, public health institutions, family planning associations; and special resource persons in the fields of media and family health. Among the organizations contributing either technical or financial assistance were JHU/PCS, The Ford Foundation, the Academy for Educational Development, the Pathfinder Fund, and Family Planning International Assistance. Overall organizational responsibility was assumed by URTNA/Program Exchange Center in Nairobi, and URTNA's main office in Dakar, Senegal.

Objectives

The objectives of the workshops were to:

- examine the priority family health issues in Africa and the technologies available to deal with them;
- review previous experience in using radio and TV to educate about health and family planning;
- discuss the use of radio broadcast bulletins on health;
- develop preliminary proposals for the use of radio in family health and family planning programs.

For most of the broadcasters, the workshops represented their first exposure to information about the health benefits of family planning. For several of the countries this was the first time that family health experts and radio experts had worked together. Few of the countries have established working links between the health and information ministries.

The material presented about family planning and radio techniques focused on the particular needs of African countries and was presented primarily by African experts. Many of the participants brought tapes of radio and TV material on family planning to share with other broadcasters and health-sector participants. Significant program production ideas were generated by sharing these productions.

Another important outcome of the workshops was the opportunity it presented for participants to become familiar with the financial and technical assistance available through JHU/PCS, A.I.D., and the other major donors active in the population sector.

Conference Results

Both workshops were highly successful in generating enthusiasm among broadcasters about the possibility of expanding programming on family health. The 13 Anglophone country representatives each developed concrete plans to improve existing or to initiate new programs. As a result, new radio activities are underway in a number of countries including Kenya, where a male-responsibility radio campaign was incorporated into the A.I.D.-funded family planning program; Nigeria where a mini-URTNA workshop is being planned for radio and health experts; and in Liberia where a radio drama series on family planning is being planned. Many of the other proposals presented in Nairobi are being followed up by JHU/PCS and URTNA.

Eleven Francophone countries participated in the Dakar Family Health Broadcast Workshop with equally successful results. The historically conservative position of most Francophone countries regarding family planning and population policies did not prevent them from sending very senior-level officials to represent their broadcast organizations and family health programs.

As was the case in Nairobi, many of the plans that were conceived in Dakar are now being followed up, and official proposals are being prepared in Burkina Faso, Mali, and the Ivory Coast.

There was considerable exchange of information and experience among the countries which proved very beneficial in stimulating lively discussions about family planning policies and programs. Countries that have put family planning information on the air provided orientation to help broadcasters gauge the kinds of radio and educational efforts that might be acceptable in their own countries. Most encouraging was the general climate of opinion in Dakar indicating that the potential for expanding radio/television coverage is far greater than anticipated. Although at the present time nearly all of the countries give some kind of radio coverage to family planning and sex education topics, this is not yet done on a regular basis in a majority of Francophone countries. The broadcasting of even occasional programs is an indication of major changes in attitudes about the subject.

Future URTNA Family Health Activities

Actions stimulated by the two Family Health Broadcast Workshops range from recognition of the need for regularly produced *Family Health Broadcast Bulletins*, to providing adequate follow up to the many project requests emanating from the workshops. New staff will be taken on by URTNA to initiate and monitor radio initiatives in URTNA-member countries and to provide technical assistance to help improve the quality of family health broadcasts.

For more information about the two workshops contact: Population Communication Services, Population Information Program, The Johns Hopkins University, 624 North Broadway, Baltimore, Maryland 21205, U.S.A. or URTNA, Boite Postal 3237, Dakar, Senegal ■

Microcomputer Update

In our continuing response to your requests for more information about microcomputer applications in developing countries, *DCR* is passing along information gathered from several sources.

Agriculture

According to *Micros in Management*, the former Microcomputer Clearinghouse newsletter, a highly recommended publication from Michigan State University (MSU) is: "*Microcomputer Statistical Packages for Agricultural Research," Working Paper #17* by Thomas Stilwell. This 23-page paper is one of many from the MSU series, *International Development Papers*. Nine statistical packages expressly designed for agricultural research are described therein. Single copies are free for AID personnel and Third World requesters, US$3/copy for others. It can be ordered from: MSU International Development Papers, Dept. of Agriculture Economics, 7 Agriculture Hall, Michigan State University, East Lansing, Michigan, USA, 48824.

A low-cost microcomputer program designed by scientists from MSU and the Agricultural University of Norway, supported by A.I.D.'s Alternative Rural Development Strategies Project, is now helping African scientists to design, manage, and analyze agricultural research experiments. With only brief training, MSTAT can be used by persons with no previous microcomputer experience, and can be run on most microcomputers. Training and software materials are available in English, Spanish, and French. For a brochure on the technical and general features of this program contact: Russell

(continued on page 14)

(**Micros** *continued from page 13*)

Freed, Institute of International Agriculture, 101 Agriculture Hall, Michigan State University, East Lansing, Michigan 48824. (517/355-0174)

Health

A software package called "Clinical Microcomputer Applications for Developing Countries," has recently come to our attention. The package is written especially for use in areas where medical services are often provided by paramedic personnel, and offers:

- diagnosis and treatment information for prevalent and difficult-to-diagnose diseases;
- family planning, high-risk pregnancy, immunization and nutrition information; incidence and prevalence reports for epidemiological surveillance; recordkeeping of medical and supply inventories for management decision making, for resupplying, and for use monitoring.

The package was developed as a collaborative effort between National Capitol Systems and Medical Logic International, using an interdisciplinary team of physicians, nurses, health systems analysts, and computer programmers. The modules are being translated into Arabic, French, and Spanish.

For further information contact Douglas Mackintosh at (703)671-3360 or write to: National Capitol Systems Inc., 5203 Leesburg Pike, Suite 1601, Falls Church, Virginia, 22041, U.S.A.

Computers Donated

The following article (somewhat longer) appeared in the May 1985 *The Business Edition of Development Forum*, by Robert Lawson.

Under a new agreement between Apple Computers and PACT, the New York-based consortium of development agencies, 150 microcomputers will become available to nonprofit, nongovernmental organizations (NGOs) over the next three years.

While Apple will donate 150 of its popular IIe computers, PACT will administer the project, determine which organizations are eligible to receive the systems, and provide whatever support and training is neeed by those selected.

As a condition of eligibility for the computer aid, PACT requires that NGOs, or consortia of NGOs, must have active projects in developing countries. They must be able to demonstrate that they have needs which a personal computer can help fulfill. Even though the [computer] systems are given free of charge, the NGO must also show that it has the resources to operate and maintain an Apple computer. Further, the grants are aimed at development organizations whose activities involve direct grassroots participation by project beneficiaries.

The computer system will include the Apple IIe, two disk drives, monochrome monitor, printer, telephone modem, diskettes, and printer ribbons.

Software accompanying the system will include: wordprocessing, an electronic spread sheet for budgeting and planning, database management for the storage and retrieval of information, and communications software for use with the telephone modem.

Application guidelines and additional information may be obtained by writing to: PACT, 777 United Nations Plaza, New York, NY 10017, U.S.A. Telephone (212)697-6222.

Computer News Connections

For our readers interested in keeping up with microcomputer applications in developing countries, the final issue of *Micros in Management* newsletter listed several widely circulated publication to refer to for up-to-date micro information. Among those listed:

Microelectronics Monitor, UN Industrial Development Organization, P.O. Box 300, A-1400, Vienna, Austria.

IBI Newsletter, Intergovernmental Bureau for Informatics, Viale Civilta del Lavoro 23, 00144 Rome, Italy. ■

(**PANA** *continued from page 16*)

Research Findings

Analysis of the data showed that there was a heavy concentration of political news from the national news agencies, international organizations, the NA-Pool and from the PANA headquarters. Considering the number of stories that dealt with visits of heads of state and ministers as well as with meetings and conferences, it appears that a conscious effort is being made to show that there is considerable interaction and cooperation between and among African and other Third World countries.

The NA-Pool contributed the largest percentage of political news with 68.4% of its total coverage. The Pool acted as a link between PANA and other Third World countries with most of its stories datelined outside Africa. It also reported stories of African relations with other Third World countries. Only 42% of Unesco-, FAO-, and ILO-transmitted material was of a political nature; whereas 48.7% of their coverage was economic and 21.4% was social.

Given that one of PANA's objectives is to gear information toward the promotion of development, one would have expected to see a reasonably large proportion of news falling into the economic and social categories. However, PANA contributed only 21.2% in these two categories. If, in terms of promoting African political solidarity PANA does quite well, in terms of social and economic information, it does poorly.

The expectation was that there would be less unfavorable news in PANA copy than, say, AFP (Agence France Presse) or AP (Associated Press) copy. However, neutral stories constituted the bulk of the output of all contributing agencies, ranging from 42.9% to 53.4%.

PANA's Contribution

Because of its regular link with the NA-Pool, PANA is making a modest but significant contribution to the development of Third World or South-South information flow. If, in the past Africans saw each other through the eyes of the transnational news agencies, they now possess an agency that enables them to see each other more directly. This, in itself, is a considerable achievement.

However, the fact that less than a quarter of the members of the Organization for African Unity (OAU) contribute stories to PANA should be a matter of some concern. As PANA itself has pointed out, some countries do not have adequate or appropriate transmission or reception facilities and therefore cannot take full advantage of the services provided by PANA. A much more important factor is that of tariffs. Many news agencies use telex for transmitting and receiving news, and do not enjoy special tariffs from their Posts and Telecommunications departments. However, this issue is being worked on at the present time.

Few stories were datelined Addis Ababa, the headquarters of both the OAU and the UN Economic Commission for Africa (ECA), two very important organs for the political evolution and economic development of Africa. One would have expected the OAU secretariat or information office to have been one of the major contributors to PANA, but this is not the case. This is cause for concern since PANA is a creation of the OAU in the first place.

PANA's Impact

One cannot accurately measure the impact of PANA on its clients after its first year of operation because no such evaluation has been undertaken by PANA or by any other agency. It is recommended that PANA undertake or commission a study to determine what its clients think of PANA's performance. This might provide better insight into the factors that have resulted in disappointing contributions, and help to determine how well PANA is fulfilling the expectations of the publics that it is intended to serve.

As noted, a large percentage of PANA's output was in the political category. Some stories dealt with political issues which were of such local interest that they were not likely to be picked up by other national news agencies to be re-transmitted to their clients. Similarly, most of the stories in the cultural category were about sports contests, which were not likely to be of much interest to users of PANA copy elsewhere. It may be necessary for PANA to establish guidelines for contributing news agencies concerning the type of news that will be of interest to their wider audience.

Currently, PANA transmits in either French or English, but not both. If PANA would transmit all of its copy in both languages, greater use might be made of its wire copy.

Further Research Needs

This study set out to establish a preliminary profile of PANA after one year of operation.

(continued on page 15)

Resources for Infant and Maternal Nutrition

Some helpful tips and information resources on infant and maternal nutrition that may be of interest to our readers in health communications recently appeared in a two-part series "Improving Infant and Maternal Nutrition" by Gayle Gibbons in *Mothers and Children*, a bulletin from the Clearinghouse on Infant Feeding and Maternal Nutrition.

Assessing Information Needs

Identifying some ways to organize and distribute information, the Clearinghouse focused on techniques that have proven effective in disseminating messages at the local, regional, and national levels. The following suggestions will help you assess your information needs and plan your nutrition communication strategy:

- identify your target audience;
- determine what kinds of information the target audience needs;
- examine sources of information currently available to the target audience;
- look at different options for reaching your target audience;
- use other information activities/channels to expand your audience;
- begin your information activities on a small scale;
- scale your activities to the staff and available budget;
- identify information activities of other organizations and government ministries to use in planning your own activities.

Information From the Field

According to *Mothers and Children*,

> "A vast amount of information exists on infant and maternal nutrition that people in the field need but do not have access to. . . . [Outlets] for previously unpublished information should be identified . . . to help nutrition workers monitor new research and to profit from the experiences of related projects."

The list that follows contains a wide variety of information sources, including newsletters, that can serve as useful models for those undertaking health and nutrition information activities.

- **Appropriate Health Resources & Technologies Action Group (AHRTAG), 85 Marylebone High Street, London WIM 3DE, United Kingdom**
  AHRTAG publishes a quarterly newsletter, *Dialogue on Diarrhea*, in English, French, and Arabic. Free to Third World subscribers. The newsletter focuses on issues of diarrheal disease control.
- **The Breastfeeding Information Group, P.O. Box 59436, Nairobi, Kenya**
  This breastfeeding support group publishes a bimonthly newsletter in English. (No price given) They also have published materials on how to start a breastfeeding support group.
- **Caribbean Food and Nutrition Institute (CFNI), P.O. Box 140, Mona, Kingston 7, Jamaica**
  CFNI publishes *Cajanus*, an English quarterly, free to developing countries, others US$12/year. They have a library and produce and distribute materials on infant feeding to the 17 Caribbean member-countries. A catalog of their materials is available.
- **Clearinghouse on Infant Feeding and Maternal Nutrition, American Public Health Association (APHA), 1015 15th Street, N.W., Washington, D.C. 20005, U.S.A.**
  APHA publishes *Mothers and Children* 3 times yearly, in English, French, and Spanish. It is free to developing countries, others US$5.00/year. The Clearinghouse is an international center for information and materials on all aspects of infant feeding and maternal nutrition. It provides bibliographies, documents, and referrals.
- **The Foundation for the Peoples of the South Pacific (FFPSP) P.O. Box 1493, Suva, Fiji**
  FFFSP publishes an English quarterly, *SuPaMINN*. (No price given) It covers regional maternal and infant nutrition activities, information sources, training activities, and new publications aimed at health professionals and women's groups.
- **International Children's Center, Chateau de Longchamp, Bois de Boulogne, F75016 Paris, France**
  The ICC publishes *Children in the Tropics*, a bi-monthly English, French, and Spanish newsletter. A yearly subscription is US$17.00. The Center encourages the study of all problems concerning childhood and the training and education of persons involved in work with children, emphasizing developing countries. They maintain a library and provide information.
- **International Centre for Diarrhoeal Disease Research (ICDDR) G.P.O. Box 128, Dhaka 2, Bangladesh**
  ICDDR publishes a bimonthly English-language newsletter, *Glimpse*, which features articles on new research and program activities on diarrheal disease primarily in Bangladesh and Asia. (No price given) Issues contain abstracts of recent journal articles, summaries of ongoing research projects and conferences, and descriptions of programs.
- **The Institute of Nutrition of Central America and Panama (INCAP), Apartado Postal 1188, Guatemala City, Guatemala**
  Suplemento Sobre Nutrición Materno-Infantil, Lactancia y Destete is INCAP's thrice yearly newsletter, published in Spanish only. (No price given) It covers Central American regional breastfeeding and maternal nutrition activities and issues. The newsletter is part of a larger information project run by INCAP. Information requests accepted.
- **Teaching Aids at Low Cost (TALC), Institute of Child Health, 30 Guildford St.,London WC1N 1EH, United Kingdom**
  TALC is an important source of books, slide sets, and flannelgraphs on nutrition and child health. The materials are designed for use in developing countries and are available at cost. They also publish an occasional newsletter that reviews other materials aimed at field practitioners. A catalog of TALC materials is available.
- **Voluntary Health Association of India, C-14, Community Center, Safdarjung Development Area, New Delhi, 110 016, India**
  VHAI publishes a bimonthly English-language newsletter, *Health for the Millions*. (No price given) This is a broad primary health care publication, intended for rural health and development practitioners. Issues are thematic, but also contain information about program activities in the regions of India. VHAI is a large publisher of educational materials on many primary health care subjects. A catalog of print and audiovisual materials is available.
- **World Neighbors, 5115 North Portland Ave., Oklahoma City, Oklahoma 73112, U.S.A.**
  World Neighbors has prepared a number of overseas development materials including filmstrips, flipcharts, and booklets.
  Many of the filmstrips have been adapted for different regions of the world and are available in other languages. A catalog of print and film materials is available.

The Clearinghouse on Infant Feeding and Maternal Nutrition would like to hear more about other newsletters and information activities. Readers are encouraged to send samples of their newsletter or other materials to:

The Clearinghouse, c/o APHA, 1015 15th Street, Washington, D.C. 20005, U.S.A. ■

(**PANA** *continued from page 14*)

Given this specific objective, the scope was rather limited. Further studies might include:

- studying populations covered by PANA to determine if focus is balanced between the social elite and other population groups;
- comparing capital city/urban coverage with numbers and types of rural stories carried;
- measuring the amount of space PANA wire copy gives to continuing crises and to other "negative" news, with the space allocated by transnational news agencies to the same crises;
- comparing PANA's output for designated periods with a Western transnational news agencies (AP or AFP) to determine if the two follow fundamentally different philosophies, ideologies, or value systems. ■

Paul A.V. Ansah is director of the School of Journalism and Communications, University of Ghana. He recently worked on a research project on communication policies in Africa.

The Pan-African News Agency: A Preliminary Assessment

by Paul Ansah

This article examines the performance of the Pan-African News Agency (PANA) in the context of the role it intends to play towards establishing a more authentic voice for Africa, in accord with the values of the New World Information and Communication Order (NWICO). This article (somewhat longer) originally appeared in Media Development, *4/1984.*

The major objective of PANA is "to promote an effective exchange of political, economic, social, and cultural information among member states and to resolutely gear it towards the promotion of development." (From the Preamble of the PANA Convention.)

The Pan-African News Agency was established in May 1983 to voice African interests and aspirations, and correct the "distorted image" of Africa, its countries and peoples, resulting from partial and negative information published by foreign news agencies.

It was also felt that the flow of news that went in a north-south direction compelled the developing countries of the South to see each other through the perspectives of the powerful transnational news agencies whose interests and value systems did not coincide with those of the people in the Third World.

The purpose of our study was to establish a profile of PANA one year after it began operation. This should help to determine what PANA has done to provide the type of information that will balance the "partial and negative" image of Africa that the transnational news agencies are accused of depicting and to determine how well PANA is fulfilling the goals it set out to achieve.

PANA's Self Assessment

On the occasion of its first anniversary, PANA released a publication which was a balance sheet of its operations during the first year. This publication sums up the position of PANA thus: 'In the past, news coverage of Africa has tended to concentrate very heavily on the sensational—disasters, wars, assassinations. Seen through this prism, Africa appears a threatening and irrational place. PANA can help straighten this distorted image by providing detailed and continuous coverage of all aspects of life on the continent. Only this type of coverage can begin to make sense of Africa.'

According to this feature PANA had grown from its maiden transmission of 25 stories totaling 5,460 words from five national news agencies, to over 20,000 words a day from 15 national news agencies who transmit a total of 80 stories daily. Stories are also received from about 40 other countries on an irregular basis.

Not only does PANA receive and transmit stories from national news agencies, it also transmits news from the information departments of the SWAPO and the ANC liberation movements as well as from international organizations such as Unesco, FAO, ILO, and the European Economic Community (EEC). In addition, it transmits about 1,500 words a day from the Non-Aligned News Agencies Pool (NA-Pool). PANA could increase the volume of its daily transmissions, but it can transmit for only eight hours a day.

PANA depends on journalists seconded to its headquarters from about ten national news agencies. These journalists produce features and provide special coverage of major political, economic, and cultural events. Currently PANA transmits only in the languages in which stories are originally sent to it—either French or English, although many of PANA's own features and some international agency contributions are transmitted in both languages. Because most national news agencies do not have translation facilities of their own, they can only use copy that comes to them in a locally understood language. This may be one of the reasons there has been limited use of PANA copy.

PANA itself is unable to assess how much of its material gets into the African mass media, because many African publications and radio stations do not cite their sources. PANA plans to add a photo service and to establish a data bank. It also plans to add Arabic as a transmitting language, and to increase its daily output to 30,000 words.

Methodology of the Study

PANA wire copy from April, May, and June 1984 were selected for this study. The Ghana News Agency made wire copy available to us that was received from PANA, namely the news releases for 64 out of the 91 days during that three-month period.

The material was then coded in terms of source, length, content, language, category, direction, and frequency. The two transmission languages were coded to find out in which language a greater volume of material was transmitted. The material was classified into four broad categories based on those used by PANA in its self assessment: political, economic, social, and cultural.

The material was also coded in terms of direction: favorable, unfavorable, and neutral. Favorable stories reflected harmony within and between nations—cooperation, development, economic growth, easing of tension. Within the unfavorable category were included all stories which depicted or suggested conflict, misunderstanding, crises, border disputes, human or natural disasters, poverty, and disease. What did not fall into either of these categories was classified as neutral.

(continued on page 14)

Development Communication Report

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Assistant
William Amt, Program Assistant
ISBN 0192-1312

AED
International Division
Academy for Educational Development

Agricultural Communication; Health Campaign; Radio in Africa; Cinema and Social Messages; TV Health Spots; Educational Research Network; Health Communication Workshops; Nutrition Resources; PANA Assessment

Development Communication Report
Clearinghouse On Development Communication
dcr
Autumn 1985
No. 51

Agency for International Development
Library
Room 105 SA-18
Washington, D.C. 20523
OCT 1 8 1988

In this issue we return to an earlier DCR *tradition. We are focusing on a single development sector—health. In an upcoming edition we will look specifically at communication in agriculture. In both these sectors exciting new development approaches are underway; approaches which we feel are both worthy of special attention and applicable to other development sectors as well.*

A shift in donor agencies (AID, WHO, UNICEF) toward child survival through programs for oral rehydration, immunization, breastfeeding, and infant nutrition has caused health professionals to look for new ways of reaching mothers. Social marketing, behavioral studies, village health practices, and ethnographic research are being combined to introduce complex new child care behavior. Already several of these new programs have had dramatic results. In Egypt, Honduras, Colombia, and Indonesia, among other countries, health and communication professionals in both the public and private sectors have forged a new alliance—one that we feel can broaden and strengthen our audience's ability as communicators to make a positive contribution to development.

Communication for Improved Health Services

by Dr. Robert E. Black

In recent years, primary health care programs in developing countries have emphasized the utilization of simple techniques to assure child survival. These techniques include immunizations against important pediatric infectious diseases, oral rehydration therapy (ORT) for diarrhea, and breastfeeding and growth monitoring to prevent malnutrition. Each of these techniques is known to be efficacious, with benefits demonstrated by clinical trials and pilot studies. However, the effectiveness of these techniques in routine national programs depends not only on having efficacious interventions, but also on achieving optimal use by the target group.

System Constraints

Large investments directed at increasing the availability of these techniques through primary health care have often failed to accomplish the coverage necessary to have a substantial impact on child survival or nutritional status in the population. Services may be used inappropriately, infrequently, or not all by the intended target groups. Many factors affect the use of services, including perceptions about illnesses, attitudes concerning the appropriate sources of care, availability of "alternative" therapies, perceived quality of services available, distance and cost of services, as well as underlying factors like income, education, social status, and religion. Although these factors affect the use of all health services—traditional and modern, they present special problems in regard to the simple interventions of primary health care, since these are largely preventive, not curative, services. Immunizations prevent later serious infections like measles, oral rehydration therapy prevents dehydration, but does not stop diarrhea, breastfeeding and weight monitoring prevent malnutrition. It must be recognized that preventive services or actions are, in most societies, less readily accepted than therapeutic services. It is an unfortunate observation that most developing country populations are still reluctant to immunize their children against serious future disease, but adopted, almost as soon as they were available, the use of antibiotics and other medications for common self-limited illnesses.

Immunizations have been used in health programs for many years, yet it is estimated that less than 20 percent of the target age group in developing countries is currently being fully immunized with the six recommended vaccines. This is, in part, due to poor acceptability of the vaccines. A measure of this is that even in areas where vaccines are available, the dropout rates after the first of the required three doses of DTP vaccines are as high as 50 percent. Resistance to immunization comes from a limited understanding of specific infectious diseases and of the protective effect of vaccines.

(continued on page 2)

I am pleased that this issue of *Developement Communication Report* is dedicated to Health Communications. Today there are so many new health technologies that can save the lives of millions of small children—oral rehydration therapy, immunization, improved infant feeding, and related child survival practices. More research needs to be done, but clearly the technologies we now have need to be rapidly adopted by health systems throughout the world. Communication is a fundamental part of this technology transfer.

Experiences from Honduras, The Gambia, Egypt, Bangladesh, Colombia, Indonesia, and Swaziland demonstrate that mass media, social marketing, and strategies for behavioral change work when well integrated into health delivery systems. This issue, timed to coincide with the second International Conference on Oral Rehydration Therapy, ICORT II, presents promising new findings in this field.

I hope that readers will be encouraged to apply some of the successes outlined here in their own programs.

M. Peter McPherson, Administrator
Agency for International Development

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Communicating Health Services..... 1
McPherson's Message 1
ORT Project in Honduras/The Gambia . 3
Two-Way Radio for Health/Guyana 5
Nutrition Communication..... 5
Social Marketing: Consumer Focus..... 6
Swaziland ORT Project 7
Focus on Behavior..... 7
Formative Research: Pretesting..... 9
Funding Organizations & Health 10
A Communicator's Checklist..... 11
Health Communications Bibliography . 12
Egyptian ORT Campaign..... 13
A Worksheet for Mothers..... 15
R L A P Evaluation Results 17
On File at ERIC..... 18
MEDEX Primary Health Care Series 19
Colombian Immunization Crusade..... 20

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US $10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Bureau for Science and Technology of the U.S. Agency for International Development as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Readers are invited to submit typed manuscripts of no more than 1000 words, and to send in photographs.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Assistant
William Amt, Program Assistant
ISBN 0192-1312

AED
International Division

Academy for Educational Development

(**Black** *continued from page 1*)

Communicating for Acceptance

Health education and communication efforts are critical elements in improving individual acceptance of vaccines and of community participation in immunization programs. In particular, communication efforts are needed to involve informal groups, especially women's groups, schoolteachers, and community leaders in promoting preventive health initiatives. (See *Colombian Crusade* in this issue.)

Oral rehydration therapy has a demonstrated efficacy in correcting dehydration and is felt to be an important household intervention to prevent dehydration, malnutrition and death. Recognition of the usefulness of this simple, inexpensive technology has led to its incorporation into national health care programs in most developing countries of the world. In spite of this recognized importance for the last decade, ORT was estimated by the World Health Organization to be appropriately used for only 4 percent of diarrheal episodes in children of developing countries in 1983. It is obvious, from evaluations of some ORT programs, that information on proper treatment of diarrhea is not being conveyed adequately to the public. Furthermore, this lack of knowledge is often abetted by the ignorance of the health workers, who are often themselves not treating diarrhea correctly.

The communication of the ORT message to the public and to health workers at all levels is of increasing importance. The ORT message offers even greater challenges than the immunization message (primarily motivation to accept vaccination.) The ORT message must not only motivate individuals to use the "new" treatment but also must teach them how to use it. The message must be reinforced by health workers and community leaders, who must themselves be educated in the indications for and use of ORT. Furthermore, ORT must be used for every diarrheal episode, as many as eight per year in developing country children, not only on a few occasions as with immunizations. It is necessary that the new behavior become routine to the user, further accentuating the need for continuous communication of a consistent message and reinforcement of appropriate behavior.

Communicating Education

Some health programs can be cited for their successful use of communications techniques to achieve greater use of ORT. The Oral Therapy Extension Program of the Bangladesh Rural Advancement Committee was initiated five years ago. This program is built around oral rehydration workers who receive training in a five-day course, three days in class and two in the field, and further training in teaching methods and communication skills to enable them to effectively deliver their ORT messages. These workers visit each household within their area and incorporate selected important points about ORT into their conversations with community residents. As they explain how to prepare the oral rehydration mixture, they actually prepare it in the home and then supervise the mothers in its preparation. The project's built-in evaluation system has demonstrated that 98 percent of households were able to make a safe, effective oral rehydration solution and that mothers remembered the key ORT messages as well after six months as after one month.

Effective Mass Communication Strategies

Mass communication has also been used successfully in ORT programs. The Honduras Mass Media and Health Practices Project, implemented by the Academy for Educational Development, used a combination of radio, printed material, and interpersonal communication through health workers to popularize use of a new ORS product, *Litrosol*. In an Egyptian project, developed jointly by the government and the John Snow Health Group, ORT use rose dramatically as a result of sophisticated communication techniques.

Conclusion

These interventions illustrate several important steps in communication of health messages, namely: 1) analysis of the local vocabulary and beliefs, in the initial stages, to enable optimal message design and implementation; 2) pretesting as many messages, materials, and methods as possible; 3) focusing on carefully selected sets of objectives and behaviors; and 4) monitoring and improving the campaign while it is in progress.

Experience has shown that an understanding of cultural values and inclusion of health education and communications is essential to the delivery of basic health services. A WHO Expert Committee in 1983 concluded that "health, science, and technology can make a real impact only if the people themselves become full partners in health protection and promotion," and that health education must be integrated into health programs at all stages. ■

Dr. Black is Professor and Chairman, Department of International Health, The Johns Hopkins University School of Hygiene and Public Health. His work and research focuses on vaccine development, diarrheal disease control, epidemiology, and infectious diseases.

Vaccine Development Agreement

In September 1985, AID signed an agreement with the U.S. Public Health Service to develop new and improved vaccines for preventable diseases that plague developing countries. The first two vaccines to be tested under this program are an aerosolized measles vaccine, developed by Dr. Albert Sabin, which is expected to protect children as young as six months, and a vaccine against rotavirus diarrhea, the single most common cause of serious diarrhea in infants in most parts of the world.

Communication Works Across Cultures: Hard Data on ORT

by Anthony Meyer, Dennis Foote, and William Smith*

The Gambia and Honduras are extremely different countries. Yet from 1980 through 1984 the same communication and social marketing strategy was applied to teaching oral rehydration therapy (ORT) and related child survival practices in both countries. Within that strategy, each country developed campaigns that had their own character, peculiarities, and challenges. Nevertheless, data bridging three years and the two cultures show almost identical results, including sustained adoption of ORT and significant improvement in nutritional practices. This article will report on the most interesting similarities, differences, and data from the two countries, based on recently published longitudinal studies conducted by Stanford University and Applied Communication Technology.

The Setting

West Africa and Central America have a tremendous common problem: infant mortality. In both Honduras and The Gambia, diarrheal dehydration is the leading cause of death. Yet teaching about ORT to prevent dehydration due to diarrhea has major local constraints. There is a 3 percent female literacy rate in The Gambia, along with severe difficulty among 48 percent of females in interpreting two-dimensional pictures or drawings without assistance, a difficulty sometimes called "pictorial illiteracy." In both countries, the practice of purging and withholding food during diarrhea was common. In almost everything else relevant to an educational campaign, the countries were different. Spanish language and culture contrasted with The Gambian Wolof and Mandinga languages and tribal customs. Nuclear family dwellings of six to ten members in Honduras contrasted with extended family compounds of up to 100 members, including multiple wives, in The Gambia. Numerous private radio stations and publications in Honduras contrasted with one national station and relatively few print materials in The Gambia. In Honduras, locally packaged oral rehydration salts (ORS) were promoted under the product name of *Litrosol.* In The Gambia, a water/sugar/salt (WSS) home-mix solution was promoted, while World Health Organization ORS packets were reserved for clinic use.

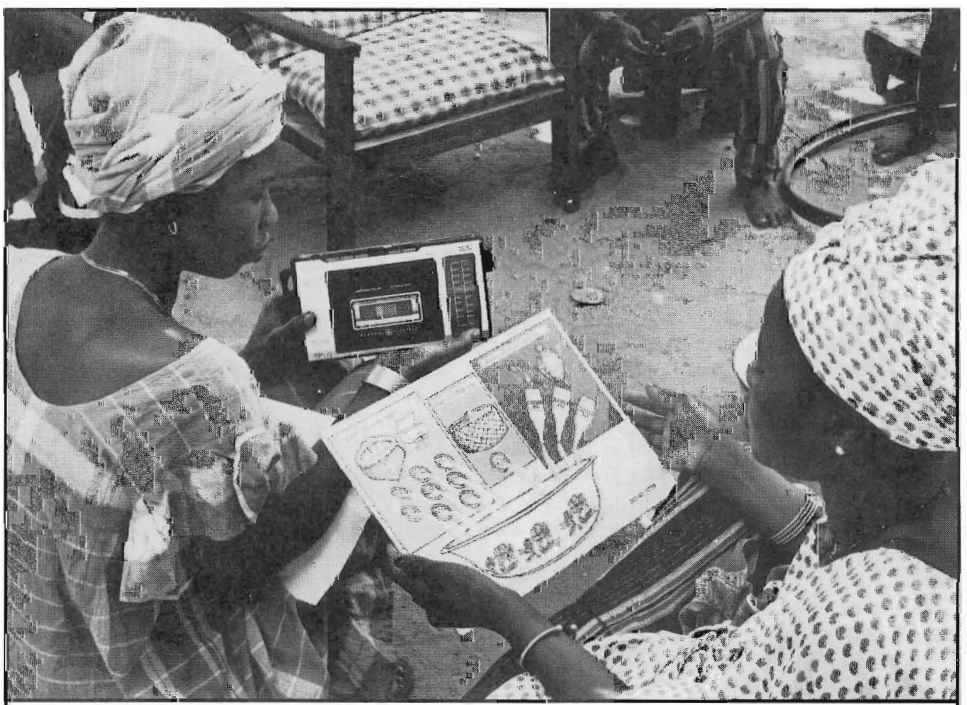
*The opinions expressed here are the authors' and are not represented as the opinions or policies of AID.

The Campaigns

The educational interventions in Honduras and The Gambia to teach ORT and related practices can be characterized as "campaigns" in the sense that highly specific objectives were pursued and multiple channels—radio, print materials, direct contact—were coordinated to support these objectives. Yet the interventions in Honduras and The Gambia parted with usual campaign practices because of their extended vision. Although emphasis shifted among topics for limited periods of time during the interventions, the key communication methods and procedures for conducting the interventions would not end abruptly but become an ongoing part of the public health education process and the health care delivery system.

What methods and procedures were applied? The interventions in Honduras and The Gambia adapted lessons learned from past experiences, drawing on the disciplines of social marketing, development communications, anthropology, and behavioral analysis in addition to the history of clinical experiences related to each objective. The methodological sequence was as follows:

- Village-level investigations were conducted to understand the local behavior, concepts, and vocabulary related to campaign objectives and to develop an audience profile. Focus groups, direct observations of practices in households, and in-depth interviews of local health personnel were used.
- Educational objectives were ranked in terms of what the audience needed to know and do; how feasible and costly the recommended practices were; how the recommended practices related to already prevelant practices; and what would reinforce trial and adoption of the recommended practices.
- Messages were developed and prototype materials were pretested on the basis of audience and product analyses.
- Multiple channels—media, print, face-to-face—were coordinated to carry simple, noncontradictory messages that relied on the functional strengths of each channel.
- Extensive monitoring of all systems permitted adaptation over time.



Women in The Gambia learn the correct ORS recipe using a color-coded flyer and listening to broadcasts of how to interpret it.

The Evaluation

Stratified, random panels of approximately 750 to 1,000 households with posttest controls, were surveyed in each country—nationwide in The Gambia (600,000 population) and in Health Region I of Honduras (400,000 population)—in repeated waves over a three-year period. In Honduras, a mortality study in Health Region I and additional surveys to assess campaigns to support other health intervention activities were also conducted.

The overall evaluation plan examined a sequential model of changes, recognizing that changes in any individual does not necessarily follow the same pattern:

- Exposure—Was the audience involved in the campaign and how?
- Knowledge—Did the audience learn the campaign information from its exposure?
- Behavior—What did the audience do differently subsequent to their exposure?
- Health Status — What were the health outcomes?

The strength of an evaluation of this nature and the attributed impact of an intervention does not rest on one indicator alone, such as increased learning about ORT. Rather the power of such an evaluation is in the conver-

(continued on page 4)

(**ORT** *continued from page 3*)
gence of indicators across the "causal chain" and in the timing of changes of the sample population with specific intervention messages. The key objectives were evaluated in terms of the above profile of significant, sustained change in both countries. The magnitude of observed change substantially exceeded that which is commonly expected from commercial advertising or public education campaigns. In this respect the power of the intervention methodology is confirmed. Highlights of the evaluation will be reported here. Full reports and project descriptions are available as noted below.

The Gambia

Pictorial Illiteracy. One technique used with strong impact in The Gambia was the "Happy Baby Lottery." This was a contest of skill rather than chance and proved successful in overcoming the difficulty many Gambian women experience in interpreting two-dimensional graphics. Flyers with color-coded pictographic instructions for mixing the WSS solution were distributed nationally as "lottery" tickets. The radio served as the first line of interpretation. Mothers were instructed how to mix the WSS by being verbally led from the sugar section of the flyer, coded blue, through the salt section in yellow, to the water section in pink. Soda bottle caps with sugar and salt, and soda bottles of water were used to illustrate the recipe. Radio also directed mothers to second- and third-line sources of instructions. Selected village women who had been trained by health workers in how to instruct mothers in the mixing of the solution, were identified by red "happy baby" flags over their homes. For treatment of severe cases of diarrhea, the radio directed mothers to the health workers. Mothers were invited to attend one of 72 mixing contests being held around the country over a five-week period. Correct mixing of the WSS solution during the contest earned a plastic container; correct answers to questions about the administration of the solution earned a bar of soap. These winners were then eligible for a grand finale drawing of 15 who received radios as prizes.

Gambian Learning and Behavior Changes. The "Lottery" in The Gambia marked the beginning of a two-year effort to teach WSS and related diarrheal control and infant feeding practices. The evaluation shows that the mothers learned about ORT and changed their behavior accordingly. An overview of the two-year data set indicates sustained adoption of WSS solution to treat diarrhea.

Gambian mothers first had to learn of the existence of a water/sugar/salt mixture for home treatment. Awareness reached a high of 90 percent of mothers by the end of the campaign. They then had to learn a formula for mixing the solution at home. The formula required that they know the three ingredients and the correct amounts of each. Questions about these were combined into an index; by the end of the campaign, 70 percent of mothers and all health workers achieved a perfect score of this mixing index.

These gains in knowledge were translated into changes in behavior. One result of having an appropriate home treatment for diarrhea was that more cases were treated at home; the percent of cases treated at home was 17 percent at the start, but averaged more than 50 percent for the entire second year.

WSS displaces virtually all other home treatment; an average of over 90 percent of cases in the entire second year were given WSS if they were treated at home. Coverage of all cases with WSS treatment rose quickly and stayed high during the second year. At the beginning of the campaign only 4 percent of all diarrhea cases were treated with WSS, but during the second year an average of over 50 percent were treated with this solution.

Other changes also resulted from campaign messages. The inappropriate practice of withholding foods other than breast milk during diarrhea fell to a tenth of its initial level (dropping from 32 percent to 3 percent). The feeding of solid foods during diarrheal episodes rose from 14 percent at the beginning of the campaign to 45 percent.

Honduras

The campaign in Health Region I of Honduras emphasizing ORT and related diarrheal control and infant feeding practices lasted two years, then expanded to the national level and to other topics during the third year—immunizations, malaria control, and compliance with tuberculosis treatment. The same method of village investigation, behavioral analysis, pretesting, integrated use of multiple channels, and monitoring were applied in developing and implementing a sustained, phased, public health communications intervention.

"The magnitude of observed change substantially exceeded that which is commonly expected from commercial advertising or public education campaigns."

Honduran mothers also learned and changed their practices significantly—and fewer of their children died of dehydration due to diarrhea.

ORS Usage. Litrosol was a newly introduced product, so there was no awareness of it before the campaign. Within six months of starting the campaign, however, half the mothers could recall the product name. The percent of mothers who could recall the name *Litrosol* leveled off at about three-quarters of all women during the campaign's second year.

At the beginning of the campaign none of the Health Region I mothers had used *Litrosol*, but within six months more than one third (37 percent) of all surveyed mothers had tried it. By the end of the campaign over 60 percent of mothers had used *Litrosol*. Notably, not only had most mothers tried it, but the case treatment level with *Litrosol* rose to over 35 percent of all cases within two years. Data from evaluation of follow-up efforts after the initial campaign indicate that at the end of three years, use rates were still at an impressive 30 percent of all cases.

Mortality Drops. Tracing changes in mortality in developing-country settings with limited resources was the greatest challenge to evaluation. Although tracing mortality could not be done adequately in The Gambia, in Honduras there were regional mortality statistics of sufficient reliability, covering an adequate time period, whereby a significant impact on mortality could be documented. Widespread use of *Litrosol* appears to have reduced diarrhea-related mortality by a substantial amount. The proportion of deaths involving diarrhea among children younger than five fell from 40 percent in the two years prior to the campaign to 24 percent two years later. Total mortality also dropped by a slightly smaller amount.

The campaign methodology has subsequently been applied to tuberculosis, malaria, and immunizations as well as diarrhea. These campaigns also achieved high levels of exposure and knowledge change. For example, in the malaria campaign, knowledge that the reason for having one's house sprayed was to kill mosquitos nearly doubled, from 49 percent before the campaign to 94 percent afterwards.

Program Expansion

The project has been expanded into the new AID initiative, HEALTHCOM, which will use experience gained here and work in up to ten new countries, broadening the focus on ORT to include immunization, infant nutrition, breastfeeding, vector control, and other child survival technologies.

Reports on the Mass Media and Health Practices Project intervention and evaluation are available by writing to HEALTHCOM, c/o *DCR*. ■

Dr. Meyer, a development communication specialist, is HEALTHCOM Project Manager in AID's Office of Education; Dr. Foote is President of Applied Communication Technology; and Dr. Smith is Senior Technical Director of the HEALTHCOM Project and Senior Vice President at the Academy for Educational Development.

PTC'86 Forum

The Eighth Annual Forum of the Pacific Telecommunications Council will be held January 12-15, 1986 in Honolulu, Hawaii. PTC'86 will focus on "Evolution of the Digital Pacific." English, Japanese, and Spanish simultaneous interpretation will be provided at plenary sessions. For information contact: Pacific Telecommunications Council, 1110 University Avenue, Suite #308, Honolulu, Hawaii 96826, Telephone (808) 941-3789. Telex 7430550PTC

Two-Way Radio for Rural Health Care Delivery

by Michelle Fryer, Stanley Burns, and Heather Hudson

Over the past six years, the MEDEX* two-way radio network has emerged as the most effective and reliable system of its kind in Guyana. Originally designed to ease the communication difficulties of medical personnel in the field, this two-way radio system is now fully incorporated into the administration of primary health care.

Background

Rural health care delivery poses formidable problems in developing countries. Not only are there shortages of physicians and facilities, but lack of adequate transportation and communications hinders the efforts of health care providers in the field. Faced with vast rural and remote areas without medical services and an acute national shortage of physicians, the Guyana Ministry of Health embarked upon a program in 1976, designed to train paraprofessional health workers, "medex," to serve these isolated areas. (Medex is the abbreviated form of "extension of physician" in French.) Initial funding for the project came from the Canadian International Development Research Centre (IDRC) and the U.S. Agency for International Development (AID), with training assistance from the University of Hawaii.

After their training in the capital city of Georgetown, medex were posted throughout the country to become the "front line" of the health care delivery system. However, once in the field, the medex were effectively isolated from their supervisors, their sources of drugs and supplies, and from each other.

The only developed transportation systems in Guyana are along the coast. Inland is the *riverain* region where transportation is primarily by boat. Farther inland is the hinterland, where jungle gives way to savannah, and where four-wheel drive vehicles and motorcycles can be used only in the dry season. In the rainy season, medex may be cut off from the people they serve for weeks. Infrequent air service links Georgetown with the larger interior towns.

Like the transportation system, the national telecommunications system is developed only along the coast. Communication by letter to the interior could take weeks or months. In an emergency, medex would try to send a message through one of the private radio systems, which were often inaccessible and unreliable. As a result of the limited transportation services and lack of communications, medex were unable to summon assistance in emergencies, to follow up on patients who had been sent to a hospital for treatment, or to order urgently needed drugs and supplies. Medex administrators and trainers were also concerned about the lack of contact with medex in the field who could not be supervised and could not take time away from their posts for continuing education.

To address these needs, AID funded a pilot project from 1979 to 1985 which established a dedicated two-way radio system for the MEDEX program. The initial network of ten sites has now been extended to twenty-eight sites, with plans for at least ten more.

System Design

Site-to-site and site-to-headquarters distances range from 48 km to in excess of 400 km. Topographical constraints and extremes of distances coupled with acceptable reliability requirements, dictated the choice of a high-frequency, single-sideband two-way radio system.

The system design, chosen in consultation with the Guyana Telecommunications Corporation (GTC) which operates the national telephone network, is a low-powered system operating on three frequencies with sound quality similar to that of a taxi radio.

During the first phase of the project, portable generators were used at some sites and solar panels at others to provide the system's power. After a year it was found that fuel for the generators was expensive and difficult to obtain, and that some generators had broken down. No problems were encountered with the solar panels, so generator-run units were replaced with the more efficient solar installations.

Each site is equipped with a fully transistorized 25-watt Stoner SSB-40A transceiver, a three-element dipole antenna, a 12-volt automotive battery, a five-watt solar panel for trickle-charging the battery, and a set of hand tools.

Operation and Maintenance

The approach taken to operation and maintenance of the system is as important as a sound technical design. To ensure that Guyanese personnel would be able to take full responsibility for the system, the project provided: adequate training; local installation and maintenance; effective program management;

(continued on page 16)

**For the purpose of this article, medex refers to the paraprofessional health worker and MEDEX to the program.*

A Communication Strategy to Improve Nutrition in Indonesia

by Marcia Griffiths and Elizabeth Nobbe

The ability to meet the health needs and provide the essential health services to a community is both a promise and an expectation of a primary health care (PHC) project. Another important goal, establishing community-supported health care services, does not necessarily result in measurable or easily documented benefits that national governments may demand before assisting a local health service. Social marketing offers a way out of this dilemma. It helps to develop programs based on the needs and resources of the families that health programs serve, and at the same time it identifies types of behavior change that can be documented.

As an experimental project, the Nutrition Communication and Behavior Change Component (NCBC) of the Indonesian Nutrition Development Program (UPGK) showed how social marketing could further the national program's goal of significantly improving the nutrition of Indonesia's young children and pregnant and nursing women. The social marketing approach successfully developed nutrition communication materials that were responsive to the needs, desires, and resources of the communities, particularly of the mothers and volunteer nutrition workers.

The UPGK, begun in 1974, popularized community nutrition. Its clear, easily communicated and measured goal—the monthly increase in weight by each child under five—is promoted by a trained corps of volunteer nutrition workers, *kaders*, through a monthly weighing program.

NCBC Project Development

Between 1977 and 1979 Dr. I.B. Mantra, NCBC Director, established administrative and community infrastructures modeled after UPGK in five culturally diverse areas in Indonesia.

In mid-1979, with technical assistance from Manoff International, the project departed from the approach of the national plan and embarked upon an unprecedented course with the formative evaluation of educational messages and a communication strategy. The success of the NCBC Component was to be judged by whether education—as the sole intervention—could produce significant improvements in the nutritional status of children and the improved nutrient intake of pregnant and lactating women in project communities.

The first step was to design and execute qualitative research on the health and nutritional problems of children under three and pregnant and nursing women, consisting of in-depth household interviews, concept testing with mothers, and focus group interviews with *kaders* and community opinion leaders.

(continued on page 14)

A Focus on the Consumer: Social Marketing for Change

by L. Edward Lucaire

Social marketing (SM) is neither magical nor mystical. It is merely the application of commercial marketing principles to advance a social cause, issue, behavior, product, or service. SM has added a framework to social efforts that heretofore lacked organization, and has inspired projects that otherwise might never have been undertaken.

In the United States, SM techniques have been particularly successful in the health field. The National Cancer Institute used marketing techniques to change the behaviors of U.S. women and health professionals regarding breast cancer detection. The National High Blood Pressure Education Program, using these same marketing techniques, has increased patient compliance with antihypertensive regimens. Likewise, the American Cancer Society developed a sound marketing program to convey the benefits of giving up smoking, especially for teenage girls.

Although advertising and other communications are central to social marketing, the discipline also depends upon other elements of what is called the marketing mix: product, price, place, and promotion. Social marketing is a cyclical process involving six steps: analysis; planning; development, testing, and refining elements of the plan; implementation; assessment of in-market effectiveness; and feedback.

Developing Country Applications

In developing countries, health has similarly been the greatest beneficiary to date of applied social marketing techniques. Family planning programs and oral rehydration therapy (ORT) projects have used SM techniques effectively in numerous Third World countries. For instance, in Honduras oral rehydration salts (ORS) were first marketed in 1980 under the brand name of *Litrosol. Litrosol* was heavily advertised on television and radio, and widely distributed through the existing health care system and by local village volunteers. By the end of the first year of the ORT campaign, 49 percent of the mothers had actually used *Litrosol* and 71 percent could recite the radio jingle composed for this campaign. More importantly, during the two-year campaign period, diarrhea-related mortality in children under the age of five dropped from 48 percent to 25 percent. Similar ORS marketing results have been achieved in Egypt and The Gambia. About 50 percent of Egyptian mothers had used ORT after one year of the program and over 50 percent of cases for the second year of the campaign in The Gambia used ORT.

These successful ORT efforts have attracted the interest of other international organizations involved in child survival, and social marketing is being integrated into their overall strategy. Last year UNICEF and the CRS Company, Ltd. in Nepal signed a contract to market their own oral rehydration salts under the brand name *Jeevan Jal.*

Social Marketing for Contraception

Social marketing has been even more widely applied in the sale of contraceptives in developing countries. Contraceptive social marketing (CSM) programs are well-established in Bangladesh, Sri Lanka, India, Thailand, Nepal, Colombia, El Salvador, Jamaica, Mexico, and Egypt. More recently, programs have been established in Honduras, Guatemala, Barbados, St. Vincent, and St. Lucia. SOMARC (Social Marketing for Change) is a project funded by the US Agency for International Development (AID). It is working with existing CSM programs and also helping to launch new CSM programs in The Dominican Republic, Ghana, Indonesia, Kenya, Tunisia, Costa Rica, and other countries. Other health topics such as immunization, breastfeeding programs, and disease prevention efforts may also benefit from a marketing perspective.

Market research is an essential aspect of the marketing process. Research may be conducted to help make marketing decisions on brand names, pricing, target audience, product preferences, awareness attitudes, etc. For the most part, local private-sector market research firms are hired to conduct contraceptive social marketing research.

Contraceptive products are often distributed through AID, although they also are available through other sources such as the International Planned Parenthood Federation or directly from manufacturers.

Local distributors and wholesalers are often used to channel products to hospitals, clinics, and retail outlets. Some programs like Egypt's Family of the Future (FOF) developed its own distribution system and a staff of medical representatives to administer the program. Contraceptive social marketing programs in Nepal and Bangladesh have their own sales forces as well as local advertising agencies who promote, publicize, and advertise contraceptive products. Thus, CSM programs are successfully functioning as legitimate marketing organizations in developing countries, and are using local private sector resources in the process.

The results of these programs are encouraging. In Egypt, 31.2 percent of contraceptive-age women and men use Family of the Future products. More importantly, FOF's aggressive promotion of its products has expanded the public's consciousness about family planning. This promotion, almost certainly, has greatly contributed to the increased use of all contraceptives in Egypt. The National Family Planning Board in Jamaica, which produces *Panther* condoms and *Perle* oral contraceptives, has about 80 percent and 50 percent of their respective contraceptive markets. Profamilia, the contraceptive social marketing program in Colombia, has a 31-percent share of that contraceptive market. In all these countries, birth rates are declining.

Conclusion

Social marketing has proven successful despite significant obstacles like cultural and religious resistance, lack of knowledge about the topic, illiteracy, and pricing constraints. But SM is no shortcut for success; it requires both experience and sensitivity to local conditions. Fortunately, many developing countries now have their own marketing resources. Local private-sector advertising and marketing agencies are helping public and private sector programs. In countries where local resources are scarce, AID has created several programs to provide technical assistance in social marketing. These include SOMARC, PRITECH, and HEALTHCOM. Contact the Clearinghouse on Development Communication, or your local USAID Mission for further information on any of these assistance programs. ■

Edward Lucaire is a Senior Associate with Needham Porter Novelli, a U.S. marketing communications firm that provides assistance and technical advice to developing countries in sectors such as health and family planning.

Child Survival Management Course

A six-week child survival management course, including a two-week field practicum in Haiti is being offered by Boston University School of Medicine and School of Public Health from March 1 - April 15, 1986. This is an integrated course with enrollment limited to 25, intended for participants from countries with limited resources. It provides training in: essentials of child survival; introduction to health economics; management methods for health services; microcomputer applications; integrating health facility and program design; community participation; and field study techniques.

Applicants should have completed the equivalent of a bachelor's degree or other comparable technical or professional training after high school. Applications must be received by January 15, 1986. For application information write to: Management for Child Survival Course, Office of Special Projects, Room A-310, Boston University School of Public Health, 80 East Concord Street, Boston, Massachusetts 02118, USA. Telephone (617) 247-6018. Telex: 200191BUHPI

A Focus on Behavior: The Role of Health Practices Studies

by Paul Touchette

Most health education programs use knowledge and attitude change as the primary measure of success, but knowledge is often a poor predictor of either use or proper use. Ninety percent of women in the Bangladesh Rural Advancement Committee (BRAC) rehydration therapy program learned the *Seven Points to Remember* about oral rehydration salts (ORS), but only eight percent of women in some locations of the program area actually used ORS to treat diarrhea. These results are common among development programs—it is often easier to teach facts, even change attitudes or beliefs than to alter behavior. This realization has led planners to focus on the specifics of a particular behavior, trying to assess not only what a mother must learn to improve her family's health, but how she already behaves and why she might not want to change.

Within the context of child survival, the mother is faced with numerous decisions such as:

- Why should I give up an old remedy for a new medicine?
- Why should I take a healthy child to a clinic to be stuck with a needle and then be fretful all night?
- How do I remember the correct ingredients in a home-mixed ORS solution?
- How do I determine whether my child is malnourished or just small?
- When do I introduce weaning foods and how do I determine which ones are best?
- How do I discuss having fewer children with my husband when he wants to have another male child?

Each question suggests a complex set of behavioral responses. New health practices require new responses, many of which are not well understood, believed in, or practiced. The role of behavioral analysis within this context is to probe the reason why a given practice continues, how a new health practice might be best introduced, and how such a practice can be designed, presented, and used to ensure that it is maintained over time.

Why Behavior Does Not Change

The experimental analysis of behavior suggests six circumstances that may contribute to the absence of desirable behavior, either singly or in combination: 1) Necessary skills or knowledge may be absent. For example, rural mothers often know that it is good to boil water, but they do not understand that boiling the water actually kills the parasites they fear. 2) The ability to identify when to alter the behavior may be undeveloped. Mothers know that some foods make their children ill, but do not know that the longer the food sits after preparation the more likely it is to cause illness when fed to their children. 3) Necessary materials or implements may be unavailable. ORS packets, for example, are often out of stock. 4) There may be no positive consequences for engaging in the behavior. Most preventive behavior, for example, produces no immediate results, but is beneficial in the long run. 5) There may be positive consequences for engaging in incompatible behavior, such as fasting during diarrhea. Fasting does cause the child's stool volume to decrease—a goal mothers want to achieve. 6) There may be punishing consequences which discourage the desired behavior pattern. During rehydration, for example, a child may vomit, or the diarrhea may appear to increase.

(continued on page 8)

Reaching Mothers in Swaziland: Preliminary Findings of a Child Survival Program

by Robert Hornik and Pamela Sankar

[This is a brief summary of the results from a still ongoing evaluation of the Swaziland Communication for Child Survival Project (HEALTHCOM). A final report will be published shortly with details that could not be incorporated into this version. It will be available from the authors.]

The Swaziland Diarrheal Disease Control campaign was a collaboration of the Ministry of Health of Swaziland, The Combatting Childhood Communicable Diseases project, and the AID Communication for Child Survival (HEALTHCOM) Project. It was based on earlier work in Swaziland as well as the previous Health Communications programs in Honduras and, in particular, in The Gambia. As in the other programs, it relied on a combination of mass media and face-to-face channels in an attempt to change practices related to the treatment of diarrheal disease.

Campaign Preparation

The preparatory phase of the campaign began in April 1984, with the formal campaign running from September 1984 through March 1985. The coordinator of diarrheal disease control activities, Gladys Matsebula, two health educators from the Public Health Unit of the Ministry of Health, Alfred Mndzebele and Bongani Magongo, and a technical advisor from the Academy for Educational Development, Dale Huntington, planned a three-pronged campaign: 1) radio programs to be developed in an intensive radio workshop and broadcast on current development programs carried on the national radio system; 2) printed materials including a flyer with mixing instructions and posters for display at health clinics and elsewhere; and 3) workshops to train the health staff, other extension personnel, and local volunteers in treatment of diarrheal diseases including use of oral rehydration therapy (ORT) for dehydration. Local volunteers and others involved in information dissemination were given yellow flags to display outside their homes to indicate they knew how to administer ORT. Eighteen staff training workshops covering about one third of the country were held during the first months of the campaign; 88 radio programs and spot announcements were produced; and 260,000 mixing flyers and 7,500 posters were printed and distributed.

The campaign focused on a few objectives, specifically 1) acceptance of a home-mixed, water/sugar/salt (WSS) solution as a treatment for diarrheal dehydration; 2) continued feeding during episodes of diarrhea, and 3) feeding with special foods after diarrheal episodes. The campaign particularly emphasized the introduction of a new formula for mixing the solution—one liter of water, eight soda bottle capfuls of sugar, and 1/2 capful of salt. This new formula replaced a previous one that contained one capful of salt which project medical advisors believed risked toxicity.

Campaign Evaluation

The evaluation, conducted by the Annenberg School of Communications at the University of Pennsylvania, reveals preliminary results suggesting that the campaign achieved noteworthy success, particularly in rates of adoption of recommended practices. Data sources included before- and after-campaign

(continued on page 8)

(**Behavior** *continued from page 7)*

What the Behaviorist Does

Behavioral analysis is designed to identify the relevance of each of the above six categories within the context of a specific culture, behavior, and/or individual. The behaviorist observes, questions, and tests behaviors, looking for the:

- cost to the individual of engaging in new practices,
- compatibility of new practices with existing patterns of behavior and cultural expectations,
- complexity of new practices,
- perceived and actual antecedents of a given practice,
- perceived and actual consequences of the practice, and
- observability of the target practice or its direct by-product.

How Behavioral Analysis Helps

During an immunization program in Honduras, behavioral observation and in-depth interviews in rural clinics revealed that many mothers were bringing in children who had already completed their vaccination series. Mothers could not read the complicated vaccination card; they did not know the number of doses needed to complete each series, so did not know when their child had finished the vaccination series. Mothers did, however, recognize the type of vaccination when it was applied because they observed where it was being applied on the child's body: polio—orally, measles—deeply in the arm, tuberculosis—more superficially in the arm, and DPT—in the hip. Nurses were chastising mothers, who frequently had walked miles to the clinic, because they had brought in a child who had already been immunized. Consequently, these mothers often advised neighbors not to go for needed vaccinations in the series.

Analysis of this behavior led to the development of a strategy that focused on designing an immunization card that mothers could understand, and that also served as positive reinforcement for completing the immunization series. The card graphically depicts each immunization and the number of shots needed to complete the series. The card functions as an educational tool for the health worker, a reminder for the mothers, and a reward device health workers use to praise mothers.

Another example comes from The Gambia, where the original design of a national "Happy Baby Lottery" was to be a standard promotional gimmick—the contest was to be announced on radio; numbered tickets with pictures of ORS mixing instructions were to be distributed; and a random drawing of lottery numbers would select the winners. Instead, an imaginative, behaviorally-inspired twist was added and successfully executed. Gambian women had to correctly mix an ORS solution in public. They learned to mix the solution through special radio broadcasts that explained the mixing pictures on a flyer that was distributed throughout the country. Actual mixing contests were then held in villages throughout the country. Local women demonstrated their ORS mixing proficiency before a judge and become eligible for a grand prize drawing. The "Happy Baby Lottery" moved beyond a simple promotional activity to being an exciting and effective vehicle for helping mothers to actually practice the new behavior on a massive scale.

Some Useful Principles

These two examples help demonstrate how behavioral approaches such as careful observation and informal incentives can be applied to field programs. Some of the most salient principles emerging from recent behavioral studies include:

- Observation of behavior within the broad context of the culture in which it is found.
- Skillful arrangement of events so that reinforcement follows the desired behavior. Behaviorists argue that individuals can do a great deal to reinforce their own behavior.
- Individual recordkeeping or monitoring of behavior, for example, is of extreme importance. Graphs, visuals, and other concrete representations of progress can be important reminders and reinforcers for individuals adopting difficult new behaviors.
- Decisions of when and how to end a behavior change program should be systematic to ensure continued maintenance of the new practice. Fading of reinforcement, the gradual withdrawal of accompanying behaviors, the search for opportunities to practice new behaviors in the general environment, and the use of intermittent reinforcement should all be considered.

The practice of behavioral analysis does not substitute for the insights or methodologies of other disciplines; many different fields contribute to our understanding of human behavior. Communications, sociology, anthropology, and economics provide important points of view. In fact, behavioral analysis can help to enhance the contributions of other disciplines and sources of information by highlighting the contributions they have to offer.

Behavioral analysis is not covert manipulation. It is, instead, a powerful way to keep our focus on the primary goal—widespread *adoptions* of critical new child survival *practices.* ■

Dr. Touchette is Principal Psychologist and Associate Professor of Pediatrics at the University of California, Irvine where his research focuses on normal and abnormal attention patterns as they influence learning.

Swaziland *continued from page 7)*

surveys, each with 450 rural mothers chosen through national random sampling procedures, and a diarrheal disease registry kept by 20 clinics which listed more than 10,000 children during the course of the campaign.

Exposure. *Nine of every ten mothers reported having had contact with at least one of the selected campaign channels.* Three out of four rural Swazi households have working radios, and of those more than 80 percent reported having listened to the programs that carried the messages. The flyers, the only widely distributed printed materials, were recognized by three out of five mothers and were owned by one in five mothers. As many as one-half of the mothers in areas where workshop training had taken place, reported some recent interaction with either clinic staff or local 'yellow flag' volunteers about oral rehydration therapy. About one-fourth of the mothers in other areas reported having had recent contact.

Knowledge. *After the first six months of the campaign, more than one in five rural women had learned and could repeat the correct formula*—a substantial accomplishment considering that a previous formula, already known by some women, was being replaced with a new one. It appears, in fact, that some sources must still have been diffusing the old formula. When knowledge of either the old or the new formula was counted as correct, the proportion knowing all three ingredients of the formula went from 20 percent before to 50 percent after the campaign.

Other campaign messages encouraged feeding during diarrheal episodes, and advocated special feeding afterwards. Although acceptance of feeding during diarrhea was little affected by the campaign (42 percent before and 53 percent afterwards), the perceived need for after-diarrhea feeding was substantially affected by the campaign (16 percent before versus 44 percent afterward). It has been suggested that there might have been conflicting messages from different sources about feeding during diarrhea—such as clinic staff and common-sense rejection of the notion that a child with diarrhea would be able to eat.

Practice. *By the third month of the campaign, 60 percent of the children had been treated with WSS or ORS—a level sustained over the remainder of the campaign.* The effects of the campaign on actual practice were evaluated by examining two subsamples of women: 1) those who reported they currently or within the past month had a child sick with diarrhea, and 2) those mothers who had brought their children into clinics for diarrheal treatment. Among the first group, 45 percent of the women said they had treated their child at home with WSS before the campaign; after the campaign 57 percent reported they had done so. This gain is more striking if one combines this report of use with the report of measured knowledge of the correct formula for mixing WSS. Counting either the old or new formula as correct, only 16 percent used WSS and knew the correct formula *before* the campaign; whereas 32 percent used WSS and knew the correct formula *after* the campaign. A second indicator, fundamentally consistent, gives a more optimistic picture: of the children coming to clinics at the start of the campaign, about 43 percent had been treated with oral rehydration therapy before coming to the clinic according to those bringing in children.

(continued on page 9)

(**Swaziland,** *continued from page 8)*

The consistency of these two indicators of current practice, although based on self-reports, suggests that change is occuring and that it is closely associated with campaign activities. The magnitude of the change, particularly if the clinic registry data is accepted, is consistent with a solid success for the campaign where substantial prior diffusion limited the possibility of large changes in practice.

Future Questions

These are the preliminary evaluation results. Analysis will continue for some months with subsequent reports on data from a study of the validity of self-report data; analyses of effects of exposure to campaign channels on individuals' learning and practice; and peoples' susceptibility to campaign messages. The final report will also discuss the extent of institutionalization of the HEALTHCOM methodology within the Swaziland Ministry of Health. ■

Robert Hornik is Associate Professor at the Annenberg School of Communications, University of Pennsylvania. He was principal investigator for the evaluation of health communication projects in Peru and elsewhere under the AID-sponsored Mass Media and Health Practices Project. Pamela Sankar is a Ph.D. candidate at the Annenberg School of Communications, University of Pennsylvania.

A Health Audio/ Video Series

The Food and Nutrition Program of the Faculty of Interdisciplinary Studies of the Pontificia Universidad Javeriana in Bogotá, Colombia, under the auspices of the United Nations University, has recently produced an audio and video series, "The Road to Health." The development of these programs included research and evaluation steps with the target audience, the results of which gave the necessary guidelines for health education needs, and appropriate communication channels.

The object of these programs is to educate low-income mothers about actions they can take to help the health and nutrition of children under five years of age.

The educational series, in Spanish, consists of 12 programs on (betamax) videotape of approximately 15 minutes each, and 17 programs on audiotape of approximately 10 minutes each.

The series is designed for use in educational discussions with groups of mothers, couples, or families, and to train extension workers in issues of health and nutrition.

For information on how to obtain this series contact: Patricia Avila de Hails, Facultad de Estudios Interdisciplinarios, Pontificia Universidad Javeriana, Carrera 10, No.65-48, Bogotá, Colombia.

Formative Research: Pretesting, Revising, and More Pretesting

by Margot Zimmerman and Lena Steckel

Formative research is defined as evaluation activities that occur during a project to determine if the objectives are being met and, if not, to modify the project's direction to ensure that they are. Thorough and extensive pretesting is the formative research technique that the Program for the Introduction and Adaptation of Contraceptive Technology (PIACT) and its sister organization, the Program for Appropriate Technology in Health (PATH), rely on to develop well-understood and culturally appropriate print materials.

Before materials are finalized or printed, an interviewer should pretest them with representatives of the target population to determine if the intended message is being conveyed and if it is clear and acceptable to them. Pretesting should be done while the materials are still in an unfinished state so audience-generated alterations can easily be made. Revised materials should likewise be tested until they communicate the information as intended.

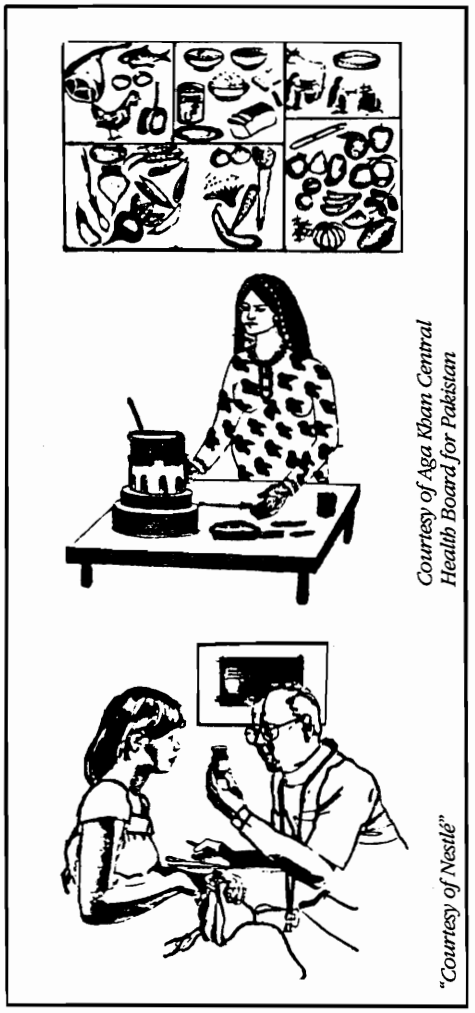
Since PIACT/PATH work with countries where large percentages of the population are nonliterate, its motivational and instructional materials rely on pictures (drawings, photographs, or a combination) to convey the message. Often, pictures are augmented by a line or two of simple text in the local language. This text also requires careful pretesting, for vocabulary selected by health workers or program managers may be too sophisticated for their clients.

The following examples from the field demonstrate the importance of pretesting to assure that print materials are appropriate to the group for whom they are being developed. Details that may at first appear unimportant can render a material useless and even offensive to the target audience.

Symbols. While designing illustrations for the message *"During pregnancy, take only medicine prescribed by a doctor,"* researchers pretested a photograph from existing material that showed several medicine bottles with a red "X" superimposed over them. Pretesting results indicated that the illustrations did not convey the message that patients should use only medications prescribed by a doctor. Many respondents did not even see the "X." Others did not know it symbolized "don't," "no," or "danger," and, in fact felt that the message encouraged the use of medications.

Positive messages. The audience's negative reaction to the photograph described above prompted project staff to test two alternative pictures. The first photograph showed a doctor gesturing to a woman and telling her in simple words not to take a pill that had not been prescribed to her; the second photograph (see illustration adapted from the photograph) showed a doctor giving a pregnant woman some pills. Results of pretests showed that comprehension was higher with both of these photographs which were accompanied by simple texts, but a majority of women preferred the second photograph because it represented a positive message.

Use of common objects. Project staff in Pakistan, producing materials on prenatal care for rural women, thought a drawing of a health worker using a pointer to indicate proper foods on a wall chart would be interpreted as a message explaining the importance of a healthy diet during pregnancy. When the drawing was pretested, it was misinterpreted as a health worker shooting a gun. Obviously, these women had never seen anyone using a pointer while giving a demonstration! The illustration they chose depicts the food groups above the head of the health worker (see illustration).



Courtesy of Aga Khan Central Health Board for Pakistan

"Courtesy of Nestlé"

(continued on page 12)

The Fireworks Syndrome: WHO

by Jack Ling, Director
Division of Public Information and Education for Health

[The following piece has been adapted from a speech presented at the first ICORT Conference held in Washington, D.C., June 1983. We would like to thank Jack Ling for permitting us to reprint a portion of it in the DCR.*]*

There is traditionally a world of difference between information and education. The task of the former has consisted of collecting information and presenting it in an interesting way, often through the media, to different audiences. The information officer's responsibility is traditionally perceived to end there. Education, on the other hand, to be successful requires an act of participation on the part of the learner and an all-important dialogue between the educator and the learner. But in a broader sense, and certainly in recent years, the two have converged.

Two WHO meetings, "New Approaches in Health Education for Primary Health Care," and "New Policies in Primary Health Care," strongly endorsed an integrated strategy using both interpersonal and mediated communication in the planning and delivery of primary health care. To use media without links to the existing health care services and face-to-face contact would create what might be called a "fireworks syndrome," by analogy with a display of attractive fireworks which fizzle out after a few seconds in a darkened sky. On the other hand, person-to-person work, while recognized as the most effective method of teaching, will benefit greatly from close partnership with the media which can stimulate and help to sustain interest in health problems on the part of individuals, families, and communities.

The role of the media in the education of the public, as seen by WHO, can be summarized as follows:

- to help strengthen political will by appealing to policymakers;
- to raise general health consciousness and clarify options concerning actions that have a strong bearing on health;
- to inform decision-makers and the public about the latest developments in health sciences and publicize relevant experiences;
- to help deliver technical messages;
- to encourage dialogue and facilitate feedback from communities.

The two WHO meetings urged that health education workers should be learner-facilitators as well as teachers and participants who must work to stimulate community involvement. Health education is seen as the means to encourage and enable communities to identify their health problems and translate them into simple and realistic goals that they can monitor themselves.

It is important for us to learn from past experiences; the painful lessons of the 1950s and 1960s showed us that apparently successful technical programs were no more than "fireworks" in a dark sky. Only if attention were paid to building up the health system infrastructure so that the gain made by the specific program could be sustained, consolidated, and enlarged was there a chance of turning the fireworks into a permanent light. ■

The World Bank Addresses Health

by Margaret Valdivia, Project Officer
Population, Health, and Nutrition

The World Bank began allocating and distributing funds directly for health-related projects in 1980. Promotion of appropriate health behaviors is now a component of most population, health, and nutrition projects financed partly by the Bank.

Development Support Communication activities supported by the Population, Health, and Nutrition Department encompass public education, personal counselling, patient education and the promotion of behavioral, consumer, and attitudinal change in specific target groups, as well as traditional health education and community mobilization. The criteria used for selecting the approach and methodology to be applied in a particular program are technical feasibility, cost effectiveness, and appropriateness to the context of the program. The scope of a project can be national, local, or highly specific.

Among the activities the World Bank has supported are: making films for sensitization and training of health personnel; making film and TV documentaries and documentary dramas for young audiences on teenage pregnancy issues; marketing one or two highly specific nutrition interventions nationally and in defined geographic areas; communicating by radio with volunteer workers; preparing teaching and learning materials for use by community leaders, mounting large-scale multimedia national campaigns maintained over long periods, and producing print materials for non-literates for mass distribution. ■

UNICEF: The Potential of Social Marketing

by James Grant, Executive Director

[The following is taken from UNICEF's The State of the World's Children 1985.*]*

Today, the resources of the mass media—and the techniques of social marketing—are beginning to be used to put the techniques of a child survival revolution at the disposal of millions of parents. In Brazil, the equivalent of US$1 million a year in radio and television advertising time has been put behind a nationwide campaign to promote breastfeeding. In India, child survival messages are being proclaimed by advertisements on buses and billboards.

The potential of social marketing is just beginning to be explored. But already, there is a body of experience available to guide future efforts. First, it is clear that people's lives and behavior cannot be transformed simply by waving the magic wand of social marketing. Mass media messages about the need to boil water or to breastfeed or to feed a child more frequently cannot solve the problems of firewood shortage or maternity leave or give a mother more hours in the day.

Secondly, it has proved important to recognize the differences as well as the similarities between commercial and social marketing. Because social marketing campaigns usually seek a more important change in behavior and attitudes than a change in loyalties to a particular brand name, mass media messages in themselves are usually not enough. In the promotion of a more complex process such as oral rehydration therapy for example, mass media campaigns can be an important complement to but not an adequate substitute for practical face-to-face demonstrations by health workers or trained volunteers.

So far, the most common mistake of social marketing campaigns seems to be a concentration on the superficial aspects of commercial marketing techniques at the expense of its deeper disciplines. Research into how a target audience perceives its own problems and needs, into what sources of information have credibility, into what kinds of presentation are acceptable and what kinds of information are practicable, are all essential to campaigns which seek to bring about complex changes in human behavior. In developing such campaigns, considerable resources of time, money, and creativity need to be invested in message selection, media planning, analysis of message resistance, and monitoring of message response. A lack of professionalism in any one of these disciplines can easily diminish the effectiveness of a social marketing campaign. ■

and Health

USAID: Reaching Out for Health

by Dr. Kenneth Bart
Agency Director for Health

Outreach with effective health technologies —this may be the most significant challenge facing the international health community today. We *know* how to reduce infant mortality. We must now deliver on this promise. Public health education and communication are central elements in this process and the Agency for International Development (AID) strongly supports them.

Over the last decade, AID has invested significantly in research and development to find ways for communication to better strengthen proven health care delivery. Along with WHO and UNICEF, AID has supported state-of-the-art applications of social marketing methods for child survival. These efforts are beginning to show results. Several of these high impact AID-, WHO-, and UNICEF-sponsored programs are reported in this issue of *Development Communication Report*. These show the value of careful village-level research and the effectiveness of an integrated program utilizing multiple communication channels. They also provide a base of experience and ongoing institutional learning for continued work in this area.

I sincerely hope that the lessons from these programs will contribute to the achievement of the ambitious goals for child survival programs that we have set for the rest of this century. ■

Child Survival
ACTION PROGRAM
AGENCY FOR INTERNATIONAL DEVELOPMENT

A Communicator's Checklist

Social Marketing: New Imperative for Public Health, by Richard K. Manoff (New York: Praeger Publishers, 1985) 279 pp.

The literature on social marketing has received an important addition with *Social Marketing: New Imperative for Public Health* by Richard Manoff. For the book not only provides time-tested, experience-based lessons on the fundamentals of designing and implementing a social marketing program; it also shares with the reader many valuable insights which, in total, create a treatise on the subject. Not without a moral foundation, Manoff's book convincingly lays out a caring, compelling appeal to treat social marketing as a true imperative to public health advancement.

Manoff's writings expose the reader not only to the "how" of social marketing but also to the "why." Lending further importance to the message, we develop a sense of what the prospects for future health care will be if we don't take full advantage of the potential of social marketing.

A well-crafted social marketing message designed for the mass media, this book reflects all the important steps required for penetrating, effective communication. It has a keen awareness of the target audience (in this case health promoters and communication planners worldwide); the problems requiring resolution are well defined; opposing viewpoints are recognized and addressed; benefits of following the suggested course of action are crystal clear; the viewpoint is made more convincing through examples; and the ever-important "call to action" is in sharp focus throughout the communication.

A major theme in Manoff's book deals with the enormous opportunity to help right some of today's health care imbalances, especially those that befall the poor. While the gap can be closed by better health service delivery, so too, he argues, can it be shortened by smartly applying traditional marketing techniques to social development issues.

Seeking to increase support for social marketing, Manoff directly, yet sensitively, confronts the questioning of mass media's role in social development. Rightly so, he challenges the thinking that failure to find conclusive, positive results in many social marketing programs calls into question the effectiveness of mass media for social causes. "How about the content of the messages in these 'failed' programs?" he asks. "Have we looked carefully at media delivery?" "Are we being truly persuasive in our appeals?" The role of mass media in influencing attitudes and decisions is undeniable. At its most basic level, there is no reason to think that *well-conceived* social development messages delivered via radio or TV should, in most cases, be without strong influence. Manoff states "it is specious to argue that health and nutrition objectives are far more complex to achieve (than those of commercial products). . . .certainly in nutrition we are dealing with the promotion of foods that are no more complicated than those in the commercial world. . . ."

A second Manoff theme ringing true is his call for a greater level of skill and aggressiveness in social marketing campaigns. He points out that "though marketing has demonstrated its usefulness for social goals, it is rarely carried out with the skill and thoroughness characteristic of the commercial world." He challenges the practitioners of social marketing to advance their level of expertise and insight and reap from social marketing all of its inherent potential. The world's social development ills are demanding that social marketers of today and tomorrow be more creative. Manoff calls for them to push their thinking and steer clear of doing things "the expected way." In a loud voice, he calls for new energy.

Complementing his call for action, Manoff devotes considerable attention to detailing the entire process of a well-conceived social marketing effort: problem identification; objective and strategy setting; developmental research; message design; testing; media planning; coordination of forces; and tracking of results. Each step is framed with a view on "how it's done" in commercial marketing, yet is focused on the particular circumstances of the social marketer in the developing world. At times though, the reader may find his critique of the developed world's marketing techniques to be paternalistic and somewhat unfair. Examples from around the world, including four extensive case histories, are illuminating and help the reader to recognize the advantage in following the identified path.

One particularly valuable section deals with designing the social marketing message. Here, Manoff addresses what this reviewer believes to be one of the major factors in social marketing program failure—media messages that are poorly planned and lacking sensitivity to the target's human condition. The reader is exposed to content, design, persuasion, and memorability factors that make the difference between a message that persuades and one that rings hollow. In light of the critical nature of this component of social marketing, it would have been better to have devoted even more space to the discussion of message ben-

(continued on page 19)

(**Pretesting** *continued from page 9*)

Extraneous detail. A government agency in Botswana, which had developed a booklet on the oral contraceptive, recently made changes in a few illustrations because in-depth field tests conducted after they printed and distributed small numbers of the booklet revealed a detail unnoticed during earlier interviews. Respondents were distracted by an image of the back of a man sitting in the clinic window which appeared in each of the pictures showing the clinic. The same illustration of the clinic was used throughout the booklet. When the booklet was reprinted for widespread distribution, the man was removed from the window to eliminate the distraction. This illustrates the importance of thorough field testing of a small run of a booklet or flier prior to mass printing.

Time. Messages about time are often difficult to communicate, especially to non- and semiliterate audiences. Groups with whom PIACT/PATH has worked have developed a variety of symbols to show the passage of days, weeks, months, and years. An illustration showing a woman tearing off a calendar page was well understood by Ecuadorean audiences to mean that one month had passed. But in many areas of Sierra Leone or in the Sudan, respondents did not recognize the Western calendar. Consequently other symbols were tested in these countries. Moons in Sierra Leone and moons and stars in the Sudan were identified as the symbols most widely understood to represent months.

In a contraceptive instructional booklet developed in Bangladesh, it was important to convey the message you must *"wait 5-10 minutes"* after using the foaming tablet. Since most Bangladeshis could not tell time, the artist first depicted the passing of time by showing water boiling. When this was not understood, project staff observed villagers' routines to see if they could find an activity that took 5-10 minutes to complete. They finally tested a drawing of a man and woman sitting on their bed with the man smoking a cigarette. Almost every respondent understood that the man was smoking and waiting. They did not necessarily know why the man was waiting, but they knew that he should wait as long as it took to finish a cigarette.

Text. The same word can have several meanings, and pretesting will reveal when a selected word interferes with message comprehension. When preparing materials to promote breastfeeding in a large New York City hospital, text was tested informing women that, if they know they will be away from home during feeding time, they can "express" their own milk into a clean cup. Although the visual illustration of this process was already understood, when respondents in a pretest were asked to read the texts, some became confused, thinking that the written message had something to do with breastfeeding in the subway (express train) system. When substitute words were used, *"you can take breast milk out by hand,"* the text reinforced the illustration and the message was clear to respondents.

Through pretesting, PIACT/PATH has learned that there can be a large discrepancy between what materials developers intend to convey and what the audience understands. Pretesting is an essential formative technique that builds upon information gathered during the materials development process, ensuring the message designer that the materials will effectively address the needs of the target audience. ■

Margot Zimmerman is Director of the PIACT/PATH Information, Education and Communications office in Washington, D.C. Lena Steckel is an Assistant Program Officer in PIACT/PATH's Washington, D.C. office.

Please note in "A Communicator's Checklist", *DCR* #50, a book was reviewed under an incorrect title. *Bibliotech: The 1984/1985 Computer Cookbook* should have read *The 1984/1985 Computer Cookbook.* We regret this error.

Environmental Communication Conference

The Department of Natural Resources and Environmental Quality Board of Puerto Rico are co-sponsoring and hosting the "First Conference on Mass Communications and Environmental Protection in the Caribbean Region."

The three-day meeting will be held in Old San Juan, Puerto Rico from February 3-5, 1986. The dual purposes are to assess the current uses of mass media in this area, and to explore future applications for incorporating mass media into overall planning strategies for environmental management and protection.

Those interested in attending the conference, displaying environmental media materials or audiovisuals, or receiving published proceedings should contact Victoria Dompka, Conference Coordinator, Department of Natural Resources, P.O. Box 5887, Puerta de Tierra, Puerto Rico 00906. Telephone (809) 722-5501.

A Selected Bibliography of Health Communications Materials

Communication and Child/Family Welfare: A Regional Seminar. Paris: International Children's Centre, 1981.

Diarrhoeal Diseases Control: Examples of Health Education Materials. Geneva: World Health Organization, 1982.

Fincham, A.G., Desai, P., Halliwell, J., McKenzie, H., and Morrison, H. *The Use of Radio for the In-service Continuing Education of Rural Primary Health Care Personnel in Jamaica.* Kingston, Jamaica: United Cooperative Printers Ltd., May 1984.

Health Education Methods and Materials in Primary Health Care. Appropriate Technology for Health Newsletter. Geneva: World Health Organization, December 1981.

The Health Message Testing Service: A Standardized Approach for Assessing Audience Response to Health Messages. Bethesda, Maryland: Office of Communications, National Cancer Institute, n.d.

Mass Media and Health Practices: Project Implementation, Documents 1 - 17. Washington, D.C.: Academy for Educational Development, 1982-1985.

New Approaches to Health Education in Primary Health Care. Technical Report Series 690. Geneva: World Health Organization, 1983.

Perrett, Heli. *Planning of Communication Support (Information, Motivation, and Education) in Sanitation Projects and Programs.* Washington, D.C.: The World Bank, 1983.

Pretesting in Health Communications: Methods, Examples, and Resources for Improving Health Messages and Materials. Bethesda, Maryland: Office of Communications, National Cancer Institute, 1982.

Primary Health Care Bibliography and Resource Directory. Information for Action Series. Washington, D.C.: World Federation of Public Health Associations, 1984.

Solomon, D., McAnany, E., Goldschmidt, D., Parker, E., and Foote, D. *The Role of Communication in Health.* Stanford, Calif.: Stanford University, January 1979.

Sweeney, W.O. and Parlato, M.B. *Using Radio for Primary Health Care Issues,* Series 1, Number 1. Washington, D.C.: American Public Health Association/International Health Programs, September 1982.

Vesin, P., Aghi, M., and Morel, G., editors. *Child Nutrition/Malnutrition: Information and Mass Media, A Workshop.* Paris: Centre International de l'Enfance, 1983.

Vesin, P., Morel, G. and Schmidt, B., editors. *Educação e Saúde da Criança e Meios de Comunicação de Massa:* Paris: Centre International de l'Enfance, 1983.

Saving Children's Lives: A Communication Campaign in Egypt

By Dr. Norbert Hirschhorn

Diarrheal disease is the remaining major cause of death in Egyptian infants and toddlers under the age of three, accounting for over 60 percent of deaths in those age groups. As late as 1980 it was estimated that close to 150,000 deaths were associated with diarrhea. Studies showed that the great majority of these deaths were due to simple dehydration, "simple"—in the sense that death could have been prevented by proper oral rehydration therapy. Intravenous fluids were available but not to all children, especially in rural areas. Also, mothers were not aware of the dangers of dehydration and brought children into clinics too late. A pilot study proved conclusively that oral rehydration therapy (ORT), promoted by rural health clinics and at home, could reduce diarrhea-related deaths by 50 percent.

It was on the basis of this pilot study that the National Control of Diarrheal Diseases Project (NCDDP) was developed through a program agreement between the Government of the Arab Republic of Egypt and the US Agency for International Development. Signed in late 1982, the five-year project aimed to reduce child mortality from diarrhea by at least 25 percent. Work began in 1983 with the arrival of the technical assistance team from the John Snow Public Health Group (JSI).

Project Description

There are two features of this project that are central to its effective management: 1) the NCDDP enjoys a certain degree of autonomy to the extent that it can reach beyond the Ministry of Health to bring in specialists through grants and contracts, and it has the power to manage its own budget and personnel; 2) the NCDDP is not a group of separate program elements, but an integration of elements in time and concept: training of health workers; production, distribution and marketing of oral rehydration salts (ORS); monitoring and evaluation of the project; and education and promotion via television, radio, and other public media. These aspects are all concurrently active and all are maintained and coordinated through the Secretariat, the technical arm of NCDDP.

The goal of the communications element, the focus of this article, is to teach, persuade, and change the behaviors of (a) all Egyptian mothers of children under three, and (b) other specific target groups, especially health personnel, pharmacists, mass media reporters, and decision-makers involved with the management of diarrhea and dehydration programs.

Planning for Communication

Data acquired through target audience research provides program planners with the most useful and valid information upon which to build a communication campaign. This holds true whether the activity is to select an appropriate logo to call attention to the campaign, or to determine the most effective channels through which to communicate social messages. The following elements of the NCDDP project were those that required considerable audience research and testing before being integrated into the ORT campaign throughout Egypt.

Logo. Four designs were selected from among ten submitted by independent artists and advertising agencies. Focus groups and brief interviews in public places on these four logos were carried out to determine audience response. The most popular design was again taken out and tested with other focus groups for more specific comments. Changes resulting from this final feedback were the color of the mother's dress from black to white—for cultural reasons; a wedding band drawn onto the mother's finger; a larger spoon; and a smile added to the mother's face (see logo illustration). While responses were being collected on mothers' reactions to the proposed logo, numerous subjective feelings were also being shared with the staff about illness, health care, and the mothers' devotion to children—all useful information for upcoming message design purposes.

Materials Design. Questioning the mothers who participated in focus groups helped project staff determine what amount of fluid a mother would find believable to give to a child with diarrhea. In addition, surveys showed that a 200cc packet of salts would be the most practical size for home use. A plastic cup and spoon were also developed for distribution with the packet.

Naming the Solution. Field research showed that mothers favored simple names that either convey a warm feeling or that describe the *purpose* of the solution. An Arabic word meaning "for cure" (a common blessing upon taking a medicine) was selected, responding to mothers' voiced preference. However, doctors and pharmacists took exception to this name noting it was not suitable for prescribing purposes. The name finally chosen, *The Solution for the Treatment of Dehydration* served the dual functions of ease of identification for mothers as well as providing a precise prescription name for doctors and pharmacists. People now know it more simply as *The Solution.* Exemplified here is a case where selected audience research told project planners the wrong thing. Although mothers were the primary audience, doctors and pharmacists served as dispensers of the solution and should also have been consulted from the beginning in order to ensure broad acceptance of the product.

Identifying the Product with the Disease. Since oral rehydration does not stop diarrhea, another disease for which the therapy is effective must be identified. That "other" disease is dehydration. One of the problems, particularly in the rural areas, was finding a familiar term to help mothers associate the symptoms they already recognize in their sick children with dehydration. An Egyptian Arabic word *gaffaff*—meaning agricultural-related dryness or drought—was found to best express the concept that project staff wanted to convey. Although use of *gaffaff* in this context is not always understood by all mothers, it does provide health care workers with another means of teaching some mothers to take action more quickly when their children are sick with diarrhea and are dehydrated or in danger of becoming so.

Message Design

NCDDP research into the entertainment and mass communication habits of the Egyptian public, both rural and urban, showed that over 90 percent of Egyptians have access to radio, and over two-thirds to television (over 90 percent in urban areas). This argued for assigning radio and particularly TV central roles in the dissemination of educational messages about diarrheal disease, and TV advertisements were developed.

TV Production Sequence. Diarrheal disease experts were first consulted to learn the facts about the disease. Egyptian pediatricians and medical professors were then brought in to review the medical facts within an Egyptian context and to modify recommendations for the target audience. A "story board" (illustrations of visuals comprising the proposed TV ad) was then designed. Egyptian pediatricians were asked to review these for accuracy. At this stage of development, anthropologists took the "story board" and the accompanying script to villages and used focus groups and one-on-one techniques to solicit comments. After selected changes were made the TV ad was produced and reviewed by diarrheal disease experts and Egyptian pediatricians. This

(continued on page 14)

(**Egypt** *continued from page 13)*

final film was *not* pretested; instead, an intensive post-campaign evaluation of the first broadcast campaign, timed for release in January-February 1984 as a pilot during the non-diarrhea season, was used to gather target audience reactions. The NCDDP ads have subsequently been found to be the most remembered of *any* public or commercial ad according to the posttests following the second and third campaigns in the summer of 1984 and 1985.

TV Testimonial Personality. Television history was made with the production of these ads. It was the first time a famous person was used to deliver a social-oriented message and only the second time the testimonial format was used on TV. The first pilot commercials featured the actor-comedian-social commentator, Fouad El Mohandes, known widely to children as "Uncle Fouad." Although "Uncle Fouad" was well received by a majority of mothers with young children and the commercials effectively transmitted the intended messages, the response was *powerfully negative* in five to eight percent of mothers surveyed. More importantly, doctors overwhelmingly rejected the image, asking *"How can a comedian teach about medicine?"* Even when "Uncle Fouad" was paired with an eminent physician, doctors persisted in rejecting this image.

This strong negative response called for a very different image to regain the confidence of the medical profession. To accomplish this, a well-known "motherly-appearing" actress was selected—Karima Mokhtar, who plays in soap operas and movies in Egypt. Her role as an advisor/counsellor in the ads proved highly acceptable among medical professionals and mothers alike.

Physicians, Pharmacists, and Nurses. Messages were designed as much for medical professionals as for mothers. Radio and television's "leveling" effect means *everyone* receives the same message, giving doctors, nurses, and pharmacists the opportunity to know what the general population knows. It provides them with a base upon which to continue educating their patients/customers. Health workers were also provided with a flood of well-produced professional materials (posters, a newsletter, scientific brochures) that were equally appreciated as there is generally a shortage of good resource materials for medical professionals in Egypt.

Results

What was the impact of this intense, nationwide campaign to reduce infant mortality related to diarrhea, and could such an impact be attributed to effective communication planning? Between early 1983 and late 1984, knowledge of dehydration rose from 32 percent to 90 percent; knowledge of ORS rose from 1.5 percent to 96 percent. Ninty-eight percent of all Egyptian pharmacies have ORS available and it is now the leading sale item (in volume) of all diarrhea-related drugs according to a survey of 300 pharmacists nationwide. Careful documentation shows that mass media alone increased the use of ORS from one percent to nearly 70 percent of episodes. Statistically significant, mortality reductions in children under two have been documented nationwide, approximating a 50-percent drop in diarrhea-associated deaths, concomitant with project activities. Monitoring of all process and outcome measures continues. The success of the NCDDP project in Egypt indicates that mass media can help change behavior, but that all other elements of a mass campaign must be equally well-planned and coordinated to achieve this success. ■

Dr. Hirschhorn is a lecturer at Harvard University's Department of Preventive and Social Medicine. He has had worldwide experience in implementing diarrheal control programs and in training health workers in maternal child health and development.

(**NCBC** *continued from page 5)*

Surveying was based on issues identified earlier by the Ministry of Health as most severe for the population overall including: protein-energy malnutrition in three age groups—infants 0-4 months, infants 5-8 months, and children 9-24 months old; infant diarrhea and dehydration; vitamin A deficiency; undernutrition of pregnant women; and undernutrition of women during lactation. The NCBC explored these problems in a subsample of the participating villages. A survey sheet of media habits was completed during the initial interview with mothers and at all focus group interviews.

The Communication Strategy

The qualitative investigation identified the need for change or reinforcement in particular nutrition-related behaviors. The target audience of mothers was segmented according to their needs during designated maternal stages and by the age-related dietary needs of their children under three years of age. This meant only immediately useful information would be directed to mothers in these categories.

The research showed that the cost to mothers of following the advice was at the most a few rupiahs (cents) more than they normally spent per day and was affordable for over 90 percent of the sample. Due to severe constraints on the mothers' time, most of the recommended behaviors demanded a small additional investment of their time; those that required extra time offered a substantial and perceptible reward.

Radio was available in many homes in the project areas, so broadcast messages were integrated into the project as an additional means of reaching mothers. The radio spots, besides bringing nutritional messages into the home, also identified *kaders* as a crucial source of information for mothers and children, thus increasing their prestige in the eyes of mothers.

"Action Posters" were designed to meet several strategic needs; first, to reinforce the *kaders'* advice in areas not reached by radio; second, to ensure accurate delivery of the messages at weighing sessions and home visits. A poster was designed for each segment of the target audience. The name of the target group was printed at the top of each poster and large, step-by-step illustrations of the recommended practices were featured below. A column of boxes under each illustration allowed mothers to record their compliance with the recommendations over a month's time.

The project also addressed the *kaders'* expressed lack of confidence. They were trained how to use the educational materials that would be taken to mothers' homes. At weighing sessions *kaders* selected a poster according to the age of the child, then counseled the mother on what she should do, using the poster as a visual aid for her and as a reminder of the advice that should be given during this session. Thus, the posters served to reinforce the advice to mothers once they returned home, and to reinforce the *kaders'* training. Delivering the posters to the homes of mothers also gave *kaders* a purpose for making the visit since it provided them with something to offer in exchange for the mothers' time.

Project Evaluation

Addressing the same nutrition problems as the national program and operating with virtually the same activities and tools, the NCBC project achieved significantly different results. The 1981 evaluation showed that the social marketing approach had improved the nutritional status significantly in the target populations. Significant improvements in food intake and the nutritional status of the target populations, the ultimate tests of the strategy's effectiveness, were also recorded and could be attributed to behavioral changes stimulated by the project. These changes were reflected in: higher protein and calorie levels for project children and breastfeeding mothers; higher consumption of the the recommended foods by project children; an improved nutritional status for 40 percent of children in the project; at 23 months, an average weight of 1.5 kg. higher for project than nonproject children; and a significantly better growth rate in each experimental area for project children after five months of age.

In addition, project *kaders* offered more accurate, specific, and complete dietary advice to the target population than a sample of nonproject *kaders*. The evaluation also pointed to higher levels of performance by the project *kaders* than by their counterparts in nonproject communities in terms of community outreach and broader and more consistent coverage.

Cost Analysis

The NCBC case illustrates how the social marketing approach to educational programs fits the needs, resources, and desires of program participants. Social marketing made the fit possible by producing messages that addressed the most pressing nutrition and health problems with suggestions for practices that mothers could carry out and sustain

(continued on page 19)

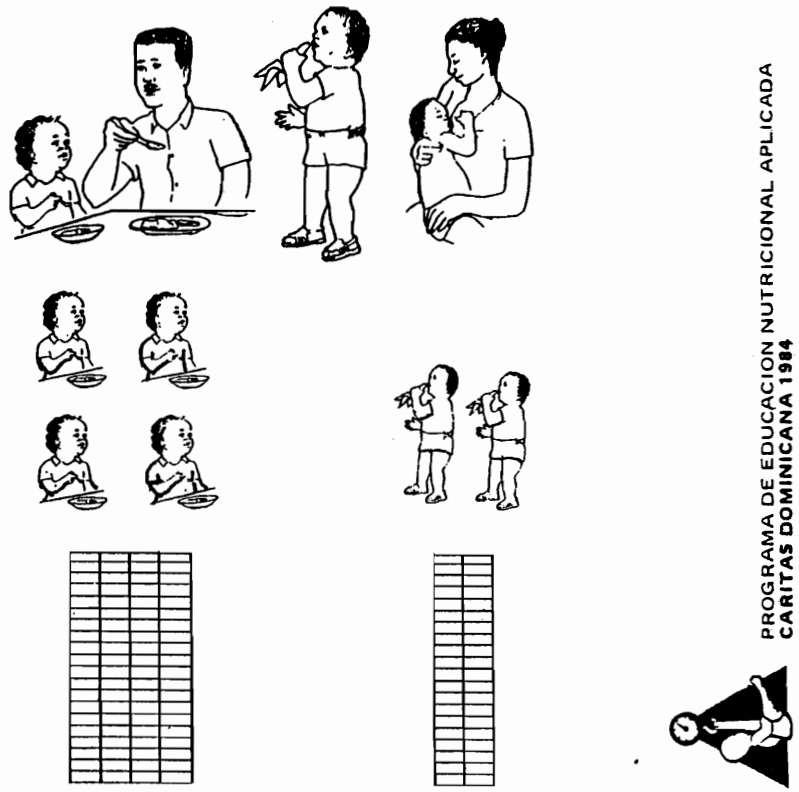
A Nutrition Prescription for the Dominican Republic

The Applied Nutrition Education Project (ANEP) of Caritas-Dominican Republic and Catholic Relief Services works with families in 90 low-income Dominican communities to improve the nutritional status of children. This is done by encouraging families to better feed and care for children, and through community action projects to increase food production and sanitation.

From the outset, ANEP has placed prime importance on education and community promotion, seeking to develop a comprehensive communications strategy that reflects community needs and abilities. In designing the ANEP strategy, the lessons of Indonesia's Nutrition Communication and Behavior Change Component were applied, and the benefits of growth monitoring as a pivotal nutrition communication activity were exploited. Other ways in which ANEP reflects the Indonesian experience: its strategy is based on community participation through qualitative research, albeit through focus group rather than individual interviews; communication and education are the primary interventions; individual counseling in conjunction with growth monitoring plays a key role in the communications strategy; and education materials can be adapted by health promoters to meet individual needs. The project has produced promotional materials, materials for group education, materials to stimulate community action activities, and materials for individual counseling at growth monitoring sessions. The primary audience is mothers with children under five years of age.

ANEP has gone further with individual counseling than either the Nutrition Communication and Behavior Change Component (NCBC) of Indonesia or the Indonesian Family Nutrition Improvement Program (UPGK) by providing a tailored method and the tool for adapting the method to the mothers' individual resources. For personal counseling, a set of 12 laminated pictures, *portalaminas*, was produced to guide health promoters in counseling mothers at weighing sessions. Each 11 x 14 inch *lamina* has graphics on one side and a message for one of four segments of the target audience on the other. The project designed two *laminas* for each age group: one for children who have gained weight, and the other for children who haven't. Mothers of children who have gained weight are congratulated and encouraged to continue feeding as before. Promoters spend only a few minutes with these mothers. More time is spent with mothers of children who have not gained weight. In addition to offering these mothers specific suggestions for actions they should take, promoters ask the mothers how many of the recommendations they can actually carry out. As a reminder to these mothers of what they should try at home, ANEP developed take-home worksheets for mothers of non-gainers. Each worksheet has illustrated recommendations for a target group at the top of the page and boxes at the bottom. For example, a promoter asks the mother of a 9- to 23-month-old who has not gained weight whether she can realistically feed her child the recommended four meals a day. If the mother says she can only manage three, the promoter circles three of the four illustrated feedings and asks the mother to punch a hole in, or to mark the boxes as she follows the advice. ■

Communications assistance has been provided by Marcia Griffiths of Manoff International, and two consultants to the International Nutrition Communication Service.



Worksheet for mothers of children 9-23 months of age who have not gained weight. Messages: Give the child the same food as the family eats. Give the child one more meal and a snack between meals for a total of four meals a day and two snacks. Continue breastfeeding.

Distance Teaching Course Offered

A four-month course on distance teaching and its relevance for Third World countries will be held from April to July 1986 by the International Extension College and the Department of Education in Developing Countries of the University of London Institute of Education, at the Institute in London.

Course objectives are to analyze an educational problem in a participant's country and determine whether distance-teaching methods are appropriate to it; to make reasoned and informed choices between different methods of distance teaching; and to work out administrative arrangements for a distance-teaching system.

All participants should be graduates or trained teachers or have adequate relevant experience, have not less than six months' experience of working full-time in distance teaching or extension, and have a thorough command of English.

Application deadline is February 17, 1986. For further information and application forms contact: Departmental Secretary, Department of Education in Developing Countries, University of London Institute of Education, 20 Bedford Way, London WC1H 0AL, U.K. Telephone 01-636-1500.

(**TWR** *continued from page 5*)

and a five-year stock of spare parts. A key element has been involvement from the beginning of GTC, whose technicians have been used to install and maintain the equipment under a contract with the Ministry of Health (MOH). Since the GTC and MOH have collaborated from the start, each has an equal stake in seeing the MEDEX network develop successfully. Additionally, continuity was ensured by involving the same technical assistance team throughout the planning and installation stages.

All medex are trained in the use, care, and maintenance of their radios in an intensive one-day training session. Each medex receives an illustrated training manual and a set of maintenance tools. They are taught how to communicate effectively over the radio and how to fill out the logs of all calls sent and received. Georgetown headquarters analyzes the logs to determine the use and reliability of the network.

A key person in the network is the full-time communications officer at MEDEX headquarters in Georgetown, who is responsible not only for communicating with the medex and controlling traffic on the network, but also for following up on their requests. This officer must locate a physician when an emergency call is received, determine the status of patients transferred to Georgetown or of delayed drug shipments, and provide other information upon request. The competence and dedication of this officer is vital to the successful operation of the network.

Radio Use

Medex keep their radio in their office and generally have it on "receive" mode for incoming calls from 8:30 a.m. to 4:30 p.m., Monday through Saturday. An analysis of logs during the first quarter of 1985 showed that 62 percent of all calls were for administrative purposes, such as to coordinate transportation needs, order drugs and supplies, supervise field personnel, and schedule health care personnel meetings. About 23 percent of all calls were related to medical uses such as consultations between field medex and doctors, continuing education, patient referrals and follow-up, emergency evacuations, or malaria control. Messages transmitted for community residents or other national agencies comprised the remaining 15 percent.

The pattern of radio use varies depending upon regional needs. Medex in remote locations rely more heavily on their radios than do their counterparts stationed where transportation and communication links are better. Medex in the hinterland, on the average, used their radios 1.5 times as much for administrative purposes as did medex in coastal or *riverain* areas, and twice as much for medical purposes.

Between 1980 and 1985, administrative uses of the network increased from 44 to 62 percent of all traffic while medical calls declined in volume from 31 to 23 percent. It should be noted that the absolute number of calls in all categories has, however, increased with the expansion of the network.

In addition to the already discussed radio traffic, MEDEX headquarters uses two-way radio (TWR) to provide consultative and educational support to their field workers. A biweekly program in continuing medical education provides inservice training at a distance. Every other Saturday Georgetown conducts a medical clinic by TWR. Brief lectures are delivered on field-generated topics such as malaria control and infant diarrhea. When a clinic has finished, medex are encouraged to ask questions and to discuss relevant community cases. Two weekly conference calls update medex on administrative actions, and a Georgetown operator calls each station once a week to conduct an equipment check.

Impact of TWR

Two-way radio has greatly improved rural primary health care delivery. It has substantially eased the coordination and management of remote medex locations. Administrative matters are also handled much more efficiently than before, particularly when requisitioning supplies and drugs.

Previously, drugs were ordered by mail or by messages passed through other government agencies. Medex often had to wait weeks for a reply, only to travel to Georgetown for follow-up. Such activity resulted in considerable expense to the MOH and in a temporary loss of medical services to rural communities. With TWR, medex can now follow up on administrative matters without ever having to leave a site.

TWR has also greatly improved the coordination of emergency evacuations. Transportation can be immediately arranged, referral centers alerted to the patient's impending arrival, facilities prepared, and a physician placed on call. In the past medex were forced to leave their patient and travel to the closest available radio, resulting in delays of hours or days—sometimes at the cost of a patient's life.

It should be noted, however, that while TWR can communicate the immediacy of a situation, poor roads and unreliable transport still limit the extent to which a medex can respond to community medical needs. Emergency evacuations which may now be coordinated in a matter of hours along the coast, may still be impossible during the rainy season in the hinterland.

Morale among medex has improved, particularly for those in more isolated stations. Medex report that their confidence grows as regular consultations and continuing education support enables them to provide better health care for their area. With TWR, medex have immediate access to a qualified doctor for consultation on diagnosis and treatment. Previously this was done by letter or personal visit. Medex also express enthusiasm about the value of the continuing education programs which keep them better informed than was possible before the installation of the system. In addition, medex feel that their status in the community has improved because of TWR. In many communities the network provides the only channel for communicating.

Conclusion

While need for and use of TWR seems to be greatest in remote locations, its utility remains constant throughout the network. Benefits of the system include:

- increased access to knowledgeable persons for administrative and managerial matters;
- improved supervision of field paraprofessionals;
- increased opportunities for medical consultation, patient referrals, and clinical follow-up;
- improved reporting of and response to emergency situations;
- increased communication between medex, community members, and other government agencies.

The benefits of the medex two-way radio system exemplify the important role telecommunications can play in the development process. Use of telecommunications for administration, supervision, coordination, consultation, and education can lead to improvements not only in the quality of rural health care, but also in supporting education and agricultural extension services. As the Guyana exprience demonstrates, rural communications can contribute to improving the quality of rural life in the developing world. ■

Michelle Fryer is a specialist in uses of radio for education. Dr. Burns is Associate Professor, Department of Electrical Engineering, Iowa State University; Dr. Hudson is Associate Professor, College of Communication, University of Texas at Austin.

(**ERIC** *continued from page 18*)

potential uses for the volume. The format of the book is described, and selected lesson plans from the *Sourcebook* are presented: (a) Eating Good Food to be Healthy; (b) Night Blindness and Sick Eyes; (c) Eating Nutritious Foods for Healthy Eyes; and (d) Planning a School Garden. Appended are charts outlining the contents of the sourcebook, including topics and lesson presentations in each section, and related lessons in other subject areas are indicated for each key topic. Available from EDRS in microfiche for 97 cents or in paper copy for $7.40. ■

Barbara B. Minor is Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13210, USA.

TUNING IN

Kenya's Radio Language Arts Project: Evaluation Results

by Rebecca L. Oxford

The Kenyan Radio Language Arts Project (RLAP) assessment has just been completed, documenting the effectiveness of interactive radio-based educational instruction. Analyses in the areas of listening, reading, speaking, and writing demonstrate the sometimes surprising results that children in radio classrooms consistently scored better than children in nonradio classrooms in *every* test.

The spring issue (#49) of *Development Communication Report* contained several articles describing various features of the RLAP that ran from 1979 to 1985. The project was sponsored by the Office of Education, Bureau for Science and Technology of the U.S. Agency for International Development and was conducted by the Academy for Educational Development in cooperation with the Kenya Institute of Education of the Ministry of Education, Science, and Technology. An evaluation of the project was carried out with the assistance of the Center for Applied Linguistics (CAL). Evaluation results came from a variety of sources, including language tests, observations, interviews, demographic and administrative records, and an attitude survey.

The Setting

A large proportion of the project's students were considerably transient. Only 22 percent of the total student population of 3,908 were "normal progression" students—that is, they advanced regularly through their education during the life of the project. Students who moved from the area, failed a standard (grade), dropped out, or were otherwise untrackable, comprised the remaining 78 percent of the total. Seven districts were included in the project—each district being represented by three schools. All the schools were located in rural areas, but their physical accessibility varied widely. Project staff rated radio reception as excellent in 79 percent of the schools, problematic in 18 percent, and poor in 3 percent.

The average age of teachers across all districts was 31.7 years, and the average age of headmasters was 38.3 years. While all headmasters in the summative evaluation were male, project teachers were mostly female. Teachers averaged 9.4 years of experience, and headmasters had served an average of 10.1 years in that position. Teachers had received an average of 9.8 years of education and headmasters 10.7 years.

Test Results

Tests were developed for listening and reading in Standards 1, 2, and 3, and in speaking and writing in Standards 2 and 3. The achievement tests were based on the official Kenya curriculum for those standards, so as to measure achievement against the curriculum. Nearly all the differences were highly significant statistically, with a probability of less than 1 in 10,00 that the findings could have occurred "by chance."

Table 1 shows the performance of all project students. The most striking difference is in average listening scores: Standard 1 radio students scored nearly eight points higher than did their counterparts in the control group; Standard 2 and 3 radio students outperformed the control students by 4 points. These findings indicate that the interactive radio method, which emphasizes listening, resulted in greater learning gains by radio students. Similar findings, with somewhat higher averages for both groups, were found in analyses of students who progressed regularly through grades during the project.

Somewhat more surprising is the fact that the radio group also consistently outperformed the control group in reading, writing, and speaking. In these skill areas, the radio versus control group differences, while not always large, were statistically significant. In addition, although radio students did better than control students in writing, neither group performed particularly well in that subject.

This analysis also indicated that there was a positive relationship between the average number of years of teachers' teaching experience and higher achievement scores among the students.

Positive Attitudes Prevail

Unstructured interviews and observations were conducted by the RLAP field staff. Overwhelmingly positive attitudes about the project prevailed among project teachers and headmasters. One school offered to buy its own batteries if the project staff would provide the taped lessons so the children could continue using this method after the project ended. In another school, the project staff found a teacher following the radio teachers' notes and using many of the radio lessons in her conventional classroom not equipped with a radio.

A formal survey conducted in 1984 also indicated highly positive attitudes toward interactive radio instruction in general. Eight of every ten teachers and headmasters felt that radio instruction was very helpful, while nearly all respondents felt it was somewhat helpful. Students' reactions to radio instruction were rated as positive by 91 percent of the teachers and 100 percent of the headmasters. Radio lessons were viewed as either good or excellent by 85 percent of the teachers and 97 percent of the headmasters. Educators generally felt that radio students performed better than other students in all four language areas, with greatest strength in listening and speaking. Both teachers (by 91 percent) and headmasters (by 97 percent) preferred teaching English with the radio. Eight out of ten teachers and nine out of ten headmasters said that radio instruction improved teaching skills. Nine out of ten teachers and headmasters wanted to continue using the radio lessons after the end of the project.

Significant Observations

Although the primary purpose of performing this analysis was to produce summative evaluation results, project staff members made some informal observations as they gathered formative data:

- The radio method forced systematic implementation of the Kenya curriculum.
- Good teachers mastered the technical details of the radio method and were able to "individualize" radio instruction to help children of different ability levels.
- The highly interactive nature of the instruction increased the frequency of student re-

(continued on page 18)

Table 1
Summary of RLAP Instruction Raw Score Results:
All Students

Standard	Reading		Listening		Writing		Speaking*	
	Radio	Control	Radio	Control	Radio	Control	Radio	Conrol
1	13.1	10.7	23.4	15.5	—	—	—	—
2	14.6	13.1	15.3	11.2	2.8	2.3	WT76.1	67.7
							M34.3	29.0
							G15.9	14.0
3	22.9	19.1	25.7	21.6	2.7	2.1	WT120.2	114.1
							M 46.4	39.1
							G 20.7	16.5

*Speaking test used a 10% sample of all students.
Subtests included Word Total (WT), Meaning (M), and Grammar (G).

(**RLAP** *continued from page 17*)

sponses and the amount of time spent working on language tasks.

- Fewer discipline problems occurred in radio classrooms than in regular classrooms.
- Three times as much English instruction was presented in any half-hour block by radio than by conventional teaching means.
- The radio method, unlike the conventional method, used almost every item in the Kenya curriculum.
- Radio students appeared to have more self-confidence and enthusiasm than nonradio students.

Conclusion

With the conclusion of this assessment phase of the Kenyan Radio Language Arts Project, solid data now exist to document what participating teachers, administrators, project planners, and even students have said about this experimental project—it works. In fact, it works so well in all four language skill areas, particularly in listening comprehension, that instructors wanted to see the radio lessons continue after the experiment ended. ■

Dr. Oxford is an educational psychologist at the Center for Applied Linguistics and has a consulting firm, O-C Associates, Inc.

Interactive Radio Education Film Available

A twenty-minute film and videocassette, *Radio, the Interactive Teacher,* is now available for rental from the Clearinghouse. It documents the application of an innovative, radio-based instructional methodology to teaching English to rural Kenyan school children. (See *DCR* #49 for a full account of the methodology and several adaptations in other developing countries.)

The color film is available in 16 mm film, 1/2" Beta, NTSC; 1/2" VHS, NTSC; or 3/4" U-Matic, NTSC in French, English, and Spanish. Rental fees are: US$10 for domestic requests, US$20 for foreign requests. Please send your order with a check or money order in U.S. dollars made payable to:

Clearinghouse on Development Communication
1255 23rd Street, N.W.,
Washington, D.C. 20037, U.S.A.

On File at ERIC

All of these documents are available in microfiche or in paper copy from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs may be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

- *Health Education Training Model. Training for Development. Peace Corps Manual No. T-11. 1983. 77pp (ED 254 659)*

Intended for preservice and inservice training of Peace Corps Community Health Volunteers, this selection of health education training materials presents a model designed to help community health workers become better facilitators and educators as they help motivate people toward a healthier and more self-reliant life. The introduction provides suggestions for preparing for and carrying out the training program. The twelve sessions focus on: defining expectations and clarifying objectives of health education training; beginning the program; looking at community health and education; exchanging ideas about health education; working with a group; how people learn; the role of the Peace Corps volunteer as a community health worker; identifying community needs and resources; teaching about important health issues; developing and using appropriate teaching aids (one session on story telling and one on creating low-cost materials and equipment); and the Health Fair. Information provided for each session includes objectives, an overview, lists of resources and materials, preparation, activities, and handouts. Appendices include information on working with a group, evaluation ideas, a calendar for a ten-day training program, and a listing of selected resources and references. Available from EDRS in microfiche for 97 cents or in paper copy for $7.40.

- Moore, Thomas J. and others, eds. *Communicating with Mexican Americans: Por Su Buena Salud = Comunicando con Mexico Americanos: For Their Good Health. Proceedings of the Conference (Houston, Texas, September 13-14, 1979).* 152 pp. (ED 249 036)

This conference focused on the role of the Mexican American's language, tradition, life style, health practices, and media utilization in the design of effective education and information programs. Representing various local, state, and national health, education, and media organizations, the 108 participants attended sessions on socio-cultural factors, health values, and perceptions that affect health communication, as well as the use and evaluation of media in disseminating health information. This study involved the design of a model health communications campaign to educate the Mexican American community about services provided by a health maintenance organization for cardiovascular disease. A media critique session provided participants with guidelines for content and production to use in designing health communication materials. Topics of the research presentations included the assessment of Hispanic knowledge, attitudes, and practices related to cancer for the purpose of education programs; alternative methods for presenting bilingual health education messages; and a videotape package on cancer health education designed to reach Hispanics. Available from EDRS in microfiche for 97 cents or in paper copy for $12.65.

- Colle, Royal D. *Communication Planning for Effective Nutrition Programs.* 1983. 36 pp. (ED 149 937)

Primary health care and nutrition have been linked with communication in a variety of well-publicized projects. This partnership between communication and nutrition was made necessary by the conflict between an expanded demand for services and limited resources for meeting the demand. Senior officials have a substantial role to play in seeing that their programs gain the full benefit of what an effective communication program can offer by accepting the responsibilities of: (a) examining the implications for communication of any program while it is in the planning stages; (b) insisting that communication or education people work within the framework of a communication strategy; and (c) providing communication resources. In planning, steps should include policy formation and development of a comprehensive strategy to meet program goals. With an understanding of the policy and comprehensive strategies that govern a project's overall efforts, communications specialists should start a process that includes analysis, strategy, implementation, evaluation, and next-step planning. Program officials should insist that top communication managers deal explicitly with the elements of principal objectives, best tenative solutions, audiences, media channels, theme/messages, and schedules. A summary chart of communication and education techniques includes methods, their advantages and disadvantages, and comments. Available from EDRS in microfiche for 97 cents or in paper copy for $3.90.

- Van der Vynckt, Susan, and Ellen Barclay. *The Unesco Resource Pack for Nutrition Teaching-Learning: An Introduction to Volume I. Nutrition Education Series 8.* 1984. 89 pp. (ED 254 495)

This guide provides an introduction to the *Unesco Sourcebook for Classroom Nutrition-Learning,* which is designed for both actual classroom use and teacher-training support material, with lesson plans, teaching methods, and learning activities. Nutrition information is presented in such a way that important concepts are not limited to nutrition and health classes, but can also be integrated into different subject areas within the general school curricula, including science, language arts, mathematics, social studies, and agriculture, as well as school meals. Lessons, which are provided in each subject area to cover related nutrition and health topics, include instructions for both student- and teacher-made instructional materials. This introduction to the sourcebook first presents a brief list of some

(continued on page 16)

(**NCBC** *continued from page 14*)

as often as three or four times a day. It helped the project find the most effective channels to deliver this information to mothers at the time they would be most responsive to it, and make these mothers aware of where they could find help. Finally, it helped the project develop an integrated media strategy and materials that would expand the effectiveness of each resource. ■

Marcia Griffiths is Senior Vice President of Manoff International Inc. Elizabeth Nobbe is Project Administrator and editor at Manoff International/Washington.

(**Manoff** *continued from page 11*)

efits. All too often, the inexperienced social marketer will create a message that is rich in detail but lacking in *human benefit* for the target audience. As social marketers, we must never lose sight of the reality that our target audience will only follow a suggested course of action if we convince them that it will make their lives or that of their families *easier, better, or richer*. In a family planning message, for example, "having fewer babies" is not an easily identified benefit; but "having a better life for the current children" is. Or recommending that you boil river water before using it because "doctors think you should," does not personally appeal to affected persons, whereas saying "the prevention of painful, life threatening illnesses" does present a real, human benefit to those who follow the practice. To lose sight of the actual benefit is to fail in communicating our message; and to fail is to waste an opportunity for social development.

Manoff nicely augments the instructional section of his book with invaluable lessons learned from his extensive work in the field. He includes, for example, well-honed insight on selecting a target audience and avoiding the common error of aiming at too broad an audience. Another lesson deals with the synergistic value of linking a social development program to other societal issues (e.g., family planning linked to child nutrition).

Social Marketing: A New Imperative for Public Health should come to be a valued addition to the library of social marketing students and practitioners worldwide. Appreciation for the work will result from its road map of the social marketing process, showing us not only the direction to travel, but also the hazards to avoid. I suspect it will also be valued for its sense of dedication and honesty to the practice of social marketing. But perhaps most importantly, Manoff's new book should be held in esteem for its voice of appeal, its rallying cry to health practitioners around the world. The current era of health education demands new and "better methodology to enlarge its reach and impact." Social marketing, with its tie to mass media and its proven success, is such a "new and better" methodology —a new opportunity that should be seized *now* to help all nations deal more effectively with their health problems. ■

Terry Peigh is a Vice President of Foote, Cone & Belding Communications, a worldwide commercial advertising firm. He is an instructor at the University of Chicago's Community and Family Study Center, and has co-authored two books on mass media for social development.

Available for $32.95 from CBS Educational and Professional Publishing, Order Dept. 383 Madison Avenue, New York, NY 10017, USA.

A Guide for Primary Health Care: The MEDEX Series

by Richard A. Smith, John Rich, and Sunil Mehra

Since its publication in 1983, *The MEDEX Primary Health Care Series* has been distributed extensively, and today functions as a practical and flexible management and training device for new or existing primary health care (PHC) programs at various levels in 53 developing countries.

The 35-volume *MEDEX Series* was developed over an eight-year period by The MEDEX Group at the John A. Burns School of Medicine, University of Hawaii, numerous developing countries, and supported by the U.S. Agency for International Development. The primary health care techniques and educational materials found in this series were field-tested in Micronesia, and used in PHC programs in Thailand, Guyana, Pakistan, and Lesotho. It has taken the most important considerations in the development and expansion of PHC services and put them into a consistent and easily adapted format for developing countries. The *Series* can be used by planners, administrators, or trainers.

The materials are divided into curative, preventive, and promotional aspects of health care. The training curriculum is problem-oriented and therefore includes only information essential to training the worker to do his or her job. Sections within the *Series* cover: Systems Development Materials; Mid-Level Health Worker Training Materials; and Community Health Worker Training Materials. Currently, the *Series* is available only in English, although some sections have been translated into Spanish, French, Bengali, and Thai.

Since September 1983, this series has been requested and sent to 114 countries. Described in *World Health Forum* as "a total teaching system," it has been distributed to government ministries, nongovernmental organizations, private consultants, nursing schools, and other institutions and programs that are training health personnel and managers of primary health care services in developing countries.

Correspondence with health care professionals in 53 of the 114 countries indicate that the *Series* is being used in 267 PHC programs and projects of varying sizes in developing countries. Further documentation about applications of the *Series* is being gathered from a questionnaire sent to recipients of the manuals. A network of users of the *Series* is being developed as well, to expand its use through the sharing of adaptations, changes, and translations. Further communications and visits to selected sites where materials are in use are also being planned.

Recognition that nurses should play a particularly important role in PHC has led to significant interest on the part of international and national nursing organizations. The MEDEX Group has recently received requests for the *Series* from 31 nursing schools in eleven additional countries interested in revising nursing curricula to reflect a reorientation toward primary health care.

Projects with sectoral interests such as oral rehydration therapy, immunization, nutrition, and community sanitation, have used the materials to strengthen their own efforts. An example is a set of learning packages produced by WHO/UNICEF to be used in 17 countries. One quarter of the materials contained in the packages were taken directly from the *MEDEX Series*.

India's National Institute of Health and Family Welfare has used parts of the *Series* as the basis for management training, to be conducted nationally in over 50 training institutions for doctors, nurses, and other PHC health personnel. Another example of its versatility was its use as a guide for designing and building a health center in Burkina Faso that would reflect the needs of that facility.

During the past two years, information about the availability of the *Series* has been spreading worldwide. To strengthen this process, the MEDEX Group continues to provide copies upon request in an effort to extend the growing network of users.

For further information about this series contact: The MEDEX Group, John A.Burns School of Medicine, University of Hawaii, 1833 Kalakaua Avenue, #700, Honolulu, Hawaii 96815, USA. ■

Dr. Smith, John Rich, and Sunil Mehra are with The MEDEX Group, University of Hawaii School of Medicine. Smith is the Director of MEDEX, Rich is a Curriculum and Instructional Development Specialist, and Mehra is a Communications Development Specialist.

The Colombian National Immunization Crusade: Coordination and Communication

This is "Pitin," a cartoon character symbolizing a healthy, happy, *immunized* child, who served as mascot in a 1984 Colombian mass immunization crusade.

In 1984 the Colombian National Health System coordinated a massive immunization crusade in order to vaccinate as many children in the country as possible against a number of common childhood diseases. Collaborating with the Colombian Government were the Pan American Health Organization/WHO, UNICEF, and UNDP. The communication strategies that were designed for this crusade helped the Health System to successfully vaccinate over 800,000 children on three separate days.

The possibility of a mass immunization campaign was first discussed during Colombian National Health Week in April 1984 with the idea of building on the initial child immunization activities that occurred during that week. Just two months later, Colombia launched a nationwide crusade to immunize nearly one million children under the age of four against diphtheria, measles, polio, tetanus, and whooping cough on three designated days; one day each in June, July, and August of 1984.

In order to accomplish this ambitious goal, Colombia had to organize and mobilize its resources to overcome the kinds of shortcomings that may be found in large scale campaigns, such as a lack of coordination of personnel, communications, transportation, or financing.

Channeling Strategy

The need to involve multiple communication channels was recognized from the start. Before the Crusade began, the Ministry of Health, with assistance from the Pan American Health Organization and the World Health Organization, developed a channeling strategy. This strategy established an aggressive child identification process through direct health promotion activities. Health workers accompanied by community leaders visited households before each vaccination date to spread news of the Crusade, and more importantly, to identify children needing immunization. They collected information on each child such as name, age, sex, address and vaccinations needed. Children were then "channeled" to the appropriate health facility for vaccination on the prescribed dates. These visits provided important personal communication between individual households and the health centers or health posts during the Crusade. The channeling strategy also facilitated the evaluation phase since children's vaccination progress was tracked through the end of the Crusade. The impact of the Crusade was therefore more more easily measured both during and after the vaccination activities. Also, since records were kept on each child, the strategy allowed for follow-up vaccination of those children with incomplete schedules.

Getting Started

Communication of technical procedures was carried out by the Colombian Red Cross. More than 13,000 Red Cross members were trained as vaccinators. Sixteen thousand volunteers were trained in the channeling strategy and immunization techniques or received instruction in technical and administrative procedures, such as cold chain standards, organization of health posts, and record keeping. A booklet on technical and administative norms was developed and distributed to more than 10,000 vaccination posts, and training in these standard procedures ensured uniformity throughout the country.

". . . the press, TV, and radio played a major role in dramatically increasing the outreach capability . . ."

During the Crusade, both information and evaluation reports were distributed. Information reports were released every two hours on vaccination days, summarizing data on the number of children vaccinated in each health post. The mass media stimulated the Crusade by broadcasting these reports which fostered a wholesome rivalry between the different localities. The evaluation reports provided information on the results of the Crusade at the local, regional, and national levels.

Many political and social groups were called upon to extend the communication network established for this national effort. The President and the First Lady actively promoted the Crusade by conducting inauguration ceremonies on each of the three vaccination days at the Presidential Palace. The Ministries of Health and of the Interior sent representatives to municipalities to encourage their cooperation and support of health personnel. The Ministry of Education solicited departmental directors and over 200,000 teachers to help disseminate promotional materials. Air, sea, and river transportation was provided by the Ministry of Defense to deliver vaccines and set up vaccination posts in remote areas. The Catholic Church provided motivational materials, organized activities, and distributed messages about child health and immunization before the start of the Crusade. Other private, volunteer, and recreational groups offered financial support for publicity, transportation, and mobilization of community members at the local level.

Mass Media Contributions

Mass media made a fundamental contribution to the accomplishments of the Crusade. The press, television, and radio played a major role in dramatically increasing the outreach capability and focusing the population on child health and development. For example, Colombia's largest newspaper, *El Tiempo,* using the Crusade's mascot, Pitin, carried health messages to its largely urban readers, and alerted them to the upcoming vaccination days. Many other newspapers followed suit and adopted Pitin in their articles, helping to further spread the news of the Crusade. Calendars showing Pitin next to the vaccination dates were printed and distributed. Other printed materials such as growth charts with child immunization records, information on breastfeeding, nutrition, and treatment of diarrheal disease were developed and made available to parents at the vaccination sites. News programs on the national television and radio station carried stories of the Crusade efforts that reached an estimated ten to twelve million people. Well-known entertainers broadcast hourly appeals to parents to bring their children in for vaccination. The radio also carried hourly Crusade updates and encouraged people to participate. Other television and radio stations broadcast similar messages and programs to urban and rural areas assuring extensive coverage throughout the country.

Results

The results of the Crusade are impressive. During the first vaccination day 804,053 children, or 87.6 percent of the target group, came for vaccinations. The second day of vaccinations brought in 854,570 children, or 93.1 percent. During the third and final round on August 25, 1984, 860,000 children, or 93.7 percent of the target group, were vaccinated.

The statistics clearly attest to a well-planned and executed campaign. The role that communications played in educating and mobilizing a large portion of the Colombian population was unquestionably a central factor in making the Crusade a success. ■

This article was adapted from *Assignment Children—A Journal Concerned with Children, Women and Youth in Development,* 65/68, 1984, UNICEF, by Robert J. Vittel, Information Assistant, Clearinghouse on Development Communication.

Development Communication Report
Clearinghouse On Development Communication
dcr
Winter 1986
No.52

In recent years, considerable research has been done on visual literacy and how to use visual materials effectively in developing countries. We are devoting a section of this issue to the purpose of visuals, how to use them in training, and how peoples' understanding can be improved through appropriate exposure to and use of these materials.

The Purpose of Visuals

by Ralph Wileman

A visual aid is a device through which the learning process may be encouraged or carried on through the sense of sight. Visual aids can take many forms: they may be real objects, models, printed illustrations, photographic prints, filmstrips, video, or motion pictures. A visual often incorporates graphic devices (such as an arrow to direct the viewer's eye to a specific part of an object), as well as words to enhance a message.

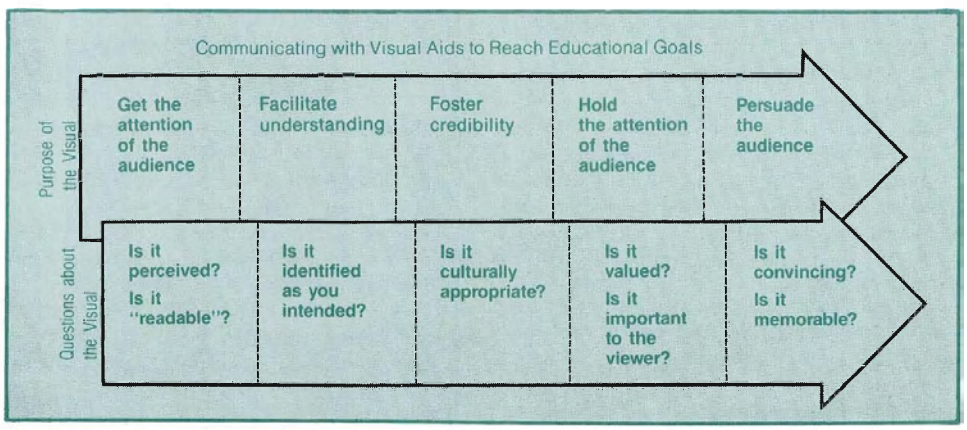
A visual should be produced in the format which best presents the idea or explanation to the audience. Visuals are used to explain concrete processes (how to prepare a rehydration mixture), as well as abstract ideas (the philosophy behind cooperative efforts). There is ample research to show that using visuals is both an efficient and an effective way to communicate many kinds of ideas.

Acquiring Visual Skills

The ability to understand visuals is an acquired, not an automatic skill. Picture comprehension, pictorial depth perception, and the meaning of the techniques often employed in printed illustrations must be learned. Visual aids must, therefore, be designed or selected based upon the extent to which the intended audience has been exposed to visual aids and has learned to understand them. It is sometimes assumed that a visual aid serves its purpose if the intended audience can name the items displayed or describe the portrayed condition or activity. This, however, is a simplified approach to judging the value of visual aids. The audience may well be able to describe the visuals and yet not understand the messages they are meant to convey.

Effective communication through visual aids is as complex and difficult to achieve as is communication through language. This is especially true in attempting to produce visual aids to instruct people who have limited experience with them. To achieve good communication through the use of visual aids, the total communication process must be considered. The figure below lists some of the important questions we need to ask about the visuals we use to teach or to communicate. Basic educational goals parallel these questions. This figure clearly illustrates the complex task of communicating through visual aids.

(*Continued on page 2*)



Evaluation: Past and Present

by Peter Spain

Evaluation is at once both overpraised and underestimated. Too often, evaluation has been asked to be something it is not, and not asked often enough to do what it can do best. Recent experience has clarified evaluation's role, especially its specific contribution to achieving project results. My purpose here is to sketch the main aspects of evaluation's traditional role, contrast traditional evaluation with the evolved and evolving role that evaluation is playing today, and then show how evaluation fits into any process for getting things done.

Evaluation Past. . . .

Traditionally, evaluation has been an after-the-fact exercise for those projects that can afford it. Evaluation was viewed as quite an enlightened thing to do, really, a sign of open-mindedness and a willingness to learn. But evaluation was a luxury, possible only in projects underwritten by donors of particular largess. Evaluation was not used to improve current projects but, instead, to plan and improve future ones.

Traditionally, evaluation has been performed by an outside consultant or team. The outsiders contributed not only their particular skills in data gathering and analysis, but also the requisite objectivity much in the manner of basic scientific research. Evaluation carried out in this manner was retrospective – sifting through evidence, questioning participants, drawing inferences, and then rendering a verdict about project success or failure. For the people who ran the project, the matter was out of their hands.

Traditionally, the relationship between project people and evaluators has been adversarial. Project people were often threatened by the possible discrepancy between what *they* thought they should have done and what the *evaluators* thought should have been done on the project. Because evaluators and project people were not necessarily working from the same agenda, the possibility for the development of an adversarial relationship was high.

(*Continued on page 8*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Purpose of Visuals 1
Evaluation: Past and Present 1
Using Visual Materials 3
Visual Materials for Family Planning 3
Adapting Radio Math 5
A Communicator's Checklist 6
On File at ERIC 7
Participatory Radio in Arequipa 9
Farm Radio Network 11
Briefly Noted 12

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel.(202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vitrel, Information Assistant
William Amt, Program Asistant
ISBN0192-1312

AED
International Division

Academy for Educational Development

(**Wileman** *continued from page 1*)

The first question to ask is, "Is it perceived?" Attention is captured, at least momentarily, when viewers discern there is something new or different to look at in their field of vision. This is especially important when the visuals used to teach are posters or other visual media that must capture the viewers' attention without external verbal prompts from a health worker or teacher. The visual must also be "readable." "Can the audience see and read the pictures and/or words we have displayed?" Readability is affected not only by how we render the display, but also by the distance from the display to the furthest viewer. If people in the last few rows of a classroom cannot read or see your flipchart on crop rotation, then accomplishing your educational goals will be difficult, if not impossible.

Second, "Is the visual identified as intended?" An enlarged photograph of an insect may be understood to be an insect, but the audience may believe their crops are safe since the pests on their crops are much smaller creatures than the insect in the photograph.

Third, "Is the visual culturally appropriate for the intended audience?" In some cultures, depicting a woman smoking a cigarette would not be acceptable and might cause that audience to reject the message. Visuals of people's attire, their living conditions, or even their standing or sitting posture must be acceptable for them to be effective.

Fourth, "Does the visual depict something that is important to and valued by the audience?" If the visual is meant to instruct the viewer in the painting of a house, and house painting is of no importance to the viewer, there is little chance the visual will hold his/her attention.

Fifth, "Is the visual memorable?" An image that is remembered is one that will be recalled and used. An abstract image of a mother nursing her child may or may not be understood by the intended audience, whereas clearly representative figures are likely to be more memorable.

The objective of this questioning is to determine if the intended audience can identify, "read," and understand the visual image. However, the ability to identify what is seen is not enough. The intended audience also must believe what they see, value what they see, and be convinced by what they see. Only then will the real educational goal – to change attitudes and behaviors – be accomplished. Field testing and other research techniques are required procedures for today's visual communicator. The systematic gathering of data about how visuals are perceived, read, identified, valued, or remembered can help advance both the art and the science of communicating with visuals. ■

Ralph Wileman is director of the Educational Media and Instructional Design training program at the University of North Carolina, Chapel Hill, and has worked in many countries, training health workers in designing and producing educational materials.

(**Murphy** *continued from page 4*)

participants formed an association to promote the use of visual materials in family planning, training, and education.

Participants from Burkina Faso, Mali, Mauritius, and Togo have integrated sessions in visual communication into their ongoing family planning training programs. With INTRAH assistance, Rwanda has conducted two two-week workshops replicating the training they received in Mali for their own local needs. Although it is too soon to measure the concrete outcomes of the Mauritius workshop, the Philippines' participants have already scheduled an integrated visual and group communication workshop in mid-1986 for the family planning field trainers in their organization.

From INTRAH's experience, it is clear that family planning educators and trainers can develop and use effective visual communication in their training when encouraged to be resourceful and creative in the application of those skills using local resources in their home environment. The inclusion of visual communication skills in the training of health workers contributes toward their self-sufficiency and ability to develop effective health training and education programs. ■

Catherine Murphy has worked as a trainer and instructional developer in international health since 1975. She is currently INTRAH's Training/Materials Officer at the University of North Carolina-Chapel Hill.

Course on Managing Health Audiovisual Materials

A course that explores the techniques of managing a collection of audiovisuals – selection, evaluation, cataloguing, classification, storage, retrieval, maintenance of materials and equipment – the role that the audiovisual resources person can play within educational or medical institutions, is being offered by The British Life Assurance Trust for Health Education (BLAT) at the request of the World Health Organization. This course is intended for people without formal library training who are responsible for running libraries or resource centers, particularly in developing countries, and librarians wishing to extend their professional skills to help them cope with audiovisual materials. There will be a strong emphasis on practical work. It will be held in London from August 5-21, 1986. The closing date for applications is April 16, 1986.

Further details can be obtained from Ms. B.S. Carney, Information Officer, BLAT Centre for Health and Medical Education, BMA House, Tavistock Sq., London WC1H 9JP. (Telephone: 01-388-7976).

Learning to Use Visual Training Materials

by Mari Clark

There is a long-running debate about whether trainers should be instructed in how to develop and use visual training materials. Discussions about the desirability and practicality of taking time for this type of training often are based on misconceptions that have restricted the use of this potentially powerful communication tool. Time is seldom scheduled to teach visual thinking, designing, and communicating during training of trainer sessions. Trainers rarely use visuals other than flipcharts with lists of key words or objectives in these sessions. If they do use pictures, films, or other visuals for training purposes, they often fail to select and apply them effectively toward specific training objectives. The following points address the lack of appropriate visual communication training and offer suggestions for strengthening visual communication in the training of trainers.

Misconceptions

Many trainers consider visuals for training to be a technical area requiring high-level skills in design, drawing, and audiovisual equipment operation. Because trainers are busy and need to focus on only the essentials during the brief span of a training course, they often set aside visuals and how to use them as luxuries that are "nice but not necessary." This attitude is influenced by traditional Western formal education where all too often pictures are looked upon as learning materials for small children, and the reading of textbooks with many words and few pictures as the province of adults.

When trainers do use visuals, there is a tendency to focus only on their potential for information transmission – as illustrations for lectures in the form of charts, picture slides, or films – rather than using them to involve the learners actively in the training session. Related to this is the frequent lack of attention paid to effective use of visuals in terms of timing, cultural appropriateness, and smoothness in presentation. Often there is too much dependence placed upon a polished visual presentation to convey a message. Experience shows that even the best designed visual is only a distraction when shown at the wrong time, to the wrong people, or handled in the wrong way. The common theme connecting these misconceptions is that visuals are seen as separate products rather than an integrated part of the training process.

Learning by Doing

Avoidance of visuals based on these or other misconceptions is unfortunate because their use, combined with participatory training techniques and effective verbal communication, is a powerful means of conveying abstract ideas in a visual context, and adds a concrete element to the planning process. It is important to keep in mind that effective use of visuals in training is as important as their design in influencing learning and behavior change. Research and practical experience indicate that they are most effective when combined with nonformal education techniques that enable questioning and problem solving as well as transmission of information. Visual aids, when combined with these techniques, not only transfer information; they can stimulate discussion, provide a focus for problem identification and problem solving, and involve people actively in the learning process within small group and individual activities.

Working with learners to develop visual aids is an effective means of learning by doing. In the process of developing visuals, trainees broaden and reinforce their learning about the ideas or messages represented. It also

(Continued on page 4)

Visual Communication Training for Family Planning Workers

by Catherine Murphy

Is it possible to turn a non-artist health worker into a producer, user, and trainer of visual communication techniques for health teaching? Based on the results of numerous visual communication workshops conducted by the Program for International Training in Health (INTRAH), the answer is an emphatic "yes."

With funding from the Agency for International Development, the INTRAH Program has developed various family planning training workshops for selected African, Near Eastern, and Asian countries. One of the identified needs among some of the host countries was for family planning workers to acquire skills to develop their own visual materials and then to use them in family planning education or training of other health workers. A two-week visual communication workshop was designed to address this need, and such workshops have now been conducted in Kenya, Somalia, Sierra Leone, Mali, Tunisia, and Rwanda.

During these family planning visual communication workshops, the first step is to explore the rationale for using visual communication methods for various general health training or educational problems. Participants then proceed through a ten-step process for planning, producing, and using visual communication materials and methods. The first step in this process examines the six teaching questions which serve as the foundation for visual communication. These questions are:

1. WHOM am I teaching?
2. WHAT do I want them to be able to do?
3. WHERE and HOW LONG will the instruction take place?
4. What teaching METHOD or METHODS will I use?
5. What VISUAL AIDS will I use?
6. How will I know how EFFECTIVE the instruction was?

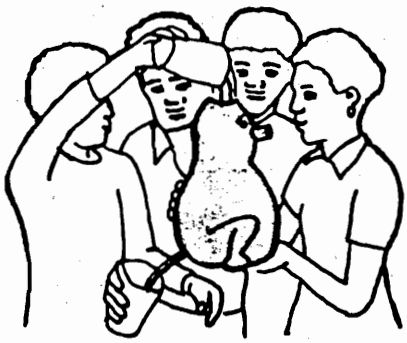
The process then outlines visual thinking skills, and design considerations that form the basis for visual message design. These skills enable participants to judge what makes a good visual and to sketch visuals which illustrate concepts, data, and processes. The workshops focus on developing practical skills. Participants decide what topics will be discussed depending upon their own needs or interests. They work in small groups and individually on visual communication problems with guidance from trainers on designing, pretesting, and producing visual materials then demonstrating how they will be used for teaching other family planning trainers.

An important element of these workshops is the emphasis placed on making training relevant to local resources and needs. This is accomplished by creating models and picture series and other visuals from locally available raw materials, facilities, and human and material resources. Emphasis is also placed on developing materials on topics that the participants have identified as needed by their target audiences. Finally, INTRAH works with national co-trainers to design, conduct, and modify the training process itself. Once the national co-trainers develop basic skills in visual communication training, they begin contributing their own ideas for techniques and materials that are locally and culturally relevant. Through practice and technical assistance these national trainers learn how to conduct visual communication training on their own.

(Continued on page 4)

(**Clark** *continued from page 3*)

strengthens the communication skills of the learners. An understanding of how to pretest visuals is also important to assess the materials and to learn about the interests of the audience for whom the training is intended. The following visuals illustrate some of these applications.



Making visual aids is very useful in helping learners discover solutions to problems. Mothers and children can learn about diarrhea and dehydration by making their own "baby" from clay, tin cans, plastic bottles, or gourds. They can experiment with the principle of rehydration by pouring water into the "baby" and mending the different openings with "food."

You could use this picture as the basis for a discussion by asking, "What do you think this picture is about?" Often this is the only question you will need to ask. To keep the discussion going, you might ask, "Who are these people?" "What is happening in the picture?" or "How do the people feel about it?"

Selection of Visuals

Specific needs of trainers vary considerably in the selection, design, and use of visuals depending on the tasks and resources of the trainers. For some, the selection and use of visuals are the primary needs. Given a primary training situation, they need to decide what, if any, visuals will help them accomplish their goals and how to use those visuals most effectively with particular training techniques. For others who work with artists, basic skills in visuals design help them communicate more effectively and avoid miscommunication that wastes hours of planning and drawing time. Those who have no artist and few resources also need skills in visual design to develop their own visuals or to use simple techniques to adapt existing materials for their specific training needs. In all these instances, how to make visuals is not nearly as important as how to select, design, and use visuals and to effectively integrate visuals with participatory training techniques.

Below are some suggestions for strengthening visual communication in the training of trainers:

1. Use good examples of visual models throughout the training.
2. Display examples of good visuals related to the topics so trainees can handle them.
3. Give trainees opportunities to practice selecting and using visuals effectively with a variety of training techniques.
4. Provide opportunities for trainer and trainee feedback on selection and use of visuals with training techniques.
5. Use visuals to explore the basics of effective visual communication and what hinders communication. (See the bibliography at the end of this article.)

For trainees who need to work with artists or must develop their own visuals:

1. Provide practice exercises in communicating visually.
2. Demonstrate and practice planning visual training materials based on training objectives.
3. Demonstrate and practice pretesting materials, emphasizing this as a means to learn about the audience as well as the effectiveness of the materials.
4. Demonstrate and practice simple techniques for adapting and making visuals by tracing parts of existing materials. ■

Bibliography

Fetter, K., Clark, M., Murphy, C., and Walters, J., *Teaching and Learning with Visual Aids.* Chapel Hill, North Carolina: INTRAH Program, 1985. A limited number of copies are available free to persons working in developing countries from: Catherine Murphy, INTRAH Program, 208 N. Columbia St. (344A), Chapel Hill, N.C. 27514, U.S.A.

Wileman, Ralph, *Exercises in Visual Thinking* New York:Hastings House, 1980. Available for US$15.95 (124 pp.) from: Kampman & Company, 9 East 40th Street, New York, NY 10016, U.S.A.

Werner, David and Bower, Bill. *Helping Health Workers Learn*. Palo Alto, California: Hesperian Foundation, 1982. Available for US$6.00 (632 pp) from: The Hesperian Foundation, P.O. Box 1692, Palo Alto, CA 94302, U.S.A.

Wilkinson, Judith. *A Guide to Basic Print Production: Training Package*. Somerset, England: The British Council with Intermediate Technology Publications, 1985: Write: Intermediate Technology Publications, 9 King St; Covent Garden, London WC2E 8HW, Great Britain. (Book 1: *Planning the Project*, £4.95; Book 2: *Designing and Producing Artwork*, £4.95; Book 3: *Printing Processes*, £3.95; Book 4: *Managing Resources*, £4.95

Zimmerman, Margot, and Perkin, G. *PIACT Paper Eight – Print Materials for Nonreaders: Experiences in Family Planning and Health*, 38 pp. Individual copies free from: PIACT/PATH, 10030 Nickerson St., Canal Place, Seattle, Washington 98109, U.S.A.

Mari Clark is currently finishing her doctoral dissertation in anthropology. She was formerly associated with CPH International, Chicago where she directed the development of the Peace Corps training manual for the Control of Childhood Communicable Diseases Project.

(**Murphy** *continued from page 3*)

Multi-Country Training

INTRAH has further expanded the use of visual communication in health training by conducting multi-country family planning visual communication workshops. Two of these have been conducted in Africa: one in Mali in July 1984 for participants from nine French-speaking countries, and one in Mauritius in August 1985 with ten English-speaking countries participating. The participants in the international workshops were national-level trainers of family planning workers or national-level family planning educators of the general population in their countries. They learned the same skills in how to design, adapt, pretest, produce, and use visual communication methods as the participants at the in-country workshops.

However, national level trainers' and educators' job responsibilities include training of other trainers and workers as well. Therefore, they developed action plans during the workshops which integrate visual communication skills training into existing family planning training through curriculum changes and workshops on developing visual materials. In order to develop these action plans, a third week was added to the workshop. During this week, participants identified curriculum areas in their own family planning training programs which could be strengthened by the introduction of visual communication skills. They developed workshop plans and practiced conducting sessions on visual communication topics.

These international workshops provided the participants with opportunities not possible with in-country workshops. There was considerable cross-cultural and informational exchange among the countries represented in the workshops. Time was set aside daily for participants to share and discuss family planning educational materials developed and used in their own countries. A session on traditional talking and singing techniques explored the use of visuals with traditional storytelling, parables, and songs used for educational purposes.

Outcomes of International Training

The most obvious workshop outcomes were the visual materials and techniques that the participants carried back to their work sites to use and share with others. Other results were the participants' workshop plans and individual action plans that spell out strategies for developing and using visual materials and teaching others these skills as well. In Mali, the

(*Continued on page 2*)

TUNING IN

From Nicaragua to Thailand: Adaptating Interactive Radio Instruction

by Jamesine Friend, Klaus Galda, and Barbara Searle

Many developing nations are unable to provide adequate instruction in their primary school classrooms because they lack economic and human resources, especially in remote rural areas. One of the quickest and most reliable ways to alleviate this problem is to provide *interactive radio instruction*, a proven technology for use in poorly equipped schools with undertrained and overworked teachers.

The technology of interactive radio instruction, although quite new, has already proved itself to be very effective in improving the quality of instruction in diverse subjects and countries. It has been used to teach mathematics in Nicaragua, English as a second language in Kenya, and reading in the Dominican Republic (see *DCR* #49). Extensive evaluation of these programs shows significant improvements in children's achievement scores. In Nicaragua, for instance, an evaluation of a first grade class showed that average mathematics test scores increased from 39 percent to 65 percent.

Implementation costs, when used with large numbers of students, is very low – less than one dollar per year per student. Unfortunately, many nations who would like to use interactive radio instruction and who can afford the implementation cost of the lessons, do not have funds available for developing completely new lessons, and would also like to implement it at more than one grade level per year. Development costs to produce a high-quality, year-long series runs between $300,000 and $500,000, due largely to the careful planning and the extensive field testing required to produce such lessons.

A possible solution to this dilemma is to adapt interactive radio lessons that have already been prepared for another country rather than developing a completely new series. The questions are whether existing lessons can be adapted for another country's needs, and whether such an adaptation would change the materials so much that the quality of the original product would be significantly reduced.

Adaptation Process

The opportunity to investigate these questions arose in 1980, when Thailand decided to adapt the Radio Mathematics lessons from Nicaragua, and use them on a small scale to determine if they would be appropriate for a Thai audience. In Thailand there is a major disparity in the quality of education between urban and rural schools, and it was hoped that the use of radio instruction, which would be uniform throughout the country, could help to reduce this difference.

Although radio instruction has been used with considerable success in Thailand for many years, there were no courses in mathematics for elementary school comparable to the course designed for Nicaragua. At that time, adaptation of such materials had never been done in Thailand, so it was decided to adapt only the second grade, and to pilot test the lessons rigorously in a small number of schools before planning nationwide usage.

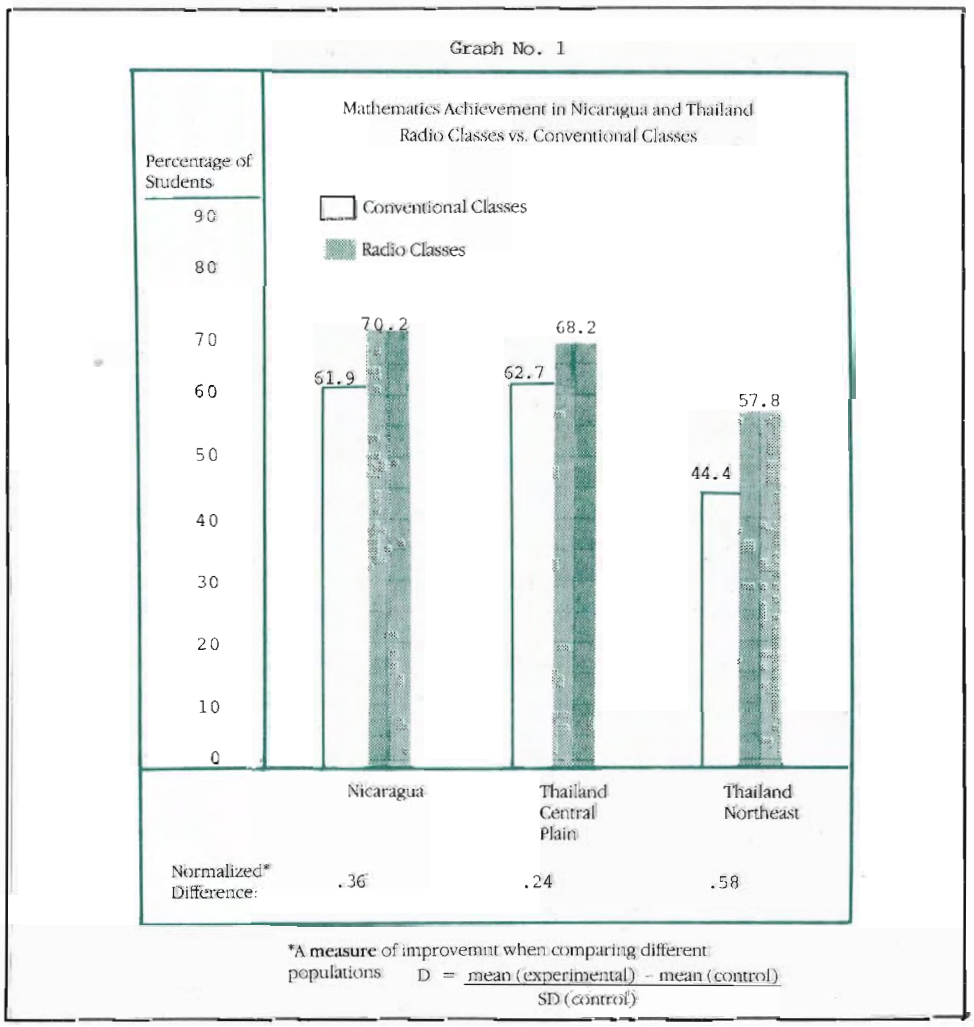
Because all the original scripts were written in Spanish, the first and major adaptation was to translate the lessons into Thai – a considerable task due to the dissimilarity of the two languages. Adaptations also were needed in the songs, games, and jokes that are an integral part of the lessons, and required comprehensive rewriting to reflect Thai culture. Geographic references, names of common fruits, and other culturally related components of the scripts were also changed.

Fewer content changes were required; for example, instruction in division was added to the lesson plans. For the most part, however, Thai mathematics curriculum for early grades was quite similar to the Nicaraguan mathematics curriculum. Adapting to the standard educational radio series already in place in Thailand which lasts 32 weeks, the total number of lessons was reduced from 175 to 160, calling for some lesson incorporation and deletions.

Lessons Begin

Broadcasting began in May 1980, the beginning of the Thai school year. The pilot study was located in two areas of the country, the Central Plain region near Bangkok, and the Northeast, a very isolated, poor region of the country. Lessons were broadcast daily to second grade children in 16 schools in each region. At the end of the school year the children were given a special posttest to assess their abilities in mathematics. At the same time, children in 32 non-radio classes, similarly divided between the two regions, were given the same test to establish comparative data to that of the children in radio classrooms.

(*Continued on page 11*)



A Communicator's Checklist

1 The Promise of Literacy, by H.S. Bhola, et al, (Baden-Baden, West Germany: NOMOS Publishers, 1983) 283 pp.

The Promise of Literacy reports the proceedings of the 1982 International Seminar on Literacy held in Udaipur, India. H.S. Bhola, of Indiana University, and Josef Muller and Piet Dijkstra, both of the German Foundation for International Development, were coauthors of the report. The seminar itself was one of a number of international conferences which have been convened over the last two decades to discuss adult literacy training. In fact, to read *The Promise of Literacy* by itself is like reading a passage out of context.

The Udaipur Seminar focused specifically on the "mass campaign" strategy for adult literacy training. The rationale for this focus is explained in the introduction as follows: "In most parts of the Third World, barring a few happy exceptions, literacy work has been in the form of experimental projects and cautious pilot programs. Strategies used have seldom been bold or commensurate with the size of the problem." One such bolder measure is the mass campaign which has proven to be a promising strategy. As the Udaipur Declaration maintains, "The clear lessons from efforts in many countries is that nationally motivated mass campaigns can banish illiteracy regardless of the adversity of conditions a country faces."

Convinced of the efficacy of the mass literacy campaign, the organizers of the Udaipur Seminar attempted to provide a forum for government planners and literacy experts and practitioners already experienced in conducting mass campaigns to compare and contrast strategies with each other and to share what they had learned with representatives of countries presently in the process of planning and implementing campaigns. To provide a common point of reference for the discussions, the organizers structured the seminar around a Unesco-commissioned study by H.S. Bhola, *Campaigning for Literacy*, in which eight different historically significant campaigns form the basis for a comparative study of the campaign strategy. Bhola included in his study a well-written theoretical overview of how to plan campaigns in a chapter entitled "Planning, Implementing, and Evaluating Literacy Campaigns: A Memorandum to Decision Makers." The seminar participants found this "Memorandum" to be "a useful and systematic elaboration of planning, implementation, and evaluation of literacy campaigns, programs, and projects." Consequently, it appears again in its entirety in chapter six of *The Promise of Literacy*.

One of the important contributions of conferences such as the one in Udaipur is that resulting publications like *Campaigning for Literacy, The Promise of Literacy*, and the more recent. *One Billion Illiterates* together provide a historical overview of many of the mass campaigns undertaken around the world. Unfortunately, some of the campaign reports from the Udaipur Seminar in particular are overly brief or too shrouded in official government rhetoric to be informative.

The "Udaipur Literacy Declaration," a significant document which summarizes the conclusions reached at this Seminar, is also included. One of the noteworthy conclusions is that, although most successful campaigns are characteristic of "societies in the midst of profound and structural changes," any society, regardless of the political system, "can activate forces for change and create a supportive political environment." The introduction to the book echoes this conclusion when it claims that the necessary, and indeed, a sufficient condition for mounting a successful mass literacy campaign is "the existence of the national will to mobilize national imagination and national resources." Such claims stem from the comparative evidence that, although most of the successful literacy campaigns have occurred in the context of revolutionary movements, some countries, most notably Brazil, have managed to conduct campaigns in non-revolutionary environments, as well as from evidence from countries like Nicaragua that campaigns do not depend so much on big budgets as on a national popular will to eradicate illiteracy.

In general, this book contains an informative section on the theory and practice of conducting mass literacy campaigns, and an important declaration which once again calls for literacy to be placed as a priority on the international development agenda. To be understood in context, however, *The Promise of Literacy* should be read as part of the informal series of publications which have emerged as the working papers or reports of other international adult education and literacy conferences. ■

Recommended Reading:

Bataille L., editor, *A Turning Point for Literacy*, Oxford: Pergamon Press, 1975.

Bhola H.S., *Campaigning for Literacy*, Paris: Unesco, 1982.

Carron G. and Bordia A., editors, *Issues in Planning and Implementing National Literacy Programmes*, Paris: Unesco, 1985.

Fordham P., editor, *One Billion Illiterates: One Billion Reasons for Action*, Toronto: ICAE and Bonn: DSE, 1985.

World Conference of Ministers of Education on the Eradication of Illiteracy: Final Report, Paris: Unesco, 1965.

Cecil Klassen is currently completing his Master's degree in International and Comparative Adult Education at the University of Toronto, and has taught English as a Second Language to high school and adult students.

Available from: NOMOS Publishers, P.O. Box 610, D-7570, Baden-Baden, West Germany for 38 German Marks approximately US$16. Free for developing country readers from: German Foundation for International Development, Hans-Bockler-Str. 5, D-5300, Bonn 3, West Germany.

2 Scientific Research and Social Goals:Towards a New Development Model, Federico Mayor, ed. (Oxford: Pergamon Press, 1982) 236 pp.

This collection of essays focuses on the relationship of social priorities and scientific research as a new basis for national and international development. The goal of this lofty endeavor is to redefine development in human terms, to replace the emphasis on material goods of the industrialized nations, with the human needs and limited resources of the developing world. Technology and the products of scientific investigation, it is argued, should be redirected to the concerns of world poverty, technology transfer, and the effective use of available knowledge; and only through the reorganization of international priorities and the redirection of scientific efforts will such goals be reached.

The volume is the result of the "Research and Human Needs" program that was conceived at a symposium/workshop in Venice in December 1975. The book "discusses the results so far achieved, and what they imply for the future."

The individual presentations represent a number of disciplines, countries, and styles, divided into three sections: concepts and philosophy, methodological approaches, and practical programs in different parts of the world. The essays are written as speeches and retain a sense of purpose and polemic which suggest the political and policy orientation of the book; yet, this dialogue with the unseen governments, policy-makers, and interested public is illustrative of the lack of coherent editing or logical progression of ideas. In this sense, the book will be of interest to individuals looking for an introduction to the idea of socially appropriate development, but will not provide a satisfactory exploration of the subject for those deeply involved in the field. The humanistic/scientific dilemma is well known in most development agencies and university settings such that the real importance and impact of these essays will be on the general public and political domains. The editor has included a number of essays by individuals who

are not normally considered authorities on development, such as the actress Bibi Anderssen, but who add a new dimension to the discussion by the inclusion of the arts and humanities in the overall human needs framework.

A possible criticism of the volume is the unqualified assumption that science is good, or on the other hand, that "good science" cannot have a specific applied objective without striking "a mortal blow." It is unclear what the ultimate "good" of science will be and what contribution scientific endeavor will make to the problems of the developing world. Nonetheless, the idea that the power of science – both in the metaphorical and technological – should be linked to social priorities is a significant statement and organizing principle for research institutes, programs, and international funding. The argument that knowledge, science, and intellectual skills should be placed in the service of people is a moral imperative; this book begins a discussion of how such an imperative can overcome the problems of national boundaries, cultural values, and economic constraints.

One of the most successful papers is by K. Soedjatmoko, Rector of the UN University, who reviews the national policy implications of the basic needs model. By examining each sector of a developing economy, including health, housing, education, food, land reform, and cultural, legal, political, and ideological policies, he evaluates the problems and questions which will arise with the application of the basic needs model. He concludes by reminding us that "the massive intellectual effort and the staying power which a continuing dialogue requires can only be generated and maintained when ... mutual trust ... mutual faith in the basic qualities of the other people ... and a willingness to suspend final judgement for a long period of time" are a part of the common commitment that has been made. This level of commitment that has been made. This level of commitment and the importance of human relationships still remains the basic medium for development and successful social change. ■

Setha Low is Associate Professor of Landscape Architecture and Regional Planning, City and Regional Planning, and Anthropology at the University of Pennsylvania, Philadelphia, Pennsylvania. She currently is involved in culturally appropriate planning and design in Costa Rica and the United States.

Available for US$39.00 from Pergamon Press, Inc., Maxwell House, Fairview Park, Elmsford, New York, 10523, U.S.A., Attn.: Book Order Department.

3 **Technology Policy and Development: A Third World Perspective**, Pradip K. Ghosh, ed. (Westport, Connecticut, Greenwood Press, 1984) 593 pp.

Developing country technology policy has been most noted for its absence, so a collection of recent essays from developing countries on the subject sounds intriguing. Unfortunately, *Technology Policy and Development: A Third World Perspective* is not that book. This collection includes a mix of articles by industrialized country authors, many written in the early 1970s, and a few reprints of articles and publications from the U.N. Conference on Technology and Development and the U.N. Industrial Development Organization. A statistical section includes some very general U.N. economic data for the 1970s, developing country research and development expenditures and the number of engineers and scientists in the early 1970s, and developing country expenses for technology transfer in the 1960s. An annotated list of pertinent books, articles, and institutions occupies almost a third of the book. Too many of the articles are hopelessly out of date. Attitudes and understanding of what is appropriate technology have evolved considerably since 1973 when Robin Clarke published the essay reprinted here. William Eiler's 1980 article uncritically quotes a prediction that photovoltaic cells will cost 50 cents per peak watt in developing countries in 1986. The article on science and technology in black Africa was first published in 1973. An article on industrial and technology policy in Tanzania describes policies in detail, but provides no insight on whether these policies are to blame for the country's current problems. Several of the articles are still relevant, if not timely. Charles Weiss and his colleagues at the World Bank offer good generic advice in "Guiding Technological Change." The forbidding sounding "Technological Self-Reliance of the Developing Countries: Toward Operational Strategies," by the U.N. Industrial Development Organization is a comprehensive statement of developing country attitudes toward international patent policy, transnational corporations, and the industrialized countries, and of technology policy options open to the developing world. Denis Goulet provides an insightful commentary on the role of values in technology policy, and the UNCTAD review of developing country technical progress from 1950 to 1975 includes useful historical data.

Technology Policy and Development is most successful as a bibliographical reference. The 190-page annotated bibliography of books, articles, and other bibliographies is a handy guide to pre-1982 literature. The statistical section is a useful lesson in how little is known about science and technology activities in the developing countries. The essays provide a historical portrait of what the U.N. and Western development specialists were thinking about technology and development in the 1970s, but the book does not deliver what its title promises – developing country thoughts and actions on technology policy. ■

Kevin Finneran is an independent science and technology policy consultant. He has worked for the Agency for International Development, the International Institute for Environment and Development, and the National Academy of Sciences.

Available for US$49.95 from Greenwood Press, 88 Post Road West, Box 5007, Westport, Connecticut 06881, U.S.A.

On File at ERIC

Documents recently entered in the ERIC (Educational Resources Information Center) files include an overview of communication and technology in development, a report on a theater-for-development workshop, a handbook for film producers, and a study and manuals on the use of audiovisual materials.

All these documents are available in microfiche, and all but one in paper copy, from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs may be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

● *Beyond the Flipchart. Three Decades of Development Communication.* 1985, 45pp. (ED 259 710).

For more than a decade, the Academy for Educational Development's Clearinghouse on Development Communication has collected information and chronicled trends in the application of communications technology to development. This paper summarizes what the Academy has learned about communication and development from various perspectives and discusses the future use of new technologies. Areas covered include: (a) strategies (media based, instructional design, participation, and marketing); (b) the importance of language, culture, and politics; (c) the development sector (agriculture, family planning, education, health, nutrition); (d) technology (television, radio, print media, traditional and folk media, other media, telecommunications, computers); and (e) lessons for the future (audience orientation, targeting areas for change, media networks). Examples of successful communications projects are included to illustrate the positive impact of media intervention on education and training. Available from the Clearinghouse on Development Communication, 1255 Twenty-third Street, NW, Washington, DC 20037, or from EDRS in microfiche only for 75 cents.

● Kidd, Ross. *From People's Theatre for Revolution to Popular Theatre for Reconstruction: Diary of a Zimbabwean Workshop.* CESO Verhandeling No. 33. 1984. 95pp. (ED 259 694).

Focusing on the experience of one of seven working groups at a theater-for-development (TFD) workshop in Zimbabwe, this report details the process followed by many groups, and reveals some of the major learnings, dilemmas, contradictions, strengths, and limiting factors found in a practical village-based TFD process. This drama form is described as an experimental collaborative process designed to take theater out of urban enclaves and make it accessible to the masses, presenting such

(*Continued on page 10*)

(**Spain** *continued from page 1*)

Traditionally, evaluation has sought to answer the questions "What is wrong?" "What is the problem?" and – inevitably – "Who is to blame?" At the conclusion of a project when people's work was evaluated, there was little they could say to counter a negative evaluation. Since the project was already over, they could not make the indicated adjustments, and since involvement in future projects could be jeopardized by a negative evaluation, the evaluation exercise represented, for these people, a substantial personal threat.

Traditionally, evaluation has often been confused with policy analysis. The evaluator has been looked upon as someone who tells people what they should do or what they should have done. There is, however, a very important distinction between these two functions. Policy analysis properly combines the wisdom, experience, and judgment of a group of people to determine what to do (policy), and to determine later if what has been done should have been done. The evaluator's role is more narrow: the evaluator determines what has been done, so actual results can be compared with the desired results.

The characteristics elaborated above have long been assumed to be standard characteristics of the evaluation process. I wish to challenge these assumptions, to show how evaluation can play a more useful role in project implementation. Indeed, many evaluation practitioners have gradually moved toward more constructive uses of evaluation, precisely because they have gone beyond assumptions.

Evaluation Present. . . .

Evaluation occurs throughout the project. The traditional assumption that evaluation occurs after-the-fact implies that evaluation cannot contribute to the outcome of the project, but only to a cumulative body of "lessons learned" that persons undertaking new projects might consult and follow. The most critical and limiting corollary of the traditional assumption – that evaluation was to be done after the project – was that project people somehow could not state the results they wanted beforehand, or measure where they stood in terms of those results until it was too late to do anything to change what had happened. It was assumed project people could not control what was happening once the project had started. More recently, however, evaluation has been recognized as a valuable tool to help project people achieve their goals.

Evaluation can, in fact, be carried out at any stage of the project – before, during, and after – as a way of measuring the actual situation vis-a-vis the project's desired results. Thus, *what is required for a good evaluation* – before getting out statistics books, plugging in a computer, or designing a specific data-gathering method – *is a clear statement by the project people of the desired results, in measurable terms.* Defining measurable indicators of desired results defines and clarifies the evaluator's task. It also requires that project people understand what is happening *before* the project (baseline evaluation), and *during* the project (formative evaluation) in terms of those same, precise, measurable indicators. The baseline evaluation will aid greatly in project design, and the formative evaluation will allow the project team to change things while there is still time to affect project outcomes.

From this perspective, evaluation is integrated into the project as a way to get things done. Always using the desired results of the project as the criteria, evaluators can look at what is happening before and during the project to guide project design and implementation.

Evaluation is an essential function, nc a luxury. When evaluation is done after the project, results are used not by the project people whose work is being evaluated, but often by a nebulous group of future implementors in similar settings. Theoretically, they would take the evaluation results, find the similarities between the evaluated project and the contemplated project, apply useful lessons, and then move onward and upward on the basis of this continually cumulating body of lessons learned. In reality, future implementors take too little time to study the state of their art, and often say that few lessons are directly applicable anyway. When these future implementors are the only beneficiaries of evaluation, the sponsors of the project to be evaluated may hesitate to pay for something which is not of direct use to them.

Thus, evaluation appeared to be a luxury, something peripheral to the project itself, and something whose value for other projects was hard to determine. But when evaluation becomes part of the fabric of project implementation, as a stimulus to the achievement of clearly stated results and as a monitor of measurable indicators of those results, the project itself becomes the chief beneficiary of evaluation. No longer a luxury, evaluation is seen as essential for getting things done.

Once the sponsors are convinced that evaluation is vital to accomplishing the desired results, they can justify this investment on solid grounds – the alternative being to gamble that the project is and will continue to achieve those desired results.

Evaluation should be done by insiders. To the degree that an evaluation is complex, the project team needs to include persons with the requisite technical skills who bring with them a blend of social science, statistics, and computer analysis. They should be brought in to work for the project's desired results and remain with the project from start to finish. Traditionally, evaluators have been outsiders – people not concerned with the project's desired results, who came on the scene at the end of the project. Also, grounds for using outside evaluators went further, that is, to maintain objectivity and to maintain the standards of scientific experimentation. Perhaps objectivity is important if you look at evaluation only as a post-mortem assessment of what happened. Objectivity implies a definite distance on the part of the evaluator. To the extent that accurate, timely information about results can contribute to the project, however, evaluation should not be objective, but rather be used to get those results.

Similarly, maintaining standards of scientific experimentation poses a problem when applied rigorously to evaluation. If evaluation stays above the battle, not offering its findings to the project team because of a desire to be "scientific," neither science nor the project benefits. A project is not an experiment – intervening simply to see what happens. A project has desired results and needs to evaluate interventions regularly in terms of those desired results. While an experiment is value-free, a project is not. Achieving the desired results of the project is the ultimate goal, and the evaluation process is used to determine whether progress is being made toward that end.

Evaluation is not adversarial. Evaluation has often been a threat to many project participants, and justly so. When used only retrospectively and when not arising from a predetermined project agenda, evaluation can easily become a negative and damaging experience for a person. Even the best people can design and implement a project that does not achieve – without mid-course corrections – what they had hoped for. When used only retrospectively, evaluation offers no constructive guidelines to the project; and, if the evaluation is negative – implicitly or explicitly – the blame falls on those associated with the project. A retrospective evaluation deals only with success and failure, with praise and blame, and is rightly perceived as a threat.

In contrast, when evaluation is integrated into the project, both at the baseline and during the formative stages, the focus shifts from success and failure – praise and blame, to *improvement.* More importantly, focus shifts from the evaluation of persons to the evaluation of methods. When an evaluation is carried out during a project, and when this information is made available to those who are committed to achieving its desired results, it is possible to change methods in mid-course.

Evaluation clearly becomes a scrutiny of methods in terms of improving desired results and not a personal ordeal in terms of success or failure. This depersonalization of evaluation is not incidental. It stems directly from the project's articulation of its desired results at the beginning, and from ongoing assessment while the project can still be improved. In the absence of desired results, people will work off their own, separate agendas and be vulnerable to criticism from people with other agendas. The work becomes personalized. With everyone focused on the same agenda, however, the project team need not question themselves when improvement is needed. It is the methods, not the people, that need changing.

Evaluation differs from policy analysis. In the absence of good policy analysis, evaluators are often brought in to determine what should be done. It is commonly believed that evaluators can and should tell people what to do, testifying to a lack of good policy analysis. Policy analysis should determine the desired results for an enterprise, as well as the measurable indicators of those desired results.

(*Continued on page 12*)

Participatory Radio in Arequipa

by Jane Duran

In the city of Arequipa, located in the mountains of southern Peru, a participatory radio project is attempting to motivate young people to become more involved in their communities' self-help activities. This project is supported by the British Council's Educational Projects Fund, and its focus is the production of a weekly magazine-format radio program called *Inquietudes*, or "concerns, feelings that motivate." *Inquietudes* is broadcast by the local religious and cultural radio station *Radio San Martin* and is aimed at young people between the ages of 16 and 23. With this three-year project, running from 1983 to 1986, the British Council provides a studio and on-site recording equipment and materials, training programs and resources, and a London-based project consultant, and local support from the British Council office in Lima.

The catalyst for the project is a small group of volunteers working for a production center called COAMCOS *(la Comisión Arquidiocesana de Medios de Comunicación Social de Arequipa)*. Since 1975 COAMCOS has been producing an average of ten weekly cultural and religious radio programs broadcast locally on behalf of the Archdiocese, but prior to the *Inquietudes* program, the production team had had no experience in community based, participatory radio. Funding and time constraints argued in favor of selecting a priority target audience and limiting output to a 24-minute weekly program. After considerable audience research, the team decided to focus on young people in the *pueblos jovenes*, or "young villages" of Arequipa in the hope that this sector can be motivated to play a more active role in the community.

Pueblos Jovenes

The *pueblos jovenes* surrounding Arequipa number well over three hundred, and house a majority of the population of the province of Arequipa. They are populated mainly by migrants from other regions of Peru, and are in varying stages of development depending on factors such as the length of time established, proximity to the city, the degree to which communities have organized themselves, and support from local organizations. For many villages, however, economic and social problems are acute. Many lack essential services: running water, electricity, sewage and rubbish disposal, and adequate health facilities and schools, while unemployment is widespread. Few formal communication networks exist between the *pueblos jovenes* to facilitate an exchange of information on community development activities, and enable communities to learn from each others' experiences. One of the purposes of the COAMCOS project is to provide a forum in which listeners can talk to each other about local problems and how they might work to solve them, while drawing on the experience of communities which have organized self-help projects.

An essential underpinning to the project is its link with a local grass roots organization called CIRCA (*la Federación de Circulos Sociales Católicos de Arequipa*). CIRCA is a religious institution with branches in 43 *pueblos jovenes* where it has established clubs and centers that support community development activities. A CIRCA coordinator works closely with the COAMCOS team in all phases of *Inquietudes* program development. CIRCA also helped the team to carry out their audience research activities, and is an invaluable source of contacts needed to engage community participation in program production and evaluation.

Training

The COAMCOS team has received training at several stages of the project to build on their previous experience and skills in order to meet the special demands of a participatory radio project. Training emphasized audience research techniques; on-location recording skills; program formats involving listener participation; training skills to enable the team to train community groups to produce their own materials; and evaluation techniques for gathering listener feedback. The team members also needed to learn about other developments in the field of participatory and educational radio so as to operate in a wider context and draw on these experiences as sources of ideas.

Two team members attended a course for educational radio trainers at the *Centro de Teleducacíon, Pontificia Universidad Católica del Perú*, who then gave other COAMCOS members and CIRCA representatives basic training in research, production, and evaluation skills. These same team members also visited an established community radio project in Puno, Peru, *Radio Onda Azul* (see *DCR* #48) where they were able to observe listener participation in action. This exposure to the potential of participatory radio subsequently influenced the final shape of the COAMCOS project.

As a result of their training, the team was able to develop an effective audience research strategy. Group discussions and surveys provided the team with socioeconomic information on the *pueblos jovenes* and identified young people as a priority group heretofore marginally involved in community development activities. Further target group research revealed that there was a strong interest among the respondents to participate in program production.

The project also provided two intensive on-site training workshops run by a BBC specialist. The first, in January-February 1984, provided further basic production training for team members and CIRCA representatives. Using the audience research gathered earlier, program format, content, and style for *Inquietudes* were developed at this time. The magazine format was selected as the best way to present information and ideas on a wide range of topics and issues relevant to young people from the *pueblos jovenes*. This format, with its organization into discrete sections, also accomodated the time constraints of the team, who could work only at night and on weekends. It enabled the team members to work independently when time permitted, although planning and final compilation would be a team effort.

A second on-site training workshop occurred a year later. During this workshop, the BBC specialist and the team reassessed *Inquietudes* based on an interim evaluation survey carried out by the team in the *pueblos jovenes*. The training concentrated on those production and training skills which needed to be strengthened in view of ways in which the project had developed. Changes on program strategy and content were also made at this time.

Program Evolution

Since March 1984, *Inquietudes* has offered young people a forum where they can discuss issues that concern them. Community news and announcements are increasingly presented by members of the communities themselves; some presentations are produced entirely by groups of young people from the villages who were trained by the COAMCOS team. The program features local musicians and presents ideas for new activities in which young people can participate, while providing a channel for information on community projects. While maintaining the magazine format, *Inquietudes* may take the form of a "special" devoted to an individual village, recorded on location, and emphasizing problems and self-help projects to improve conditions. Content is lively and varied, increasingly carrying the voices of young people from the *pueblos jovenes* rather than those of the COAMCOS team members which had initially dominated the programs.

Evaluation

Evaluation is an integral part of this project. Listeners' comments and suggestions are broadcast on *Inquietudes* and program changes also reflect survey information gathered by the team. Another form of evaluation occurs with regular contact between the field team, the London-based Media Group, and BBC specialists. Copies of all transmitted tapes are sent to London together with "letter cassettes" in which the COAMCOS team discusses new developments and problems, allowing for regular project monitoring and rapid response time.

Since the first broadcasts of *Inquietudes*, the team has concentrated on increasing the involvement of their listeners in the various production stages of the program. This effort has been successful as the young people from many of the communities regularly participate in production activities. Seen in a wider context, the COAMCOS project is only one of a variety of existing activities in Peru in the field of participatory radio. Some of these rely on the most rudimentary facilities, such as public address systems in market places or villages to disseminate community programs. Other radio activities are implemented by local groups

(Continued on page 10)

(**Duran** *continued from page 9*)

who acquire time on commercial stations for individual programs; while a few radio stations sponsored by religious organizations broadcast a wide range of listener-based programming.

Although participatory radio in Peru is still overshadowed by traditional commercial radio programming, there is now some awareness of its potential impact and use as some communities are given access to a communication channel which can help them to achieve their self-development goals. ■

Jane Duran is a Media Officer with the British Council's Media Group, and advises on training and resources for radio and its applications for education and development.

Addendum

Dr. Norbert Hirschhorn, who contributed the article "Saving Children's Lives: A Communication Campaign in Egypt," in *DCR* #51 is Vice President of the John Snow Health Group, Boston, Massachusetts.

(**ERIC** *continued from page 7*)

common concerns as crop production, water shortages, immunization, literacy, and family planning. A day-by-day diary account of this working group provides an overview of, and describes the specific tasks involved with, the production of a "theater *pungwe*" – people's theater. A TFD model lists educational objectives for the drama process and defines the objectives of the workshop: (a) to train development cadres and theater artists in TFD, and (b) to start a TFD program in the Murewa area of Zimbabwe as a training and popular education/culture program. The report concludes with an analysis of the workshop, including constraints, relationship with villagers, organizational strategy, and teamwork. An extensive bibliography is included. Available from the Center for the Study of Education in Developing Countries, Badhuisweg 251, P.O. Box 90734, 2509 LS, The Hague, The Netherlands, or from EDRS in microfiche for 75 cents or paper copy for $7.20.

• *Communicating with Pictures. P-8A.* 1976. 28pp. (ED 257 437).

In early 1976, the National Development Service of Nepal and UNICEF conducted a study designed to determine whether it would be possible to communicate ideas and information to Nepalese villagers who could not read by using pictures only, the kinds of pictures that would be most meaningful for villagers, and whether different colors had special meanings for them. Teams of data collectors went to nine different parts of Nepal and conducted interviews with more than 400 adult villagers from various groups; none of the villagers interviewed had ever been to school. The researchers showed the villagers a variety of pictures and colors and noted their responses. The main findings of the study indicate that villagers tend to "read" pictures very literally and do not expect to receive ideas from them; villagers do not necessarily look at pictures from left to right, or assume that there is any connection between pictures in a series; pictures that try to convey ideas or instructions often use symbols that are not understood by villagers; villagers are interested in and attracted by pictures, even though they may need help to interpret them; realistic pictures with a minimum of background detail are the easiest for them to understand; and pictures showing a lot of different objects are not well understood. Available from EDRS in microfiche for 75 cents or in paper copy for $3.60.

• *Working with Villagers. Media Resource Book: Skill Exercises, Line Drawings, Recipes for Making Teaching Tools and Materials. Activities, Media Skills, and Sample Lessons for Training Fieldworkers in Home Economics and Family Planning.* 1977. 103pp. (ED 258 567).

Designed for use in conducting media production training with Peace Corps fieldworkers, this manual is divided into three sections: skill exercises, line drawings, and directions for making art supplies from easily obtainable resources. Nineteen step-by-step skill exercises cover basic cutting, wet and dry mounting, simple drawing, freehand lettering, cutting and enlarging, tracing, and making blackboard stencils. Guidelines are also given for using blackboards, flannelgraphs, and flipcharts with village audiences. Suggestions for effective utilization of color and design describe creative ways to enhance visuals, and simple line drawings of frequently used subjects are provided for fieldworkers to trace, copy, and enlarge. The concluding section contains recipes for making such low cost materials as paste, ink, dyes, paints, rubber cement, and modeling clay. Available from EDRS in microfiche for 75 cents or in paper copy for $9.00. ■

Barbara B. Minor is Publications Coordinator, ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13244-2340, U.S.A.

Publications Available from Clearinghouse

The Clearinghouse on Development Communication has compiled two thematic collections of its *Project Profiles.* One, entitled *Selected Project Profiles: Agricultural Communications,* outlines 30 selected agricultural development projects that have used communications in an innovative or effective way. The second, *Selected Project Profiles: Radio,* focuses on projects using radio to promote agriculture, health, nutrition, population, education and human resources, and integrated development.

Both collections are available at no cost to those from developing countries, and for US$5.00 each to those in industrialized countries from: Clearinghouse on Development Communication, 1255 23rd St., NW, Washington, D.C. 20037, U.S.A.

Editing and Publications Training Course

The International Rice Research Institute in the Philippines (IRRI) and the Canadian International Development Research Center are offering agricultural communicators an editing and publications training course at IRRI. The course will be offered twice in 1986 and twice in 1987. This is an intensive four-month program for eight to ten participants each session. It is a "hands-on" training experience for those already engaged in editing and publication at national or related research and extension institutions. Candidates should be 25-45 years old; have a B.S. or M.S. degree; have at least two years related experience; and be proficient in English.

For information contact: The Director of Research and Training, IRRI, P.O. Box 933, Manila, Philippines.

(**AMT** *continued from page 11*)

short radio spots, jingles, and/or interviews; directing the same message to different audience groups (say, educating fathers and children – as well as mothers – about oral rehydration therapy); and adding sound effects and music to productions. Recommendations such as these are often provided by Network participants.

Contributions from the Network's participants are crucial in compiling subsequent packets. In fact, the only requirement for receiving the free script packets is that an enclosed information poll be filled out and returned to DCFRN headquarters. Questions from a recent survey asked which items were found to be the most useful; what crops, livestock, pests, and diseases are found in the communicator's area; what the terrain, soil, and climate conditions are like; and whether or not farmers can read and keep financial and other farm records. There is also room for comments and suggestions. This data is then collected, analyzed, and integrated into later packets.

In addition to radio broadcasts, DCFRN information has been used in newspaper articles, posters, classroom teaching, video tapes, TV shows, loudspeaker broadcasts, and puppet shows.

Overall, DCFRN has proven itself as an educational tool. Feedback from participants shows that farmers who listen to these broadcasts use the information that pertains to their particular needs. The Developing Countries Farm Radio Network is steadily growing as a development educator of small farmers as envisioned by Atkins nearly a decade ago.

To contact the Network, write to:
Developing Country Farm Radio Network, English Language Division, c/o Massey-Ferguson Ltd., 595 Bay St. Toronto, Ontario M5G 2C3 Canada
or
Developing Country Farm Radio Network, French & Spanish Language Division, c/o University of Guelph, Guelph, Ontario N1G 2W1 Canada ■

William Amt is Program Assistant at the Clearinghouse.

(**Friend** *continued from page 5*)

Results of this comparison showed that the radio students were superior to the non-radio students in both Nicaragua and Thailand, particularly in rural Northeast Thailand (see graph). The normalized difference of .58, for students in Northeast Thailand, is of a magnitude rarely reached in educational interventions. Reducing the disparity of educational opportunity between the less and more developed parts of the country was the primary goal of this project, and it appears this experiment has very successfully achieved this end.

However, we still have not answered one of the questions posed at the beginning of the article: "Was there a noticeable decrease in lesson quality in the process of adapting the lessons to a different language and culture?" To answer this question, we turn to a comparison with Nicaraguan data.

Comparing Results

The test used for the evaluation in Thailand was adapted from one used for the same purpose in Nicaragua. Over 80 percent of the items in the Thai test and the Nicaraguan test were the same, and comparisons made here are based on only those items.

Graph 1 shows the results of the two pilot-study regions in Thailand, comparing the results from Nicaragua. It is evident that the Nicaragua study and the Thai Central Plain study yielded very similar results; the non-radio classes in both countries have close to the same achievement levels, as do the radio classes. However, an indication of a slight degradation in the quality of the lessons when adapted from Nicaragua is evident in somewhat greater differences in Nicaraguan scores between radio and non-radio classes than was found in the Thai Central Plain.

The striking fact shown on this graph is that the radio-instructed students in the Thai Northeast study gained more, comparatively, than either of the other groups – even more than the radio-instructed students from Nicaragua. Although the quality of the lessons decreases slightly in the adaptation process, it is apparent that they are still enormously successful in the remote rural regions where they are most needed.

The success of the Thai version of the radio mathematics lessons amply demonstrates that well-designed interactive radio instruction can retain its educational effectiveness when adapted for use in countries quite different from the one for which they were originally intended. It is to the credit of the Thai staff that the educational effectiveness of the original lessons was well maintained while the tone of the programs became distinctly Thai. ■

Jamesine Friend was Field Director of the Radio Mathematics Project in Nicaragua, and is currently president of Friend Dialogues, Inc., an educational consulting firm. Klaus Galda was a Field Director of the Radio Mathematics Project in Nicaragua and was Director of the Radio Science Project. Barbara Searle was Project Director of the Nicaraguan Radio Mathematics Project and is now with the East Asia and Pacific Education Division of the World Bank.

DCFRN: A Radio Network for Small Farmers

by William Amt

As the populations of developing countries continue to grow, land formerly used for cultivating small-scale, domestic-consumption crops is increasingly appropriated for large-scale, export-oriented crops. This process puts pressure on the subsistence-level farmer to grow more crops on less land. Traditional farming methods usually cannot deal with this challenge effectively, and small-scale farmers have largely been by-passed by a majority of development programs aimed at increasing food supplies in the Third World. To help solve this predicament, the mass media are playing an increasingly important role in changing small farmers' behavior in order to improve national agricultural self-reliance, nutrition, and the welfare of small producers. The Developing Countries Farm Radio Network (DCFRN) is one such media group.

Founded in 1979, DCFRN is sponsored by Massey Ferguson Ltd., Canada, a farm implement manufacturing company, the Canadian International Development Agency, and the University of Guelph, and operates under the guidance of an Advisory Committee comprised of sponsor representatives and specialists in international development, agriculture, communications, and education. It is under the direction of George Atkins, former Senior Agricultural Commentator with the Canadian Broadcasting Corporation.

Practical agriculture related information is collected and taped for radio broadcast and supplied without cost to radio stations and other organizations involved in disseminating agricultural information for the purpose of "serving agriculture, the basic industry" throughout the developing world. DCFRN is committed to assisting small farmers to increase their food supplies by using established radio stations and other local channels of communication to spread agricultural information. The success of this effort is perhaps best evidenced by the fact that although only nine packets have been produced and distributed to date, over 500 broadcasters or organizations in more than 100 countries disseminate DCFRN information to an estimated 100,000,000 listeners in about 100 languages.

Information Gathering Process

DCFRN is divided into two divisions. Administrative headquarters and the English Language Division are located in Massey-Furgeson's Toronto office; while French and Spanish services are housed on the campus of the University of Guelph in Guelph, Ontario where, when called upon, University faculty and staff can assist with technical research on agriculture and nutrition information.

Information is assembled on appropriate and inexpensive technologies used by innovative grass roots-level farmers in the developing world to increase food production, decrease post-harvest losses, and to make more efficient use of food. This information comes from on-site interviews with small farmers, farm broadcasters, extension workers, health workers, scientists, and university and government officials; printed materials; and feedback from questionnaires that are included in each information packet.

Information on agricultural or nutritional innovations must meet several rigorous criteria to be put on tape and then be disseminated by DCFRN. They should have been developed, tested, and proven in the developing world, as well as be adaptable in other developing countries. There should be no, or very low implementation costs, relying only on local resources, and requiring neither chemicals nor unfamiliar types of plants or breeds of animals.

After the materials are gathered on a variety of topics, radio scripts are prepared in a culturally and religiously neutral style in order to appeal to as many listeners as possible. A personable, informal style is followed, as if one farmer were advising another. They are written simply so that local broadcasters and other agricultural communicators – writers, agricultural extensionists, educators, and health workers – can readily interpret the materials linguistically and culturally for their audience. The scripts (including illustrations to help the communicator understand what he or she is conveying to the audience), or scripts and illustrations along with a cassette recording of the scripts are available in English, French, and Spanish. Taped segments run between two and ten minutes, depending on the subject matter. Scripts cover a wide variety of agricultural or health and nutrition issues, all within a rural development context. Agricultural topics have ranged from improving manure to getting more milk from dairy cows, from controlling worm eggs and germs that spread disease to marketing farm goods. Each packet also contains at least one segment on rural health problems.

The Blue Sheet

Enclosed in every packet is *The Blue Sheet*, DCFRN's newsletter for participants in the Network. As well as providing up-to-date information about the Network, it covers other development issues not found in the radio scripts. Topics such as Women in Development, the International Year of the Forest, and improving communication techniques are included in this newsletter. "The Professional Improvement Corner," a regular column in *The Blue Sheet*, gives pointers on how to make broadcasts more captivating for listeners. Suggestions include using the mini-drama format,

(*Continued on page 10*)

Briefly Noted

by Robert Vittel and William Amt

The International Rice Research Institute (IRRI) has put out a useful publication for non-English-speaking countries entitled, *Copublication: IRRI Design, Procedures, and Policies for Multilanguage Publication in Agriculture.* IRRI found that many of the people who could benefit from its publications do not speak English. This booklet explains how the language barrier is overcome via the process of copublication, whereby IRRI works closely with private publishers in developing countries to translate, layout, edit, print, and distribute IRRI materials.

Another handy publication coming out of IRRI is a very extensive compilation of titles on Third World agricultural science and production. Entitled *Publications on International Agriculture Research and Development*, this 560-page catalog comprehensively lists the major publications and audiovisuals of all the International Agricultural Research Centers (IARCs) around the world. An in-depth subject index assists the user in locating available materials in countless fields of agricultural science. Materials are listed for each of the IARCs, preceded by a short description of the center and an address. Annual reports and conference proceedings are also listed. This catalog is sure to be useful to libraries and organizations working in international agriculture. It is available in English only for US$10.20. Both publications are available from the International Rice Research Institute, P.O. Box 933, Manila, Philippines.

For those francophones interested in a synopsis of the problems of African publishing, *Direct*, a French bi-monthly about educational technologies, contains an article in its issue No. 4/1984 entitled, *Le Livre en Afrique Francophone.* A number of statistics (for instance: Africa, with 10 percent of the world's population, produces 1.4 percent of the world's publications, while Europe, with only 4.5 percent of the world's population, produces 45.6 percent of the world's publications), as well as the arguments that existing books are too often found in the city, too academic, too expensive, and too French (or English), suggest that Africa is in need of more accessible and appropriate reading materials for a much wider reading public. *Direct* is available from ACCT-Direct, 13, Quai André Citroen, 75015 Paris, France.

Kumarian Press has published two complementary books that discuss ways in which integrated rural development projects can be made to be lasting and effective.

In *Managing Rural Development with Small Farmer Participation*, Coralie Bryant and Louise White acknowledge that participatory development is a crucial element of the general theme of development. Their book focuses more on the issues of promoting equity and decentralization, expanding and managing participation, developing local institutions, social learning, collective action, and reorienting bureaucratic attitudes. It's an excellent outline (but should not be thought of as a manual) for developers and communicators in need of ideas of how to construct a well-rooted project.

Implementation for Sustainability: Lessons from Integrated Rural Development is a somewhat expanded version of Bryant and White's book. Written by George Honadle and Jerry VanSant, its theme is that project designers, managers, and field workers must be ever-mindful of the need for local projects to continue effectively after outside support ends. By substantiating theory with case study experiences, this book analyzes both macro (national) and micro (local) alternative approaches to delivering and managing goods and services, and suggests ways of avoiding project failure. Bryant and White's book is available in soft cover for US$7.95, and Honadle and VanSant's costs US$22.50 for hard cover and US$12.50 for soft cover. Write: Kumarian Press, 630 Oakwood Avenue, Suite 119, West Hartford, CT, 06110, U.S.A. ■

Both authors work at the Clearinghouse

Asia-Pacific Broadcasting Union Prizes Announced

The 1985 ABU Radio and Television prize winners were announced recently in Seoul, Korea. Three Radio prizes are awarded to promote the production of radio programs of a high standard which are intended to raise educational and cultural levels and to strengthen international understanding among the peoples of the countries of ABU members.

The prize for radio programs for children, for a production which entertains and educates youngsters under 12, was awarded to Radio New Zealand for "Grampa's Place" – an imaginative and professional production directed to an audience of three to five year-olds.

The 1985 Hoso Bunka Foundation, a Japanese philanthropic organization, awards a radio prize to a program presenting traditional music that preserves and enriches the cultural heritage of the country or territory in which it was produced. This year's prize went to Radio Bangladesh for *"Jal Ranger Gaan."* The program is a sensitive blend of music, narration and sound effects that simultaneously tells of the hardships of daily life faced by the fishing communities of Bangladesh.

ABU's 1985 Radio Prize, judged on the theme "Youth in a Changing Society," was awarded to the Australian Broadcasting Corporation for "The Whole World Loves You," a radio play that made imaginative and excellent use of the radio medium to examine tensions in child/adult relationships.

For a list of the television prizes given this year, 1986 entry forms, and further information write to: Asia-Pacific Broadcasting Union, c/o Nippon Hoso Kyokai 2-2-1 Jinnan, Shibuya-ku, Tokyo 150, Japan. Cable ABUNI, Tokyo. Telex: J22377 (RADIO NHK) Tokyo.

(**Spain** *continued from page 8*)

Evaluators can provide the data and the analysis of data to policy-makers, but as evaluators they should not make policy decisions. Evaluation can contribute to policy-making the empirical base that policy-makers hover above. Evaluators can also push them to state measurable indicators for the results they want. It is a policy-maker's job to state the measurements needed to assess the status of their plans. If they have good evaluators working with them, they can concentrate on specific questions, confident that the evaluators can provide the answers. Policy people ask the questions – evaluators answer them. Without firm policy direction, the evaluator is lost. If a project team asks the evaluator to provide direction, this is a good indication that the project itself is without direction. An alert evaluator can contribute most effectively in this situation by helping project people articulate the results they want and help them determine the corresponding measurable indicators of those results.

This is evaluation for results: evaluation is an integral part of getting any job done. No longer a post-mortem operation separate from the task of achieving the project's desired results, no longer a luxury carried out by people outside the project, no longer confused with scientific experimentation or policy analysis, and no longer a threat to the very people most committed to the project's desired results – evaluation is becoming recognized as a constructive tool that can help to achieve desired results. ■

Peter Spain is currently a project officer for the Academy for Educational Development, working on the PRITECH health project.

Cornell University Communication Courses

Between June 8 and July 4, 1986 Cornell University again offers its Communication Planning and Strategy (CPS) course designed for officials and decision-makers in agriculture, health, nutrition, family planning, and rural development, as well as for those in information and communication positions related to those sectors. The focus will be on designing communication strategies and mobilizing resources for communication components of projects. Enrollment is limited to 25. The course fee is US$1400, and housing approximately $650.

Also, a three-part video communication workshop is being offered from June 1 to July 12, 1986. The first part will give participants "hands-on" experience in how to use the portapac video, pre- and post-production planning, basics of scripting, in-camera editing; a second session offers a four-week independent learning experience; and a third is a one-week workshop covering concepts related to manipulating the components of video in the electronic editing process.

For course applications contact: Dr. Royal Colle, CPS-85, Cornell University, 640 Stewart Avenue, Ithaca, New York 14850, U.S.A., Telex: 937478. Telephone (607)256-6500.

Development Communication Report
Clearinghouse On Development Communication
dcr
Spring 1986
No.53

Whether in the hands of illiterates in Mali and India or television programmers in Niger and the Maldives, video is playing an increasingly important role in development work. Projects in agriculture, literacy, nutrition, community development, income generation, and family planning are using video as a tool for motivation, fundraising, bottom-up communication, community-to-community exchange, project documentation, and information dissemination.

Half-inch (videotape width) equipment is popular among villagers involved in community development work because it is lightweight, compact, portable, and easy to use. The advantages of its design, however, can at the same time be a disadvantage – if it breaks down, it must be replaced rather than repaired. The one- and two-inch equipment required for Western television broadcast standards has proven inappropriate for local production of development programming. The trend is now toward 3/4-inch videotape equipment which is portable, repairable, and appropriate for use at the community level. At the same time, the picture quality is acceptable for television broadcast when its purpose is development communication, just as it is used in Western countries for community-access channels. The facilities where technicians are trained for television broadcasting provide a place where equipment can be repaired and where video users throughout the country can be trained.

The following articles illustrate the role of video and television in development and demonstrate the potential of this resource. There is a lot happening out there.

DCR invited Diana Talbert to serve as Contributing Editor for this special section on video use in developing countries because of her particular interest in the field. Ms. Talbert, has been involved in development education and communication for twenty years. For the last seven years, she has been using and promoting video as a communication tool. She has used it in teaching English as a foreign language at Harvard and Georgetown Universities; in counseling women seeking career changes; and in community-access television. Ms. Talbert is Vice President of Health and Education Resources.

Music Carries a Message to Youths

by Patrick L. Coleman

Who would have predicted that the most widely played song in Mexico in March 1986 would be a special record designed to encourage young people to be sexually responsible and not to bring into the world "children of bread and water," children they could not care for?

"It's OK to say 'no,' " is the message of a unique new family planning and health communication project designed to reach young people in 11 Spanish-speaking countries of Latin America and the Caribbean. The countries include Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama, and Peru. What makes this ambitious regional project so unique is not just the message – or the remarkable success of the first song – but the combination of materials that were produced, the way they were produced, and how they are now being used throughout the region.

The Population Communication Services project in The Johns Hopkins School of Hygiene and Public Health (JHU/PCS) has been working in Latin America and elsewhere for four years to support innovative family planning communication projects. It became clear to us that one key group was not being reached – young people aged 13 to 18 who comprise approximately 30 percent of the total population in Latin America. The fertility and sexual behavior of young people have a significant impact on their own lives, their community, their country, and the region. Early pregnancy is a major health and social problem throughout the region and the world. Adolescent mothers are ill-prepared psychologically, physically, financially, and socially to accept the responsibilities of motherhood.

(*Continued on page 2*)

Linking Knowledge Systems in the South Pacific

by George M. Beal and K. Robert Kern

Agriculture is the leading economic activity in most of the small island countries of the South Pacific. That vital sector embraces a remarkably wide spectrum of crops ranging from coconuts, cocoa, and coffee for export, to indigenous roots. There is also a wide variation in enterprises, production practices, types of producers, and marketing practices.

Most of the islands were governed until recently by European powers, which had led to foreign influence in some segments of island agriculture, mainly focused on export crops; little attention had been given to food crops.

When islanders gained political independence, and under quickening population pressure in many cases, the concern for food crops and the interests of small landholders took on a broader national perspective. And over the last two decades, many of the islands have put some elements of an agricultural knowledge system into place.

Government-sponsored organizations now function in agricultural research, extension, education, libraries, and communications. They tend to be unique to each country, since great distances – both geographic and experiential – stand between the real-life conditions in the islands and models from developed society systems that some tried to copy or impose.

Since 1983, the Institute of Culture and Communication of the East-West Center has collaborated with the International Service for National Agricultural Research (ISNAR) in research and continuing consultations with the South Pacific island nations of Fiji, Western Samoa, and Tonga. This work has focused on the organizations and people involved in the knowledge systems in an effort to understand how the different systems are linked, how communication flows among them, and how the exchange of information can be improved.

(*Continued on page 14*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Music Videos 1
Pacific Knowledge Systems 1
Making an Agricultural Video 3
Video for Women 4
Video in the Philippines 5
Video in the Village 7
Video Questionnaire 8
Teaching Video in the Maldives 9
Communicator's Checklist 10
On File at ERIC 12
The Biggest School in the World 13
Briefly Noted 15
Continuing Education Center 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Assistant
William Amt, Program Assistant
ISBN0192-1312

AED
International Division
Academy for Educational Development

(**Coleman** *continued from page 1*)

The Best Audience: Urban Youth

To address this problem the JHU/PCS decided to develop a regional Latin American project to make young people more sharply aware of the personal advantages to them of responsible parenthood. Socio-demographics and marketing studies have shown that young people living in urban areas are more homogeneous than any other segment of the population in the region and are easier to reach. This makes them a particularly appropriate audience for global advertising, in which one set of materials that crosses national barriers can be produced for a large group of people.

JHU/PCS put together a financial, marketing, and institutional package. The finances were provided through the U.S. Agency for International Development. Development and marketing of the materials was contracted by JHU/PCS to Fuentes y Fomento Intercontinentales, S.A. (FFI), a commercial marketing firm located in Mexico. Institutional tie-in was through JHU/PCS contacts with organizations in the 11 Spanish-speaking countries that have active programs with young people.

Analysis showed that the common denominator for young people throughout the region is music. We decided to produce two songs, each with a music video, pressed on each side of 45 rpm single records and enclosed in a full size, full-color, two-sided record jacket which folds out into a poster.

The next step was to refine the general message of sexual responsibility to a specific message, one that young people would listen to and that would not offend others. Feedback from institutions throughout the region showed that responsible sexuality is a very sensitive subject both for young people and for the whole community. Messages had to be acceptable to the social, cultural, and religious values of the countries and to the requirements of the mass media.

Focus groups with young people indicated that youth would listen to the following messages: 1) young people should be sexually responsible for their actions; 2) it's OK to say 'no,' that is, the concept of postponing sex; 3) young men as well as women should be sexually responsible; 4) young people can go to specific identified places for professional counseling or guidance; and 5) positive role models are helpful for young people who want to be responsible.

Once the messages were developed, we had to find persuasive messengers. The concept of youth speaking to youth about sexuality has been demonstrated to be most convincing. Thus, with the help of professional recording companies, JHU/PCS and FFI looked for young singers who were commercially successful, who believed in the concept of responsible sexuality, and who wanted to participate in this type of project. The final selections were Tatiana, a young Mexican woman who is rapidly developing into a commercial star, and Johnny, a young Puerto Rican man who was previously with the most popular young Latin American singing group, *Menudo*.

Once the artists and the messages had been identified, a contest was held for the music and lyrics, with more than 20 professional composers participating. The choice was narrowed to five songs, which were pretested in rough form, with three different groups of young people. The two favorite songs, *Cuando Estemos Juntos*, "When We Are Together," by the Argentine composer, Juan Carlos Norona, and *Detente*, "Wait," by the Mexican composer and singer, Prisma, were recorded. Music videos and radio and television commercials were then produced.

An underlying concern built into the design of this project was that the materials must appeal to young people as popular songs, not as educational materials. We wanted the songs to be played on radio stations just like any other popular song, and the music videos to be played on television stations just like any other video. We expected that the radio and television commercials would be played only if the radio and television stations were paid to do so. At the same time, we hoped for some collaboration by the government-owned educational stations and perhaps by a few socially conscious media managers and owners.

The marketing plan was conservative. We estimated that the songs would be played an average of three times a day on radio stations playing Spanish language music, and television stations would broadcast the music videos, while newspapers, magazines, and journals would occasionally publish articles related to the project. This was all considered "free" promotion for the products, based on their commercial viability.

Marketing Plans Widened

Support for a larger marketing plan came from an unexpected source. EMI Capitol, the record company for Tatiana, the female singer, wanted to put the two songs on her next album which would be launched simultaneously with this project. A major multinational recording company was willing to put its prestige and the skills of its marketing and promotion departments behind a social communication project! As a result, radio stations would feel they were not taking any risks by playing a song with a social purpose; they would consider that these materials were commercial products with a social message incorporated into them. This was the very concept that we were trying to promote. The record company's support also made the materials more available because they could be sold through a vast commercial network, not just through the institutions we were working with.

The marketing of what became known as the "Tatiana & Johnny Project" included sending:

- copies of the record to 3,020 radio stations,
- copies of the record and music videos to 250 television stations,
- press kits to 350 newspapers, magazines, and journals,
- brochures about the project to 3,500 media representatives throughout the region,
- seven bimonthly press releases to radio, television, and press personnel throughout the region.

(*Continued on page 3*)

At the same time JHU/PCS, through FFI, contracted with key radio stations in the 11 countries to broadcast the two radio spots (commercials) developed for the campaign. No funds were available for broadcasting the television spots that were developed, as the cost is exorbitant. It was hoped that local institutions could persuade stations to allot some free time to show them. The first spot promoted each song. The second spot also included a message at the end linking each institution in the 11 countries to the Tatiana and Johnny materials, and inviting young people to call, write, or visit these institutions for additional guidance or counseling about sexuality.

The local institutions were provided with copies of the 45 rpm record to give away to promote activities with young people. Since we thought the selected institutions would be the only source of the single record, we hoped young people would be attracted to it and want the record. The local institutions were encouraged to give the record only to those whom they felt were truly interested in this theme and to set up contests, focus groups, call-ins with radio stations, and other promotional activities. They also were urged to work with the record company representative in their areas to develop joint activities.

EMI Capitol agreed to pay JHU/PCS royalties for the right to use the two project songs as part of its commercial distribution of Tatiana's record. This provides more promotion and visibility for the messages as well as income to be reinvested in further activities for young people in the region.

Enthusiastic Reception

Initial reaction to the project has been overwhelming. In Mexico, even before the first song was launched, the most popular live television variety program – reaching some 150 million people every Sunday – asked to premiere the first video. Immediately, the song was enthusiastically accepted by young people and radio stations. Our initial calculation of three radio broadcasts per day was far short of reality – which sometimes reaches 15 to 20 broadcasts daily. Monitoring by record companies and radio stations in Mexico shows that the song was number one on the hit parade within six weeks after its release.

The song is also becoming a commercial hit in other countries. As of March 1986, the local institutions reported that letters and requests for their services increased anywhere from 200 percent to 2,000 percent, all within two to four weeks of initial promotion. This increase occurred before direct local institutional promotion began. In addition, the radio stations and the record company have received calls and letters of thanks from young people.

Lessons for the Future

Several lessons have been learned from this project that can guide future social development communication projects.

1. Choose the most appropriate medium to reach the intended audience, in this case, popular music.
2. Enlist professionals experienced in the chosen medium to be sure of the best available resources, both human and material.
3. Develop a high-quality product that will attract the commercial sector. Commercial support for a social message defrays expenses, assures wider dissemination of the message, and may generate income for program expansion.
4. Use a medium, in this case popular music, which has a big regional and national audience. This enables a large-scale project to draw on resources not readily available to a local organization working alone and brings additional attention to the project because of its international scope.

JHU/PCS worked closely with FFI and local institutions to ensure that the products of this project would be responsible and socially acceptable. Mixing the commercial and social sectors worked in this case because both groups cooperated to achieve the results each wanted while respecting the interests and needs of the other. ■

Patrick L. Coleman is Project Director of Population Communication Services, The Johns Hopkins University, Baltimore, Maryland. He has worked in social development communication for more than 12 years, primarily in Latin America.

Tatiana and Johnny performing in the music video Detente.

Making an Agricultural Video

by Melissa Beck-Yazman

Winrock International Institute for Agricultural Development, a nonprofit organization committed to agricultural and rural development, has been involved in video production since 1976. We have focused on agricultural education and training, information dissemination, and promotion of appropriate agricultural techniques initially in the U.S., and now increasingly in developing countries.

At the request of control Data Corporation (CDC), Winrock International produced an educational course, *Dual-purpose Goat Management Series*, for Caribbean and potentially for Latin American countries which offers a series of nine videos on basic goat husbandry. The audience was to be agricultural extension agents and farmers in these two regions who would learn how to improve milk and meat production from goats.

Site Selection

The video was filmed in Haiti and Mexico. These locations were chosen for two reasons. First, they are representative of the environment of the primary (English-speaking Caribbean) and secondary (Latin American) target audiences. Secondly, Winrock had contacts in both Haiti and Mexico who could serve as hosts and counterparts for the production team.

Winrock's Goat Improvement Project in Haiti provided an excellent Caribbean location, with local farm workers who were available for on-camera talent, and a project manager who also served as the customs liaison, logistics coordinator, and interpreter. In Mexico, professional contacts through Winrock led us to a veterinarian who teaches at a university in Mexico City and owns a goat farm. He provided the location, talent, and subject-matter expertise at this site. Local farmers and extension workers in both countries were eager to cooperate as on-camera talent.

Preproduction Considerations

We faced different preproduction problems in each country. In Haiti, we were able to bring in our own equipment and personnel. In Mexico, however, the customs procedures proved so complex that we risked having our equipment impounded. To avoid this, we rented video equipment in Mexico City where both equipment and trained video specialists are readily available.

Scouting the selected locations prior to the actual filming gave us the chance to carefully plan the scenes we would take at each location. We were also able to get information on transportation, equipment rental, reliable battery supplies, housing accommodations, and other preproduction concerns.

Script Development

The narration for the videos was fully scripted which allowed for the possible future dub-

(*Continued on page 4*)

Video: A Development Tool for Women

by Deborah Ziska

"The 'New Decade' will see women overcome their lack of experience with the media technology, realize its potential, and use it to improve their social and economic condition." Heather Royes, Ph.D., Jamaica

For nearly 40 years, OEF International (formerly Overseas Education Fund) has been working in developing countries, training low-income women to turn simple skills and local resources into income-producing business enterprises. OEF also develops and field-tests unique training methodologies focused on the needs of these women.

Based on its investigation of the use of various communication technologies to resolve a wide range of development problems, OEF has concluded that video offers a novel opportunity for women to become more active participants in program design, development, implementation, and evaluation. Current programs throughout the developing world are successfully using video to increase women's participation in social and economic development. OEF found that the potential of video for women is clear in areas such as instructional modules in small enterprise development and group organization; presentation of training techniques for working with women; analysis and evaluation of training techniques in the field; integration of women beneficiaries in project evaluation; use of video equipment as a communication tool by women themselves; marketing and fund raising; and the motivation and mobilization of women to implement their own community and business enterprise development.

Planning the Program

In July 1985, with funding from the Women in Development Office of the U.S. Agency for International Development and the Kunstadter Family Foundation, OEF convened a meeting in Nairobi, Kenya to discuss video as a development tool for women. Women with a wide spectrum of experience in the use of video for development joined in. Representation ranged from the sophisticated Food and Agricultural Organization – supporting agricultural training programs that use integrated communication systems featuring video, to simple, yet effective uses of video in Nepal for project evaluation featuring interviews with women beneficiaries.

Participants included Subhadra Belbase of Nepal, Ayesha Imam of Nigeria, Sima Wali, an Afghan refugee in the U.S., Clara de Souze of Peru, Georgina Aviles Marin of Mexico, Elma Lisk-Anani of Sierra Leone, Heather Royes of Jamaica, as well as Xaio Chun-Lin from the People's Republic of China who had learned video production from the late Martha Stuart, widely recognized for having successfully put video technology in the hands of hundreds of women throughout the developing world. (See "Video in the Village" elsewhere in this issue.)

We shared experiences and explored how women could benefit more from this technology. At these meetings it was also decided to hold a workshop at the *NGO Forum '85*, which met concurrently with the *UN Decade Conference on Women* in Nairobi. A report generated from the meetings preceding the *Forum* includes case examples, advantages, and obstacles to using video for women in development programs, some of which are summarized below.

Advantages

1. Video can be used at convenient times and places.
2. Video is effective with illiterate or multilingual groups.
3. Video can bridge cultural differences, helping women to share common concerns and goals.
4. Video facilitates group discussion, motivating women to work together and to organize for community development.
5. Video boosts women's self-confidence and encourages their self-development.
6. Video facilitates communication between funders and women beneficiaries.
7. Video simplifies technical information and improves comprehension of such materials.
8. Video can be a cost-effective training tool.

Obstacles to Video Use

1. Electric power is often lacking or erratic in developing countries.
2. The communication components of women's projects are poorly funded.
3. Technical training is lacking, particularly for women.
4. Spare parts for video equipment are difficult to find in developing countries.
5. Compatability of video standards and formats between organizations and countries is poor.
6. Importation restrictions and theft of equipment in developing countries aggravate the equipment shortage.
7. Cost of equipment is high when compared to slidetapes, flannelboards, and radio.
8. Video is often controlled by urban "elites" or foreign organizations.

The advantages far outweigh the obstacles for women using video when considering the opportunity it gives them to control a medium and to communicate with each other across cultural, linguistic, and geographic boundaries.

To obtain OEF's 40-page report, *Video Technology Applications for Development Projects Designed to Benefit Women,* send a US$7.50 check payable to OEF International, 2101 L Street, N.W., #916, Washington, D.C. 20037, USA. Please add 20 percent to cover airmail costs where appropriate.

Deborah Ziska is Director of Media and Video Projects, OEF International.

(**Beck-Yazman** *continued from page 3*)

bing of a second language without editing the video again. Since the primary audience lives in the English-speaking Caribbean, a narrator with a West Indian accent was selected.

When we make a video in one language only, a formal script is not prepared. Instead, an outline and storyboard are developed, but the "narration" is obtained from interviews which are then edited and merged to create the message. For example, farmers are asked questions that are designed to elicit specific types of answers; the result is farmers teaching farmers. While using nonprofessional talent is risky business – not all farmers have golden voices – we have had remarkably good luck. Generally, they are relaxed and readily discuss topics familiar to them.

Since Winrock has in-house production facilities and uses a small crew, costs for video projects have averaged $300 to $600 per finished minute. The production crew usually consists of just a videographer, either a writer or an audio technician, and a subject-matter expert. Working with such a small crew requires careful planning and flexibility among those involved. The video specialist and subject-matter specialist must have an understanding of each other's expertise, trust each other, and be aware of their responsibilities from the outset.

Final Distribution

Control Data has responsibility for film distribution and field testing of the *Goat Management Series*. Although the evaluation results have not yet been released, Winrock staff has used the series in workshops and seminars and, so far, feedback has been positive. Most of our videos are handled by the donor agency since Winrock does not have the staff or resources to duplicate and distribute what it produces.

Although there are unique problems associated with using video in developing countries, this rapidly evolving technology has already proven itself to be an extremely popular and effective tool for transferring agricultural technology. ■

Melissa Beck-Yazman has been a communications specialist for Winrock International for five years.

Video Education Articles

Direct, a bimonthly bulletin published in French by ACCT (Agence de Coopération Culturelle et Technique), supplies its readers with current information on various applications of educational technologies worldwide. A recent issue (#6/1985), focuses on educational video, with articles on topics such as the best uses of audiovisuals in education; descriptions of the different educational video hardware now available; the evolution of video training; and the strained relationship between the pedagogical and technical aspects of educational video production. This and other issues of *Direct* are available from : ACCT, 13, Quai André Critoën, 75015 Paris, France.

Taking Video on the Road in the Philippines

by Jean E. Andersen and Anita H. MacDougall

The experiences of the Nutrition Center of the Philippines (NCP) suggest that the effectiveness of development communication can benefit from a systematic approach and the evolution of "high-tech" into appropriate technology.

It was ten years ago that the Nutrition Center of the Philippines decided to test video-vans (vehicles containing video playback equipment that are driven to communities to promote social programs through videotapes) as a key component of their nutrition program for preschool children. After a two-year pilot project demonstrated effectiveness in experimental versus control villages, the program was implemented in critical areas nationwide. Continuing evaluation has shown not only where improvements are needed, but also a persistent success in increasing mothers' nutrition-related knowledge and improving preschoolers' nutritional status. Cost-effectiveness studies have indicated that these improvements have apparently been accomplished at a cost comparable to or less than other types of field interventions that have such data.

Impact Evaluation

In 1979, a comparative study was made among rural villages: with no intervention (comparison group); with only a village nutrition worker (BNS-only group); with a village nutrition worker and short exposure to the video-vans (VTRS group); and with a village nutrition worker and longer exposure to the video-vans (VTRL group). Results comparing these groups showed significant differences related to amount of intervention. For example, mothers in the VTRL group were 55 percent more likely than mothers in the comparison group to describe feeding their children meals containing items from all three basic food groups recommended in the videos. Mothers in the VTRL group were nearly five times more likely than mothers in the BNS-only group to name "Nutri-Pak" (a locally produced food supplement providing 50 percent of the daily required protein and 30 percent of the calories) as a good snack food for their children. They were 71 percent more likely to correctly describe the features and benefits to their children of "Nutri-Pak" as it was presented by the village workers and videos. There were also significant differences in child nutritional status consistent with amount of intervention. For example, regarding percent standard weight for age, using the Harvard standards and the "Gomez Classification" and comparing VTRL to BNS-only, the VTRL group showed 25 percent less moderate-to-severe malnutrition and 29 percent more mild malnutrition-to-normal nutrition. The average number of children weighed per group was 506. This demonstrated success of the video-van concept gained support of donor agencies which supplied 30 more vans.

In a follow-up study in 1981 in the same villages, improvements in nutritional status continued, with an additional 17 percent decrease in moderate to severe malnutrition and a 12 percent increase in mild malnutrition to normal nutrition. Similar results were obtained in another impact study of 48 rural villages receiving the same intervention in another part of the Philippines with measures taken in 1981, 1982, and 1983.

Careful accounting was done on all expenses related to the program in 1981: management, field personnel, training of field personnel, development of videotapes and other materials, and daily operating expenses, as well as a five-year depreciation allocation for video playback equipment and vehicles.

It is difficult to make comparisons between studies regarding cost-effectiveness. Calculation standards differ, methods and measurement definitions differ, as do sample sizes, price data, and cost of materials depending on seasonal and yearly changes. Nevertheless, some data has been compiled for comparative purposes from programs similar to the Nutri-Bus project: mass media and mass media with local workers. One example is from a 1981 mass media nutrition education project also implemented in the Philippines. Per-child costs per year where mothers' reports indicated positive changes in nutritional practices came to US$15-$29; whereas the Nutri-Bus project calculated a US$5 per-year, per-child cost where mothers reported similar changes in nutritional practices.

> *"... a unique information gathering and feedback system has been developed to support this project."*

Communication Model

Major factors in the success of the Philippine program are certainly the abilities, talents, and dedication of the Nutrition Center staff and management. Another factor that may help account for the continuing success of this intervention model is the use of the "ABC Model for Developing Communication to Change Behavior." This model utilizes a systematic process of developing communication materials built upon the:

- analysis of the abilities, experiences, beliefs, customs, current practices and preferences of the audience (mothers of preschool children);
- explicit specification of the behaviors or skills mothers need in order to improve the nutritional status of their children;
- definition of how much behavior change of each type will constitute a worthwhile level of effect;
- analysis of each behavior or skill sought and how the mothers can best be helped to learn to make the necessary changes;
- development of training materials that provide active participation of the learner and frequent opportunities for positive feedback to increase learning and foster self-reliance;
- emphasis on communicating through realistic visuals;
- careful pretesting and revision of draft materials until they are effective in bringing about the changes sought;
- periodic, statistical field evaluations.

The development process outlined above is guided by a series of worksheets and aids that help the Nutrition Center staff perform each step, after they have completed a ten-week training program. To deal with the problem of turnover among trained staff and provide quality control and consistency of what is taught, microcomputer-based tutorial programs are being developed to teach the use of the "ABC Model" to each new person.

All audience analysis, design, development, and production of the videotapes is done by NCP staff. Topics include growth monitoring, oral rehydration therapy, breastfeeding, immunization, family planning, and nutrition. Tapes are shot either on location or in a small studio at NCP and produced in six dialects. The studio has two complete, portable 3/4-inch U-matic systems with cameras and an editing system. Half-inch playback machines are used for the video-vans.

Information and Feedback System

After the systematic development and production of the video modules, a fleet of Jeep-type vans (called Nutri-Buses) regularly visits the villages. Each van is equipped with a TV monitor, Betamax player, and public address system. A driver-technician operates and maintains the vehicle and the audiovideo equipment. A "communicator," who is a registered nurse with one month's training in communication techniques and community organization, rides each van. She pauses the tape at designated points, using the loudspeaker system to encourage discussion and decisions from the viewers. She provides feedback and reinforcement during these discussions and solicits comments about the videotape. She also sells Nutri-Pak, at a nominal price, after the video showing. Nutri-Pak is produced by the Nutrition Center and priced to cover operating costs.

With equipment, vans, and personnel deployed from one end of the Philippines to the other, it was clear that innovations would be necessary to keep the vans running on schedule, the video equipment in good working order, videotapes reflective of local needs, supplies available, and the personnel motivated. To deal with this challenge, a unique information gathering and feedback system has been developed and tested. During village visits the communicator records on a preprinted checklist, information about the village, arrival and departure time, audience size, audience interaction responses, video playback quality, Nutri-Pak sales' date, and materials distributed to

(Continued on page 6)

(**Andersen** *continued from page 5*)

the village nutrition/health worker. A new activity, added since the last impact evaluation study, is a counseling interview by the communicator with two mothers of malnourished children in each village. This allows the communicator to gather monthly information which includes child's weight data, mother's interview answers, household observations, and advised nutrition and health care actions. The data gathered by the communicator on her two households per village per month is also entered on a special preprinted checklist.

At the end of each month the communicator working in the provinces sends her completed forms to Manila. Throughout the archipelago of the Philippines there are currently 60 communicators who each cover 40-45 villages per month. They reach 5,400 targeted children in 2,700 villages, resulting in 8,100 checklists containing a wealth of information about the population in the provinces that would not previously have been easily accessible. Upon arrival in the capital, the pencil-coded information on the checklists is read by an inexpensive optical mark-reading machine connected to a microcomputer.

The information produced by this system has greatly improved the project and its day-to-day administration. Village communicators send the mothers' interview responses to the project managers who generate computerized summaries of this information. This is then shared with the communicator. This cycling of information enables a level of communication and support that can address the needs of the mothers and the workers in the provinces. Software used in the program is a mixture of custom and off-the-shelf packaged programs. Hardware used is a team of Apple II and Macintosh computers.

Several levels of monthly feedback letters and reports are generated by the computers, including information on previous months for comparison, and then provided to:

- the communicator – a summary of performance data plus computer-generated messages congratulating good performance and suggesting performance improvements; emphasis is on providing support and information to improve the nutritional status of the children;
- the communicator's supervisor – a graphic summary of the communicator team's performance, allowing rapid comparison of communicator performance; overall area summary data are also presented;
- middle management – copies of an individual communicator's letters and area progress reports which can be used to guide support to the area coordinator, communicator, mothers and children through training, recruiting, materials development or program revisions;
- senior management – graphs of performance across areas, plus a database which can be queried regarding the trend of the children's nutritional status, diseases prevalent, mothers' nutrition and health care knowledge, frequency of videotapes shown, effectiveness of the videotapes, reasons why visits were not conducted, food supplement sold and other activities of the communicator. Senior management can now carry out the managerial cycle of planning, implementing, and evaluating the project's overall viability and its individual components internally, and also report to external funders and agencies.

A carefully controlled, one-year pilot study using a similar video-van approach was done in rural Thailand. Significant differences were found in nutritional status between experimental and control groups as well as differences regarding knowledge and reported practices, especially for breastfeeding. The Thai project will be reported in a future issue of *DCR*.

For further information about this project write to: Development Communications Consultants, P.O. Box 515, Oyster Bay, New York 11771, USA. ■

Jean E. Andersen is president of Development Communications Consultants (DCC) and specializes in communication for behavior change.

Anita H. MacDougall is vice president of DCC and specializes in management information systems.

Development Seminar Offered

The University of Minnesota is offering its annual *Development Project Evaluation Seminar* from September 15-26, 1986. This two-week course focuses on a practical approach to project evaluation. Through presentations, training exercises, case analyses, and group interaction, participants will consider evaluation approaches and strategies for establishing evaluations useful to decision-makers. The cost is US$2200 for courses and lodging. Meals and transportation are extra. For more information contact Fred Hoefer, 405 Coffey Hall, University of Minnesota, 1420 Eckles Ave., St. Paul, Minnesota 55108, USA.

Attention DCR Readers

The Clearinghouse is cooperating with the Economic Development Institute (EDI) of the World Bank to make available to our readers information about a new series of twenty multimedia training modules on water supply and sanitation. You will soon be receiving a mailing from EDI announcing this recent release. We hope this information will be useful to those of you who are interested in project planning, analysis, and operation.

IPDC Update

A Daily Newspaper for The Gambia

A daily newspaper in The Gambia is now a reality thanks to support from Unesco's Special Fund, the International Programme for the Development of Communication (IPDC). Replacing a weekly, *Gambia News Bulletin,* the inauguration of a daily paper in November 1985 was preceded by a one-month training course for 12 local journalists and the installation of offset printing equipment. The paper will receive stories from the Gambia News Agency which was recently installed as part of the West/Central African New Agencies Development (WANAD) network. This US$2,500,000 project, a joint effort by the Federal Republic of Germany and Unesco, enables news collection and dissemination, particularly between urban and rural areas, in eight countries (Benin, Congo, The Gambia, Ghana, Guinea, Mali, Niger, and Nigeria) with a combined population of 115 million people. WANAD, in turn, will provide a solid foundation for the Dakar-based Pan African News Agency (PANA) for news exchange throughout the continent and with agencies outside the region.
(Reprinted from Unesco: Facts and Figures No. 7, Oct/Dec 1985)

Broadcast Training in the Pacific

Another collaborative effort between IPDC and a Federal Republic of Germany foundation, Friedrich-Ebert-Stiftung (FES), will soon provide training for broadcasters from the South Pacific island nations of Papua New Guinea, Western Samoa, and Fiji.

This US$1,200,000 project, with training provided by the Pacific Broadcasting and Development Project (PACBOARD), calls for the establishment of subregional training bases using already-existing national facilities to train skilled personnel to plan, manage, and operate broadcasting networks oriented to development goals in the Pacific Island States.

Call for Papers

The Fifth World Telecommunication Forum, Part 2, Technical Symposium is scheduled for October 22-27, 1987, in Geneva, Switzerland. This international gathering of professional engineering societies has been organized by the International Telecommunication Union and will be held in the framework of TELECOM 87. The forum theme is *Telecommunication Services for a World of Nations.* A limited number of papers will be accepted for presentation. They must be unpublished and based on original research, developments, and approaches carried out in the period between TELECOM 83 and TELECOM 87, and should be about new equipment, systems, networks, or services. The submission deadline for the initial summary paper is September 1, 1986.

For a description of technical subject areas and guidelines in preparing the summary write to: FORUM 87 Secretariat, International Telecommunication Union, CH-1211 Geneva 20, Switzerland.

Video in the Village

by Sara Stuart

"At first we were very afraid of these video machines. Now we almost love them," Lellaben Datania, vegetable vendor and member of the Self-Employed Women's Association (SEWA), Ahmedebad, India.

For more than ten years, Martha Stuart Communications, Inc. has trained literacy teachers, women's organizers, scientists, and family planning workers in developing countries to use video. Their videos on topics such as a village that is energy self-sufficient, a community health center, the child labor issue, and a women's cooperative are shown in communities to exchange experiences and to promote local development.

Mali Tries Video

Two projects, one in Mali and the other in India, illustrate the possibilities in this kind of local-level approach under quite different circumstances. In Mali, as part of a rural women's literacy project funded by the United Nations Fund for Population Activities with technical assistance from Unesco, a video team was equipped and trained at the National Department for Functional Literacy and Applied Linguistics (DNAFLA). The literacy project began in 30 villages and has since grown to more than 60 villages in three regions. While teaching literacy, they also give information and training on infant nutrition and health care, income generating activities, and marketing skills.

Of the fifteen video workshop participants, there were five women who organize village literacy classes and train adult literacy teachers, and ten male "technicians." None of them had had any experience with video, although a few had film experience. They have grown into an effective and committed video team that travels for weeks from village to village, making tapes and then playing them back in other villages. They take along one video camera, a portable recorder, batteries, the necessary cables and microphones, a generator, and a large monitor.

The video team tapes exemplary literacy classes that are then shown in other villages, either to supplement classes where there are no teachers or to help train teachers. Tapes for discussion topics in classes can be made in local languages or with French voice-overs. One video recorded a day care center, another a malaria clinic describes symptoms and treatment, followed by mothers giving their children preventive medication.

At the *UN Decade Conference on Women* in Nairobi, the head of the rural women's literacy program in Mali, Mme. Dembele, described some of the successes she attributed to video. Many women did not or were not allowed to attend the one-week literacy training program in a neighboring town. But after their villagers saw the video tapes of the women who were just like themselves and had participated in the training, the following years all the women attended. Once the women in the 60 villages realized that the video was in their language and that it reflected their reality, they were eager to participate. In response to the challenge regarding the appropriateness of this sophisticated and expensive technology to Mali, Mme. Dembele once said, "True, with the money it costs to buy this equipment we could dig ten wells, but with this equipment we can organize 100 villagers to dig their own wells."

India's Success

SEWA, the Self-Employed Women's Association, is a trade union for poor self-employed women in Ahmedabad, Gujarat, India. More than 24,000 street vendors, small-scale producers, and laborers are members of SEWA. The organization provides its members with skills training and cooperative mechanisms to aid in the production and marketing of goods, as well as child care, life insurance, and maternity benefits. It advocates women's rights before the authorities and operates SEWA Bank, a cooperative bank that extends credit to self-employed women. SEWA has become a model self-help organization and is extending its activities into rural areas and to other states.

In 1984, with funding from the U.S. Agency for International Development, twenty members of SEWA were trained to use video equipment; a second workshop on editing is scheduled for later this year. Video training assisted SEWA at a time when the organization was growing rapidly in numbers and scope. It has enabled SEWA's leaders to save time by using videos to explain their work, to communicate effectively across distances, and to organize more effectively.

One-third of the video workshop participants were illiterate and another third had less than a high school education. They included women of all ages, Hindus and Moslems, a vegetable vendor, a photographer, and a carpenter, as well as several top SEWA leaders. The training workshop was an unqualified success and resulted in the formation of a cooperative called Video SEWA. Benefits have already been realized from the cooperative. For example, one of its video programs about a dispute between small scale vegetable vendors and the city, was shown to a municipal leader and contributed to an equitable resolution. This municipal leader had never really listened to these women before and probably never would have if not via videotape. The vegetable vendors themselves would not have spoken freely and forcefully to a city official but could do so to the impersonal video camera.

The Video Challenge

Interaction between television and video has been a positive and productive experience especially for the Malian and Indian video teams. In Mali, video was introduced in advance of television's arrival in the country rather than in reaction to it. Fortunately, the DNAFLA video team was well established and respected prior to television's advent. As a result, Malian Television requests DNAFLA's development-related programs for broadcast. DNAFLA continues to reach an audience not served now and not likely to be served by TV for quite some time. In the case of India, television represents an important potential market for Video SEWA's programs.

Self-directed community-to-community development communication can succeed dramatically and can contribute to real improvement and change through human exchange. However, this is sometimes perceived as a loss of control – a loss of power or authority by government leaders. This is when it is crucial to have support and a clear understanding of programming aims by leaders on several levels. Both DNAFLA and SEWA were able to garner this kind of very necessary support.

(*Continued on page 8*)

A literacy class in Mali is videotaped for use in other villages.

(**Stuart** *continued from page 7*)

Equipment

Maintenance and repair are no longer the issues they once were. In pre-television Mali, there was a lack of local repair expertise, test equipment, and spare parts. Once when an editing deck broke down, it had to be returned to the factory in Tokyo. Despite this setback, DNAFLA's video team operated successfully for three years with only one camera and one portable deck. Since then, they have received additional equipment. With the advent of Malian television in 1984, service and repair have become more accessible. Video SEWA has required only one minor adjustment on their equipment. In Ahmedabad, there are adequate repair and maintenance facilities and they are well supplied with spare parts.

When operated by teams who have been carefully and thoroughly trained, 3/4-inch, low-band video equipment has proven to be reliable, sturdy, and able to function in a wide range of climates. It also produces broadcasts with quality similar to that of cable television in the USA. The teams trained by Martha Stuart Communications, Inc. over the past eight years have been equipped with basic 3/4-inch production and editing equipment, a generator and multi-standard playback equipment, to facilitate exchange of programs, and to make them locally on 1/2-inch, either VHS or Beta.

While video technology is changing rapidly, this configuration continues to meet the goals of reliable, durable, and easy-to-operate equipment which affords high quality and flexibility over several generations of a standard conversion.

Spreading the Word

The Village Video Network, co-sponsored by the United Nations University and Martha Stuart Communications, Inc., was founded at a meeting in Bamako, Mali in 1982. The founding members come from many backgrounds and 14 countries. They established the network to promote video as a tool in support of development and to facilitate the exchange of tapes between people who are involved in finding solutions to community-level problems.

Small-format video has many useful qualities. It is easy to use, functioning equally well in the heat and dust of India and in the wind and snow of northern Quebec. The equipment is durable and tape stock is reusable. There are no processing charges. Immediate playback capability gives the users flexibility to revise on the spot to fit their needs, and to show the same material again and again. With video, there are no literacy hurdles. Most importantly, video teams can travel directly from place to place, unburdened by the need to return to a central clearinghouse, laboratory, or manufacturing center. This freedom reinforces a communication process that helps individuals and communities to extend the reach of their voices. ■

Sara Stuart is the president of Martha Stuart Communications, Inc., New York and coordinator of the Village Video Network.

Video Library Established

Health and Education Resources, a nonprofit company with 18 years of experience in communications and training, is establishing the Audiovisuals for Development Clearinghouse (AVDC) which will include a video library. AVDC is seeking videos by and for development projects to provide people interested and involved in video for development the benefit of each other's experience. AVDC will share your descriptive material and house your videos, making copies available upon request. To participate in this communication network, please send AVDC copies of your videos, and your project information.

AVDC would also appreciate your cooperation in answering the following questions to help determine the needs and the potential for video in development and how those needs may best be met.

Video Survey

Name: _____

Organization: _____

Address: _____

_____

_____

1. Do you use video? yes ____ no ____.
   If yes, do you use it for training ____, project documentation ____, information dissemination ____, communication between sites ____, motivation ____, fund raising ____, education ____, other _____.
2. Do you produce your own videos? yes ____ no ____.
   Are you interested in producing your own videos? yes ____ no ____.
3. Would you like to know more about how you can use video in your programs? yes ____ no ____.
4. Are you interested in seeing how projects in other countries are using video? yes ____ no ____.
5. Do you want skills training in video production? yes ____ no ____.
6. What video equipment do you have access to:
   VCR ____, TV ____, monitor ____, camera ____, editing system ____?
7. What system (NTSC, PAL B/G, SECAM K/L, etc.) _____?
8. What format? VHS ____, Beta ____, ¾-inch ____.
9. Can you get repairs and parts in your country? yes ____ no ____
10. What power sources do you have? electricity ____, battery ____, solar ____, other (specify) ____

Please return survey and any comments to **Audiovisuals for Development Clearinghouse, Health and Education Resources, 4733 Bethesda Avenue, #735, Bethesda, MD 20814, USA.**

Appropriate Technology Mini-Library Continuing

TRANET, the Transnational Network for Appropriate/ Alternative Technology in Rangeley, Maine, has received renewed funding of US$8,000 from Unesco to ship its mini-library on appropriate technology to ten more developing countries.

These one hundred-volume conventional libraries will go to institutions in Botswana, Papua New Guinea, the Philippines, Sri Lanka, Sudan, the Yemen People's Democratic Republic, and Zimbabwe, bringing the total to 79 libraries shipped since 1980.

Each library consists of 100 core books suitable for a technical library in a developing country. The collection contains appropriate technology materials in food production, animal husbandry, housing, home and farm techniques, village crafts and industries, energy, transportation, health, and nonformal education. Most are do-it-yourself manuals, some are general resource guides, and others deal with concepts of appropriate technology, participatory development, and local self-reliance. TRANET has also developed a 25-volume energy supplement to the basic library.

For more information contact Janet Wilcox, TRANET, P.O. Box 567, Rangeley, Maine 04970, USA.

My Experience Teaching Video in the Maldives

by Doe Mayer

When I learned that I had received a four month position as a United Nations Development Program television consultant in the Maldives – a tiny Islamic island nation with a population of only 180,000, west of Sri Lanka in the Indian Ocean – I searched for literature about it and the conditions under which I would be working. The terms of reference used a lot of words that added up to one mighty cry of "Help!"

My assignment was to teach video production skills at a TV station, something I had done during a two and one-half year consultancy in Zimbabwe. I arrived in country with some production textbooks, my trusty copy of Herbert Zettl's *Sight, Sound, Motion*, and my fingers crossed. My arrival was cause for some interest; the TV station thought they had selected a man – my name having caused the confusion. I was concerned how they would relate to a woman, but did not find it as difficult as I had feared. The Maldivians came to accept me as an American who could teach them things about television that they wanted to learn.

TV Maldives

TV Maldives (TVM) broadcasts almost exclusively for the capital city of Male, with a population of 40,000. There are four and one-half hours of programming daily – from 4:30 p.m. to 9 p.m. Approximately one hour of these programs is generated locally. The remaining materials are free – mostly documentaries from Western countries. The station also broadcasts English- and Hindi-language feature films that come in VHS format from local video clubs. These are usually fifth or sixth generation (duplicate copies) of tapes that are often low quality and in poor condition. (The Maldives, like many other developing countries, does not recognize copyright laws imposed by other countries.) Also, there never had been a general broadcast policy established, either by the station managment or by the government. Broadcasting ended each evening at 9 p.m., at which time local movie theaters opened their doors. Apparently, there was a tacit agreemtn to limit competition between television and commercial theaters.

The production staff at the station consisted of two full-time producers, two assistant producers, six cameramen and assistants, and a number of technicians. The technicians handled sound as well as broadcast transmission equipment. The all-male production staff had received some technical training, mostly outside of the Maldives, but had little or no production training. The Japanese had given them broadcast equipment and a studio, but little attention was paid to program content or to developing a cohesive broadcast plan.

The only locally produced programs were children's shows in which students came into the studio to sing, dance, and tell stories before the camera. There also was a poorly produced half-hour educational program that prepared students for their Junior Certificate exams. A ten-minute summary of international news was taken from the satellite and broadcast a day later along with five minutes of local news. Most original material was prepared in Dhivehi, the local language, although some of the news and educational programs were in English.

Training Preparations

My job was complicated by the fact that the staff had very diverse backgrounds, educations, and levels of interest. As Maldivians tend to be very direct and independent, some promptly announced they already knew what I had to say, and therefore did not need to attend my sessions. After discussions with the Director of Information and Broadcasting and the TV station managers, it was decided I should concentrate on preproduction training and give basic technical and camera technique training to cameramen and technicians. Classes for producers included program planning, selecting appropriate production locations, choosing performers, writing program and story outlines, and solving production problems.

Other staff members were to receive instructions on appropriate technical topics such as camera lenses, angles, and movement, and basic rules of composition. I also tried to encourage better shooting habits, such as using a tripod and specialized microphones.

Production Constraints

Producing good programming in the Maldives is a challenging task. It is difficult to find rooms large enough for production purposes. Filming out-of-doors in the capital city (where most local productions are made) is always a challenge because of the high noise level. Outdoor filming quality also suffers from the glare created by the sun and white sand. Another problem is finding Maldivians, trained or untrained, who are comfortable in front of the camera, as most islanders are very camera shy.

My major frustration was not being able to discuss program content; this was not part of my mandate. It is very difficult to upgrade overall production skills without considering program content. I eventually was able to discuss the subject informally once I had established a good rapport with my Maldivian superiors.

Besides the formal classes, I ran informal one-on-one sessions with some of the staff members. Together, we analyzed their work and discussed how to solve their particular problems. I believe this is a critical part of training, but it works only with those who are personally motivated and willing to bring in their material for examination.

I was fortunate to be in a position where I could speak to the President of the Maldives about some of the observations I had made and of how to best upgrade their broadcasting capability. He took a personal interest in the TV station and encouraged constructive changes. He welcomed suggestions that there be more development-oriented material on TV, and that the station carry more educational programming. He also felt that while it is the role of TV to deliver government messages to the citizens, it could also serve as a channel for citizens to send messages to the government.

While I was there, a number of changes I recommended were enacted, including the hiring of three new producers. One of those was the first woman employed in any capacity at the station. Program changes were also discussed. These included efforts to get the station to carry more local cultural, educational, and entertainment programming. The President's Office also prepared a position paper on the role that the TV station should play in encouraging a more effective use of the medium.

The Rewards

It was particularly rewarding watching eager students improve significantly during the training period. Trainers and trainees alike feel rewarded when results of their efforts are immediately apparent. All too often, video courses consist of only technical skills training. There is great value in teaching substantive production skills so that not only is the camera in focus, but the content is meaningful as well. For this reason, identifying the audience and learning how to tell a story in a visually entertaining way must also be part of training. These skills will translate into better use of video, whether it is for delivery of national news, a development message, a formal educational program, or for entertainment shows. ■

Doe Mayer is a video consultant who appreciates a challenge whether it is in the United States in a developing country.

Microcomputers in Development Workshop

Stanford University's Food Research Institute is conducting a workshop on Microcomputers in Development for people without previous microcomputer experience who wish to gain a broad overview of the technology, and to develop skills in the use of selected commercial software packages. A combination of "hands-on" sessions and presentations of case studies on microcomputer applications will give participants working knowledge of the latest computer software and hardware, and insight into problems of project appraisal and project management.

The four-week session costs US$2750; housing and meals are not included but can be provided upon request. The workshop is limited to 30 participants. Native French and Spanish speakers will be on the instruction team. Registration ends June 30, 1986. For information contact Carl H. Gotsch, Food Research Institute, Stanford University, Stanford, California 94305, USA.

A Communicator's Checklist

1 Television for Development: The African Experience

by Iain McLellan (Ottawa: International Development Research Centre, 1986) 156pp.

Television has been called the "jewel of a tired and spent bourgeoisie," – a statement that could apply to Africa as well as the Western world, and reflects some of the findings in a recent report from the International Development Research Centre (Canada), entitled *Television for Development: The African Experience.* Its author, journalist Iain McLellan, notes that nearly every country in Africa has television broadcasting facilities and trained technicians, producers, and directors. But, in many African countries much of the television budget is spent on the facilities, and not much is left for program planning.

In this 157-page report, the author discusses the education and development role of television in Africa 25 years after its introduction. McLellan provides constructive criticism and suggests ways television can be improved and better serve the African societies. The research is based on interviews in 14 countries with media professionals, government officials, development workers in the field, international development organizations, and nongovernment organizations involved in development support communications. Issues addressed include the potential of television to support development, why this potential has not been realized, what might be required to fulfill this potential, and what the liklihood is that those changes might occur.

Producers, government officials, viewers, educators, field workers, and aid donors agree on their dissatisfaction with television's evolution. Most African countries have adopted the same approach to TV as North Americans and Europeans but do not have the resources, infrastructure, or training to follow it through, according to McLellan. TV producers in Africa rarely venture out of capital cities to mix with, understand, or assist rural people in communicating with each other or with those who are trying to help them. African television imports or mimics Western programs; it diverts or entertains rather than educates.

In McLellan's terms, the assessment of the potential of television in Africa was faulty from the start and the social, cultural, economic, and political restraints combined to limit its potential. Few governments encourage freedom of expression in media which would enable urban poor and rural populations to better understand themselves and articulate their needs. It is not easy to give citizenry the means to raise consciousness, explore various development options, and express their points of view. El Hadj Diouf, University of Dakar communications professor, points out the importance of considering the human dimension in rural development. There may be a great risk in keeping the population mute, ignoring their input, and making only cosmetic changes.

McLellan believes that television could justify its costs if used for development, but that would require integration and coordination with other development efforts. Decentralized, local television – as a development medium – is designed to activate the community it serves. Its horizontal structure facilitates exchange within and between communities. It is geared to local needs, customs, and languages. Combined with personal field contact, television and video provide enormous potential for allowing people to articulate their needs to leaders and policy-makers, and work together to solve their problems, perhaps with outside technical and financial assistance.

It might seem amateurish for ordinary people to make a video, resulting in an awkward and slow moving production at times, but this is acceptable if the goal is not the "seduction of the eye and ear, but the enlightenment of the eye, ear, and voice."

The future for development support television and video is seen by many to lie in broadcast signals that reach rural as well as urban areas via satellites, government purchased and maintained group-viewing televisions powered by solar energy, coordinated multimedia campaigns and local discussions, increased feedback and interaction between broadcaster and viewer, and decentralized or community broadcasting and videos in local languages.

McLellan found signs of encouragement during the three-month survey in Africa. The decentralization of the Nigerian Television Authority gives local stations the resources to produce for the national network as well as to generate their own local programming. In the Ivory Coast, nonformal educational television broadcasts are being coordinated with a network of field *animateurs*. Television sets are being relocated from schools, where they were used for formal education, to villages throughout the country. Niger operates solar-powered television sets for group viewing in a number of rural villages as well as in urban youth centers. Its Tele-Sahel's programming is geared to nonformal education with more video recording taking place on location in rural areas than in the Niamey studios.

The report is divided into three sections. The first concentrates on experiments and innovations with group viewing centers, solar-powered television sets, local discussions, and television used with other development communication media. The second section focuses on social dramas, video, and formative evaluation and research as a means to improve television's capacity as an educator. The last section points out beneficiaries – women, agriculture, and health – when African television supports development. ■

This report is available free from International Development Research Centre, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9.

Reviewed by Diana Talbert, Vice President, Health and Education Resources.

2 The New Media: Communication, Research, and Technology

, by Ronald E. Rice and Associates (Beverly Hills: Sage Publications, 1984) 408pp.

Ronald Rice and an impressive team of twelve associates have come up with an encyclopedic state-of-the-art reference book. From the title, which contains all the "right" words, to the comprehensive coverage in its twelve chapters, the book contains a collection of data, insights, case study descriptions, and predictions. The well-chosen chapter order first provides a brief history, some theory, and alternative research methods, which are then followed by sections on individual and group communication, organizational communication, and communicating within institutions.

The generous collection may offer more than the reader wants to know, but whatever current information is being sought will probably be found, whether it is videotex, microcomputers, television, teleconferencing, libraries, office automation, electronic mail, and a host of other media developments – all in a communication context. All topics are treated responsibly by competent and articulate authors. Rice provides the introductions and summaries which help to create a modicum of unity. His greater contributions come in the three chapters he wrote and the five chapters in which he appears as co-author.

The book has many audiences, but probably leans more toward individuals who are concerned about communication in the academic sense rather than practitioners who might be seeking guidance for selecting and using contemporary information technologies. This volume would be a good textbook for an introductory course which considers contemporary communication/information technologies. The fact that *The New Media* is in its second printing may indicate its popularity for such courses.

Readers of *DCR* might be disappointed not to find many references to the use of media and technology in the developing nations of the world. They will be pleased, however, to find descriptions of diffusion and implementation of innovative technology-based practices which are discussed in several chapters. The settings in which such innovations are presented are usually business or commercial environments rather than education and human services. One exception is Milton Chen's chapter, "Computers in the Lives of Our Children: Looking Back on a Generation of Television Research," in which the lessons learned from television research are held up and compared with the research questions about microcomputers.

There is a wealth of information in this volume. Most of the data and electronic developments will be outdated within five years, but many of the research agenda will probably remain. Let us hope some progress is made in that sector so that the use of these "new" media and technologies will bring about answers

to some of the communication problems we continue to face. ■

Available from SAGE Publications, Inc., 275 S. Beverly Drive, Beverly Hills, California 90212, USA for US$28.00 hardback, US$14.00 paper.

Reviewed by Donald P. Ely, Professor of Instructional Design, Development, and Evaluation and Director of the ERIC Clearinghouse on Information Resources at Syracuse University. He has recently served as a consultant at the Center for Communication Technology in Jakarta, Indonesia.

3 Combatting Poverty Through Adult Education: National Development Strategies, edited by Chris Duke. (Beckenham, Kent, England: Croom Helm Ltd., 1895) 253pp.

For better or worse, educators now believe that economists exercise great influence over budget allocation in the developing countries. That great influence has motivated educators to expend considerable energy in demonstrating the economic viability of the educational enterprise. Primary school has recently been shown in a number of studies to have a high return, both to children who complete the elementary years and to the society into which they are delivered as productive participants. Secondary and tertiary education have fared less well: they are clearly valuable to the relatively small numbers of students who succeed in completing their studies, but are very costly to the society which heavily subsidizes secondary schools and especially universities.

In this volume editor Chris Duke cites the "hope, maybe a naive expectation" that the seven chosen case studies would produce some proof that the money spent on adult education reduces poverty more than if the funds were spent in other sectors. The studies were chosen from a range of countries across the political spectrum and around the world. Six public and one privately sponsored programs are included. Cases examined are the Nicaragua Literacy Campaign, Chile's Educational Operative Units, MOBRAL in Brazil, Kenya's Adult Education Program, Seamaul Education in Korea, the Adult Education Program in Tamil Nadu, India and the well-known Sarvodaya Program in Sri Lanka.

Duke characterizes the aims and objectives of the program on two scales: political, from "cautiously reformist" to overtly revolutionary; and educational, from literacy plus "safe" functional skills to societal transformation.

All the programs studied had as one stated aim to reach the poorest of the poor in their country. Certainly, combating poverty is not likely to happen unless the program is accessible to those in need. Four of the seven programs were found to succeed in this aim; for a variety of reasons the programs in India, Korea and Chile did not. Why they failed is too complicated to tell in the space available.

What then was the impact of the remaining four programs on alleviating poverty? This book does not tell us. While the authors have made valiant efforts to specify costs of the programs, they all agree that conventional economic measures cannot cope with the complexities of causality and quantification, so the case for supporting adult education as a means for reducing inequality and addressing poverty "must be made on other grounds." Frankly, I am not certain what that statement means. Chris Duke is forced to the less than ringing conclusion that, given the right timing and well-chosen methods, adult education has a "significant contribution to make as part of a larger strategy."

My view for some time has been that adult education in fact can contribute directly to alleviation of poverty under a wide variety of overarching social and political systems. Two conditions seem necessary and sufficient to make this contribution both possible and measurable. First, *the program must be designed to address specific problems or constraints identified by members of the learning community.* A number of techniques used in the cases studied in this book have proven effective in helping community people identify problems and decide on how to attack them. The majority of these problems are related to questions of how to make money through self-employment – participants recognize that employment in an established firm is an unlikely product of adult education and training. (That perception was borne out by the MOBRAL study, which found that fewer than one person in fifty gained access to full-time employment after taking part in MOBRAL's programs.)

The second important factor for getting more money into people's hands following training is access to seed capital. For poor rural community-based groups, access to credit is difficult at best. Individuals have some access to informal credit through local moneylenders, albeit usually at high interest rates. For groups who need to share the risk of a new venture growing out of a learning experience, however, there is often no source – and if the group is largely or wholly made up of women, credit is virtually impossible to obtain.

Gweneth Eng and Louis Woo have recently undertaken four case studies looking at programs which closely linked training and credit. They looked at benefit-cost ratios in each of the programs, and found the following results. All returns to participants were positive. The lowest benefit-cost ratio, 1.14, was realized by a women's rural development project in Kenya – not because the women are not productive, but because they, alone among the four programs studied, could not spend full time putting their new skills to use. They continued to spend about twelve hours a day on their daily chores and used their spare time for money-making. Other returns to participants ranged from 2.37 in a rice growing program, 3.97 in a microenterprise development project, to a highly remunerative 12.47 in a Central American farmer education project.

> *"... the program must be designed to address specific problems or constraints identified by members of the learning community."*

I find the total absence of any reference to linking education with credit a most surprising mistake in a book focused on combating poverty. Or perhaps it is a mistake to be surprised: these worthy studies, and Chris Duke's summary of their findings, perhaps tell us something we in adult education are loath to admit: putting money in people's pockets is a fairly low priority of most large scale adult education programs. Persons enrolling in those programs should do so to become more informed citizens, to improve their literacy capabilities, to obtain formal school equivalence certificates – but if they need to improve their economic circumstances in the short run, they would do better to spend their time and effort elsewhere. ■

Available in the U.S. for US$31.00 from Croom Helm Ltd., 51 Washington Street, Dover, New Hampshire 03820, USA, and in the U.K. for £17.95, from Croom Helm Ltd., Provident House, Burrell Row, Beckenham, Kent BR3 1AT, U.K.

Reviewed by James Hoxeng, an international educational specialist with the Agency for International Development. He has managed a number of adult education projects for AID.

4 Rural Educational Broadcasting – A Philippine Experience, by Felix Librero. (Laguna, Philippines: University of the Philippines at Los Baños, 1985) 155pp.

According to many philosophers, nobody can be *given* experience, but there is no doubt that the case study approach to learning can provide vicarious experience of real value. With this in mind, this little book by Felix Librero can be seen as a valuable asset to anyone who already is or who is planning to be a practitioner in the field of rural radio.

The book, as the author says in the forward, is "an effort to synthesize experiences in running a rural educational station at the University of the Philippines at Los Baños, as well as the experiences of other rural educational broadcasters in various provinces of the country during the last 25 years." It is, in fact, a case study of Radio DZLB, with explanations of its framework, its operational guidelines, and a detailed account of the DZLB School On-The-Air.

The Operational Guidelines and the information on "how to get started" could be of real value to anyone new in the profession, or for anyone seeking ways of improving an existing rural radio network. The author is honest enough to set down the failures as well as the successes of the station, and there is no doubt we learn as much, if not more, from the study of mistakes as we do from the study of the successes. Radio DZLB was indeed ambitious in its enterprises, running programs such as the 4-H Club, The Mother's Club, the Dairy Farmer's and Milkman's Hour, very successfully. The information on the workings of the farmer's forum, with its opportunities for farmers to share news, concerns, and tips is very encouraging, and could provide a good springboard for starting similar fora in other countries. The explanations of the failure of the Fisherman's Hour are equally enlightening and deserve careful study. One of the most

(**Librero** *continued from page 11*)

valuable observations in this case study is: "in planning the project, we underestimated our target audience. A lot of the pond operators were professionals and were not interested in mass production." Moreover, it was found that "the fishpen and fishpond operators did not believe that a radio program could help increase their production." Both these realizations point to what is possibly the most logical starting point for all radio programming – understanding the audience – both their professional knowledge of the subject and their appreciation of program formats and approaches. The DZLB Fisherman's Hour was by no means the only radio program to have gone under because of a failure to spend time in adequately assessing its audience.

The chapter on the School On-The-Air is very detailed and helpful. It explains just what a School On-The-Air is: "A specially designed radio program where the subject matter is presented systematically and in a progressive manner with the ultimate goal of achieving desired results under a teaching-learning situation." And then it details the characteristics of such a school; explains how to establish a school (including details of personnel needs, management schemes, and feedback mechanisms); gives program suggestions and information on enrollment, examinations, and graduation. It also provides audience survey instruments and a School On-The-Air program schedule. In short, everything needed to provide a sound basis on which to explore the possibilities of such a school in another place.

The last part of the book is devoted to a chapter on "Looking Ahead." The author prophesies that the future of educational radio lies in more interactive programming; more education-oriented entertainment programming; and more personalized and localized presentations – all prophecies that would be readily endorsed by those of us working in educational radio in other parts of the world.

The book is complete with a good bibliography and some helpful appendices, containing outlines for training programs and evaluation papers. The major weakness of the book has nothing to do with its contents or its authorship; it has to do with its publication. The book has been bound so poorly that the minute one attempts to open it, all the pages fall out. It would seem like a good idea to punch holes in the spine of the book and insert strong ring binders before attempting to use it at all, otherwise the aggravation of coping with falling pages might just dissuade you from continuing your reading of this very helpful book. ■

Available free from Felix Librero, Chairman, Dept. of Development Communication, University of the Philippines at Los Baños, College, Laguna, Philippines. For orders outside the Philippines, please include US$5.00 for handling and postage.

Reviewed by Esta de Fossard, a Senior Communications Officer at the Academy for Educational Development. She is currently Project Administrator for the Academy's Development Communications Project in Swaziland.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include a bibliography on mass media systems in educational development, a report on the methodology developed for the Radio Language Arts Project in Kenya, an analysis of development communication during the 1970s, a handbook for making films, and a packet of audiovisual instruction materials. All of these documents are available in microfiche, and all but one in paper copy, from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs may be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

● Sanchez, James and Romero, Patricia, compilers. *Mass Media Systems (Television, Radio, and Satellite) for LDC Regional Educational Development: The Case of Africa and the Middle East. Bibliography 22.* 1985, 14pp. (ED260 864).

Intended as an introduction to the use of educational media in developing countries, this bibliography provides an overview of materials available in government documents collections. Although the 33 documents listed are derived principally from the Agency for International Development (AID), two documents from the Educational Resources Information Center (ERIC) are also included. Each entry indicates a source for obtaining the document and includes an annotation. Dates of publications for the references range from 1972 to 1985, with most falling in the mid-1970s. Abbreviations used in document titles and annotations are defined, and an index provides an alphabetized listing of topics and areas of concern. Available from EDRS in microfiche only for 75 cents.

● Edgerton, David and Sedlak, Philip A. *A Look at Methodology. Radio Language Arts Project Implementation. Field Notes 5.* 1984, 8pp. (ED 258 478).

The methodology described was developed for use in a U.S.-sponsored radio-based English language arts program for grades one through three in Kenya. Adapted to the special circumstances of the medium, the context, and the program's administrative limitations, the highly interactive radio lessons adhere to distributed-learning principles in instructional design and use in a practical and relevant curriculum to organize the elements of instruction. The Radio Language Arts Program series of lessons uses direct-method language teaching principles and postlesson audio exercises when appropriate and where the limitations of instructional broadcasting justify their use. Available from EDRS in microfiche for 75 cents or in paper copy for $1.80.

● Stevenson, Robert L. *Third World Communication Development in the 1970s.* 1985, 26pp. (ED261 438).

Quantitative data on various indexes of national development – mass media, "horizontal communication" (mail, telephones, and telegrams), democracy, social growth, literacy, and urbanization – were collected and estimated for more than 100 developing countries for roughly the decade between 1970 and 1980. These data were then used to test various theories and definitions of communication development. The analyses revealed that in all geographic regions, broadcasting showed spectacular growth, while print media grew only modestly. Horizontal communication, social growth, literacy, and urbanization showed some growth, while democracy – defined in Western terms as civil and political liberties – did not fare well in developing countries. Analysis of the data showed little support either for the original dominant paradigm of communication development that mass media could spur economic and political development, or for alternative theories that emphasize horizontal communication and social development. Available from EDRS in microfiche for 75 cents or in paper for $3.60.

● Beuthner, Reginald and others, compilers. *Film Handbook: Communication Manual. Second Edition.* 1983, 390pp (ED256 295).

Each chapter in this book is a self-contained unit about specific aspects of film-making designed to accompany film courses being offered by the University of the West Indies, the Jamaica Broadcasting Corporation, and the Institute of Mass Communication in conjunction with a German sponsor, Friedrich-Ebert. The following topics are addressed: the Jamaican film; perception; organization and setting up; scripts; light; filmstock; cameras; lenses; filters; uses of lights; the exposure meter; camera work; continuity of time, place, and action; the laboratory; functions of sound; sound recording; sound editing problems; and editing procedure. Available from EDRS in microfiche for 75 cents or in paper for $28.80.

● *Audio-Visual/Communications Teaching Aids Packet. Supplementary Materials. Packet P-8. 1982, 94pp. (ED257 435).*

This packet contains three handouts on training theory and the use of audiovisual aids, as well as a section on materials and presentation techniques for use by community development workers. The first handout briefly discusses the four steps in the communication process and presents a seven-step procedure for improving communications; the second describes and pictorially represents the major categories of media; and the third addresses four questions that should be considered in designing and planning effective communications. The final section provides instructions for making and using bamboo or reed writing pens, brushes, crayons, pocket charts, puppets, flannel boards and flipcharts, exhibits and bulletin boards, a flashlight slide projector and filmstrip adaptor, and radio. Available from EDRS in microfiche for 75 cents or in paper for $7.20. ■

Barbara Minor is Publications Coordinator at the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13244-2340, USA.

TUNING IN

Colombia Could Have the Biggest School in the World

by Jorge Humberto Jiménez

Colombia hopes to reach more than 20 million potential students with nonconventional education services. This figure represents the portion of the population that is not served by the formal education system – a system unable to keep pace with the rapid growth of the population it must serve.

What would it cost the formal education system in personnel, infrastructure, and supplies to serve not just the seven million people currently reached, but the 28 million who should be served? The calculations are astronomical; and, what is worse, these costs are impossible to cover. Another consideration is that these additional services could not be implemented quickly, even in a country where impossible things happen.

In response to these issues the Colombian government has formulated a policy that encourages implementation of strategies to complement the traditional system and permit marginal groups to receive the benefits of education. This program is known as CAMINA (a Spanish acronym meaning "walk"), and is being promoted under the theme of "Education for All Colombians." Its base and point of departure is to use existing educational resources and programs, in both private and public institutions, formal and nonformal sectors.

A School That Reaches Everyone

Based on the experience over several decades which the *Fundación Acción Cultural Popular (ACPO)* has acquired, as well as the educational work it has done through its Sutatenza Radio Network, the national government decided to link the available transmission and production facilities of this radio network for maximum population coverage, offering a multiplicity of educational opportunities. Sutatenza's 700 kilowatts, with transmitters in Bogotá, Cali, Medellín, Barranquilla, and Magangué, can provide a school within reach of everyone with access to a radio.

Secondary and higher institutions, private and public alike, have joined this effort. Having traditionally provided educational services to Colombians through their nonformal programs in cooperativism, ecology, family life, and through formal programs at the primary, secondary, or higher levels, they will now offer, via this network, their unique educational programming to meet the varied needs of this unserved population.

After one year of activities – relatively little time for a definitive evaluation of a new and complex experience – some observations and trends have been identified:

- The staffs of the 18 participating entities that are responsible for the production of the radio programs look forward to continuing the project. They value the experience gained as radio communicators, the high visibility their institutions receive from the radio, and the letters and telephone calls that indicate acceptance by their audiences.
- Coordination among the institutions has been difficult but stimulating. The medium of radio provides them with an opportunity for exchange, self-criticism, mutual awareness, and team-building.
- The initative taken by the National Ministry of Education coupled with ACPO's experience, has resulted in the extension of the network to more than 100 small radio stations which retransmit programs using audiocassette tapes prepared and distributed by CAMINA.
- Adequate and timely distribution of support print materials has been a problem. Although not required by all the programs that are broadcast, support material needs have been a financial and logistical burden in the early stages of the program.
- Project directors feel that more and better promotion is required to catch the attention and enthusiasm of a larger number of potential users.
- Finally, it is not enough to simply prepare and broadcast good programs. Education, especially distance education, creates other complementary needs in users such as consultation by telephone, responses to letters, additional topical information provided to users, and support to local organizations that have been stimulated by this service.

Much has been said about the power of the media and its role in education. A multitude of academic questions arise from these discussions, all of them important. But there is also a practical question that needs to be answered: is there a way to quickly reach the millions of people in our cities and rural areas who have no access to educational opportunities? Colombia says "yes," and the answer is radio. Soon, twenty million people who are now deprived of education will have an opportunity to learn. ■

Jorge Humberto Jiménez is Director of National Programming, Sutatenza Radio Network, Bogotá, Colombia.

CIESPAL Radio Contest Winners

In *DCR* 43, we announced a radio contest sponsored by the International Center of Higher Communication Studies for Latin America (CIESPAL) in collaboration with Radio Nederland, to select commendable Latin American educational radio programs. The contest winners were announced during CIESPAL's 25th anniversary festival held in Quito, Ecuador, October 15-20, 1984.

It was not until recently that we learned the results of this contest, and although considerable time has elapsed since the awards were announced, we would like to congratulate the winners, and commend the organizers of this contest for their continued support of educational radio in Latin America.

The contest drew a large pool of entrants, with almost 200 submissions from 15 countries competing in four categories – documentary, radio magazine, radio drama, and radio education.

First prize for a documentary went to:
"The Poor Taught Me to Read the Bible," by *Radio Santa María*, Dominican Republic.

No first prize was awarded, but second prize in the radio magazine category was awarded to:
"Opening the Way," by *El Centro Nacional de Acción Pastoral (CENAP)*, Costa Rica.

In radio drama also, there was no first prize winner. Second prize went to:
"The Legend of Sunday the Seventh," by *Radio La Voz de la Selva*, Peru.

The first (and only) prize in the education category was awarded to the adult education courses of Ecuador's *Instituto Radiofónico Fe y Alegría.*

Over 450 participants joined in the anniversary activities, with representatives from Latin American and international broadcasting organizations including Radio Canada, Radio Switzerland, the Voice of Germany, Radio Sweden, and Radio Nederland. There were seminars on educational radio topics, tapes of radio programs from participating countries, and professional development exchanges. In part, the Festival represented the culmination of CIESPAL's efforts in the area of radio since 1982, but the week's activities also signified their commitment to continued improvement of radio programming in Latin America. ■

(**Beal/Kern** *continued from page 1*)

(A bibliography on these and related studies can be obtained from either the East-West Center or from ISNAR – see addresses at the end of this article.)

System Challenges

Although favorable climate and soils allow islanders to grow many crops, there has been little research available that can be applied to the islands' principal food crops. Mounting research to deal with all the important crops would require a huge investment.

Other factors challenge the systems. Many farmers have had little experience in applying other than traditional cropping practices or producing in a complex market economy. Land ownership is extremely complicated, and cultural factors affect motivation and communication. Education has only recently become widespread. While most people are literate, few can communicate well in languages used in agricultural and higher education institutions. Communication of all kinds is constrained by mountainous and tropical jungle terrain, and the great distance between islands. Of the mass media, only radio reaches beyond the main cities to more than a tiny fraction of the population involved in agriculture.

Despite these constraints, agriculture is still the leading economic activity; it is the main focus of development in most of these countries and for at least three-fourths of the people. National development plans stress agricultural development needs: to improve both quantity and quality of food; to reduce amounts of imported foods; and to increase the country's international trade credits through export of agricultural commodities.

All of these countries have similarly structured agriculture ministries, although each has its unique characteristics. The basic unit is a national ministry or department of agriculture, which typically has a politically appointed minister and a civil service-type administrative structure. In addition, most ministries also provide research, extension, and agricultural education services. A communication or information unit is located in this ministry as well.

Knowledge Systems Communications

We have studied and worked with these island systems in a broad context of communication, including (1) linking the island system to external knowledge sources and to the political and production systems of the nation it serves; (2) linking units within the system; and (3) linking users of agricultural knowledge – producers, input suppliers, marketers, planners, etc. – to each other. Our studies have gone well beyond media use, dealing with other means of communication, such as formal and informal training, person-to-person, group, organizational and interorganizational communication, and extension methods.

From our work in the region, we have seen programs and activities that are building bridges and stimulating agricultural communication. Many of the developments have been fostered by creative and informed individuals or units without major increases in resources: resources that are limited, to be sure. Information staffs are small and they have limited professional training (only one person in these three countries has degree qualifications in communications).

External Communication Connections

Island people have limited contacts with the fast-changing socioeconomic milieu of the westernized and northern nations. Many island producers have had some exposure to modern agricultural ideas from islanders returning from advanced studies and training abroad; however, these contacts have not been extensively exploited. We found few cases where communication networks were created between these trained people; not much was apparently done to try to maintain continuing access to such knowledge. In the few technical libraries that exist, literature collections tend to be fragmentary, incomplete, often years behind current agricultural thinking, and language-bound to the original publication.

There are stirrings of change in the region. In more and more of the now-independent nations, international donors have helped establish elements within knowledge institutions. There are now two island-based universities that offer Bachelor of Science and Master of Science degree training in agriculture: The University of Technology at Lae, Papua New Guinea and the School of Agriculture of the University of the South Pacific (USP). The USP library, whose main campus is in Suva, Fiji, directs a major effort to collect literature (cultural, economic, social, and technical) of the Pacific Islands. Under grant funding from Canadian and United States sources, this program is also training librarians for each of the participating nations – expertise that has been in short supply.

The agricultural library at USP, which is located on the Alafua Campus of the School of Agriculture in Western Samoa, serves the student population and borrowers throughout the region through loan circulation.

The Institute for Research, Extension and Teaching in Agriculture (IRETA), created by the 11-member nations of USP also located at Alafua, serves the region in several ways, and is supported in part by grant funding from the U.S. Agency for International Development, and technical assistance from the University of Hawaii and Cornell University. IRETA has built special facilities on the Alafua campus, where it sponsors regional workshops and conferences, sharing regional expertise and bringing in specialists to teach and interact with national representatives. It also supports networking through electronic mail messaging and two-way voice contact via satellite and ground stations in member countries. (The latter effort was interrupted when the existing satellite ceased functioning, but will be resumed when another becomes available.)

One of IRETA's most innovative contributions has been its Agricultural Liaison Officer (ALO) network which is designed to increase the flow of knowledge among the participating national systems, and to make known to the leaders at the Alafua campus the needs of national agricultural systems.

By 1985, seven of the member nations had appointed an ALO representative to serve as his or her country's eyes and ears to enhance the flow of agricultural information. It is the ALO's responsibility to keep in touch with current local research, to seek out earlier, perhaps neglected reports, and to review international data sources. They report their information to national officers and contribute to a quarterly newsletter that circulates among the 11 member countries.

Communication within Systems

Over the past four years Fiji, Tonga, and Western Samoa have begun to build better bridges between their in-country knowledge system units. In some cases, contact with donor organizations has stimulated better communication; other bridges are indigenous adaptations of ideas from elsewhere.

Both Fiji and Western Samoa have recently developed national research plans, working with ISNAR in the planning process. These plans have helped form communication links with extension leaders, with policy makers, and with other elements of the agricultural knowledge systems.

In-service training efforts in the three countries had been limited and fragmentary. All have shown impressive changes in recent years, helping to improve links between research centers, extension services, and producers. In Fiji, for example, responsibility for in-service training and information services has been vested in one officer. This has led to greater awareness by information staff of the programs and technical content dealt with in the action agencies, which has helped these writers and broadcasters to identify and to get to know information sources. At the same time, elements of communication philosophy and methods appear in more and more technical training programs.

For several years, Tongan in-service trainers have been required to provide advance copies of their training materials. In addition to their use in training, the materials fill needs as references for field officers. In Tonga, research and extension officers often train together, taking turns serving as trainer and trainee.

As Western Samoa has adapted the Training and Visit (T&V) system (see *DCR* #22) to its situation, increased attention to in-service training builds bridges between extension and other agricultural groups.

One notable factor encouraging change is the growing awareness among extension, research, and other institutional administrators of the need for communication support. Despite budget constraints, some have supported efforts to improve information staff competence, methods, and equipment. In Fiji, at least one information staff member has been approved for degree-training abroad. Western Samoa is developing increased technical assistance and upgrading equipment with Asian Development Bank and Food and Agricultural Organization backing.

Communicating to Producers

Efforts to get information out to producers is paying off as well. Field days, farm trials, and demonstrations (three typical activities that introduce new and improved agricultural techniques) have attracted more producers than ever in some of these countries. For example, Western Samoa recently held an Agricultural

Show on one of its islands; more than 10,000 people attended the activities – nearly one quarter of that island's total population. A coordinated multimedia campaign helped boost attendance and offered follow-up printed materials to reinforce the messages delivered at the educational sessions. Both Fiji and Tonga make extensive use of field days to reach farmers. Their staffs are trained in how to plan and execute these three activities to improve their outreach effectiveness.

The modified T&V system developing in Western Samoa strengthens their outreach effort. Greater number, frequency, and continuity of visits by extension officers are building more and stronger links with farm producers. Similar emphasis on farmer contacts by extension in Fiji and Tonga strengthens the dissemination of agricultural information. Fiji is rapidly upgrading dissemination efforts, especially with publications. One new series provides reference materials for field extension staff, and another is devoted mainly to reporting new findings and recommendations from research to extension. Within the last year, an information officer has been assigned full-time to work with the Research Division to speed the flow of new information to users. Coordination between staffs of Fiji's broadcast and print news media assures dissemination in both media of information produced by the work of one information specialist.

Need for Communications Training

Training in communication practices and principles continues to be a scarce item on the educational agenda in the South Pacific. A relative vacuum for development communication specialists has existed because nearby training has not been available. The nearest degree-based training or intern programs are in Australia, New Zealand, or the Philippines. Fortunately on this point, IRETA appears to be maturing as a source of support by offering some agricultural communication courses. Meanwhile, Agricultural Liaison Officers are demonstrating that important contributions can be made by professionals who have both agriculture and communication training.

These and similar steps have helped to improve communication within the agricultural knowledge systems of this region over the past three years. They have been a motivating stimulus for still larger and more creative steps toward overcoming multiple constraints that persist. ■

For a bibliography of related studies, write either to: George Beal, Institute of Culture and Communication, East-West Center, 1777 East-West Road, Honolulu, Hawaii 96848, USA; or to International Service for National Agricultural Research, P.O. Box 93375-2509 AJ, The Hague, Netherlands.

George M. Beal recently retired as Research Associate, Institute of Culture and Communication, East-West Center, in Honolulu. He was for many years a researcher, teacher, and head of Sociology at Iowa State University, Ames, Iowa.

K. Robert Kern is a private consultant in agricultural communications. He was formerly communications officer, International Service for National Agricultural Research in The Hague, and many years head of extension communications at Iowa State University.

Briefly Noted

by Robert Vittel and William Amt

• *Guidelines for Planning Communication Support for Rural Development Campaigns* is a manual published by the UNDP Asia & Pacific Programmes for Development Training and Communication Planning (UNDP/DTCP) and compiled by Najib M. Assifif and James H. French. The manual covers the main components of planning communication support for rural development campaigns, how to carry out precampaign studies, how to design a communication strategy, and how to develop a management plan. Each section is supplemented by overhead transparencies (in the trainer's version), reference sheets, and worksheets. Available in English only, the trainee's version (which may be used for self-instruction) is available for US$8.00, and the trainer's version costs US$50.00; however, UNDP/DTCP will include five single copies of other publications free of charge with this order. Write: UNDP/DTCP, P.O. Box 2-147, 19 Phra Atit Road, Bangkok 10200, Thailand.

• The Industrial Information Section of the United Nations Industrial Development Organization Technology Programme has prepared a trilingual (English, French, and Spanish) *Directory of Industrial Information Services and Systems in Developing Countries.* This directory of 345 industrial and technological information facilities is designed to serve as a catalyst for increased networking activity among those institutions at the national, regional, and international levels concerned with accelerating the process of industrialization. Each entry includes the name of the organization, the address, languages used, a description of activities, topics about which information is provided, and a publications list. Free copies are available from the United Nations Industrial Development Organization, Industrial Information Section, P.O. Box 300, A-1400 Vienna, Austria.

• The sociology and political economy of mass media and interpersonal communication are central issues in *Communication and Social Change,* a new book by Michael Kunczik. Kunczik looks at development and communication from various viewpoints, concluding that there is a need for a "free media system within a nation state and a free flow of news on the international level." He raises many questions by outlining the major economic development and social change paradigms; showing how mass media have affected such change for good; and the position of developing countries in the international flow of news. Available in English from the Friedrich-Ebert-Stiftung, Godesberger Allee 149, D-5300 Bonn 2, Federal Republic of Germany.

• INTERPAKS, the International Program for Agricultural Knowledge Systems, is a program which provides educational and technical assistance in support of agricultural development through improved transfer and use of knowledge in developing countries. One of INTERPAKS' main functions is to provide information about agricultural knowledge systems through the publication of a newsletter and an ongoing series of booklets. *INTERPAKS Interchange*, a quarterly newsletter examines methods of agricultural information dissemination in developing countries with feature articles, synopses of reports, speeches, book reviews, and INTERPAKS project activity news.

The INTERPAKS ongoing series of booklets include: 1) *The Cooperative Extension Service: An Adaptable Model for Developing Countries*, which examines how the U.S. university land-grant extension system has effectively combined both the research and extension functions of agricultural development, and how components of this system can be applied to developing countries; 2) *The Role of the Information Specialist in the Dissemination of Agricultural Information* looks at the uniqueness of this field, the different levels of information which are dealt with, i.e. the scientific, the extension, and the trade levels, and skills and education required of agricultural information specialists; and 3) *Problems Facing National Agricultural Extension in Developing Countries* discusses the results of 59 developing country agriculture extension directors who responded to an INTERPAKS questionnaire. The survey attempts to reveal problem areas in developing country agriculture extension systems and concludes with recommendations for improvements.

• Other useful INTERPAKS publications include: *Development Communications in the Third World*, a collection of the papers that were presented at the "Midwest Regional Symposium on Development Communications in the Third World" at the University of Illinois at Urbana-Champaign on April 15, 1983. Emile McAnany delivered the keynote address which was followed with presentations by several other development communication specialists. *Annotated Bibliography on Development and Transfer of Technology, Vol. 1*, contains 271 relevant citations and annotations of literature in five areas: general agricultural development, policy and planning, technology development, technology transfer, and technology utilization, followed by an author and title index.

Single copies of the above-mentioned publications are available from: INTERPAKS, Office of International Agriculture, University of Illinois, 113 Mumford Hall, 1301 West Gregory Drive, Urbana, Illinois 61801, USA. ■

The authors are on the Clearinghouse staff.

Call for Abstracts

The World Federation of Public Health Association will hold its Fifth International Congress in Mexico City March 22-17, 1987. The conference theme is *International Health in an Era of Economic Constraint: The Challenge."* Abstracts of proposed papers should be submitted by October 15, 1986 in English or Spanish. Request abstract forms and guidelines from: WFPHA Secretariat, c/o American Public Health Association, 1015 15th Street, N.W., Washington, D.C. 20005, USA; or Dr. Jose Luis Luna, General Secretary, Local Coordinating Committee, Mexican Society for Public Health, Insurgentes Sur 1397, 6° piso, Col. Insurgentes, Mixcoac, Delegation B. Juarez, 03920 Mexico D.F., Mexico.

Continuing Education Centers: A Tanzanian Example

by David Giltrow

Continuing education centers (CECs) are neither new nor particularly glamorous stars on the development scene. They serve as catalysts to improve long term development efforts and provide the framework for linking ideas and people – a basic objective of development support communication (DSC).

The most familiar type of CEC found in developing nations are the farmer training centers. More recently, universities are establishing CECs to serve the wider community, especially at middle and higher manpower levels. This article offers suggestions on how universities can plan a continuing education center with an emphasis on DSC principles.

A typical university-based CEC develops a wide range of activities, including distance education services and training workshops, seminars, short courses, meetings of professional associations, and national and international conferences that will require housing and dining facilities.

Many developing country universities already conduct these activities, but usually on a between-term or ad hoc basis. More impact can be gained by creating a CEC that can properly organize and conduct outreach activities throughout the year. With this arrangement, the staff, meeting rooms, and residential facilities are dedicated to continuing education programs and are not at the mercy of ongoing academic timetables. Similarly, a well-equipped audiovisual unit becomes a necessity for the comprehensive CEC to meet the varied demands of its programs.

The observations below are based on the evolution of the Centre for Continuing Education at Sokoine University of Agriculture in Morogoro, Tanzania, which received US Agency for International Development (AID) assistance from 1980 to 1984 as part of a larger agricultural education and extension project. After five years of successful operation, some of the lessons learned might be useful.

The Sokoine Centre is physically divided into three units: a main meeting building, an office block, and a hostel complex, integrated into the university campus and with the usual student activities and services. But Sokoine has developed a pattern characteristic of many continuing education centers: it has become a campus within a campus. One link between the two is the Centre's Audiovisual Unit whose media equipment and production facilities also serves ongoing university media technology needs.

Lessons Learned

Lessons we learned in creating and operating the Sokoine Centre were in the areas of planning decisions, staffing, physical facilities, funding base, and programs and philosophy.

Planning Decisions:

Develop a cooperative alliance between donor and expected users. Participation by the expected major users and any donor agencies must be promoted early in the planning process. If the university chooses not to involve key decision makers and identified users, the effort probably will not reflect the actual needs of such a center.

Provide flexibility and freedom from departmental politics by placing the CEC in a suitable location within the institution's organizational structure. If possible, the CEC should have independent standing similar to a library or an institute.

Further planning recommendations:

- Study existing continuing education centers in the country to determine the needs that are to be met by this CEC to avoid legitimate objections to duplication of effort.
- Solicit donor support. This is particularly important initially to purchase audiovisual and other imported equipment, and provide special staff training.

Staffing:

Select the right director. He or she should have strong academic credentials as well as a solid background in extension, continuing education, and administration.

- CEC staff should be highly professional, with knowledge of DSC principles and with a strong service commitment. They should be encouraged to participate in CEC management operations.
- A title, such as "educational specialist," should be established for these professionals.
- Training and development plans should include all professional and support staff including audiovisual technicians, hostel and dining room staff, and others.

Physical Facilities:

If new buildings are necessary, visit other facilities prior to making the architectural specifications. Second to staff quality, the physical facilities are the most critical element in the long term success of a CEC. Remind fiscal officials that the CEC will charge daily rates per person to cover meeting, living, and dining amenities appropriate for professionals and senior civil servants.

Take nothing for granted in developing the specifications for facilities and services. CECs require special physical surroundings that few architects or bureaucrats appreciate. The quality of the facilities needed by CEC clientel is something that may be overlooked by architects who are more experienced at designing boarding high schools on small budgets.

Design for media use. A high quality media center with a trained staff is a necessity for a national continuing education center – not a luxury. There are several reasons for suggesting this apparent extravagance.

1. The seminars, short courses, and workshops should demonstrate media use with hands-on activities to encourage understanding of development communication support.
2. Speakers and participants at international seminars will use slides, overhead projectors, films, or possibly video in their presentations.
3. CEC training materials might be produced at the center for other training centers, schools, or for correspondence courses.

Funding Base:

A flexible, fair funding strategy, should be developed so as not to strain existing university finances. The university can support the CEC by absorbing staff salaries, utilities, and other basic budget items. Otherwise, the CEC should be a self-supporting unit and charge for all other CEC activities and services.

There should not be a blanket subsidization of program activities by donor agencies. Because of budgetary constraints, no provision was made by AID to support Sokoine continuing education programs. Nevertheless, the staff discovered many groups – private industry, ministries, development projects, and other donor agencies – with funds available for short term staff training at the Centre. This avoided the usual financial jolt that often occurs when a foreign aid project comes to an end.

Programs and Philosophy:

The CEC should have a primary program focus. Although it may seem economically smart to use a CEC as a general convention center where other groups can schedule their meetings and programs when there are open dates on the CEC calendar, this practice may alienate primary users who find they cannot schedule their activities at appropriate times.

A liaison from the client group should be assigned to work with the center's program specialists during the planning stage of an event. This type of cooperation exposes all clients to good communication and training techniques, and serves as an example of how communication support can bring greater depth to their activities.

An Advisory Committee of primary users should be established. This will help keep the CEC responsive to users' needs. The committee also gives the director a forum in which to develop CEC policy and to solicit help in solving various problems that arise at the facility.

A Summary

A successful continuing education center is a blend of good facilities, service-oriented staff, active program planning, sound financial policies, and professional marketing of services. If the setting is a university campus, intellectual resources usually available only to its students can benefit the wider community through CEC programs. Entwined with these elements is a strong communication support dimension that can serve as a model for users when they return to their home institutions.

David Giltrow was Team Leader for the Tanzania Agricultural Education and Extension Project, and coordinated upgrading of the Sokoine Centre Audiovisual Unit. He is now a private consultant in development communication and education.

Development Communication Report
Clearinghouse On Development Communication
Agency for International Development
dcr
Summer 1986
No.54

Transcending Barriers: SHARING Satellite Technology

by Gail Bouck

In many areas of the world, particularly in developing countries, natural geographic barriers, lack of teachers, diffused populations, and inadequate infrastructures make conventional communication methods either physically or financially impossible. The expanding use of telecommunications, especially new satellite technology, can help overcome such difficulties. Although the use of such technology is likely to be affected by a country's political and economic situation, projects using telecommunications are, nonetheless, being carried out in education, medicine, and agriculture.

Under the auspices of INTELSAT, the 110-member organization which owns the world's international telecommunication satellite system, and in conjunction with the International Institute of Communications, a London-based member organization concerned with the uses and developments of international communication, Project SHARE (Satellites for Health And Rural Education) was initiated in order to make more people aware of the practical uses of satellite communications for educational and health purposes. Since its inception in 1985, it has provided free satellite access for rural health and long-distance educational programs which use new satellite technologies.

Each SHARE project involves a series of tests and/or demonstrations aimed at showing how modern telecommunications can help alleviate the problems inherent in providing rural health care and education. Originally conceived as a 16-month project, scheduled to end in April 1986, it has now been extended through December 1986. To facilitate the development of permanent long-term programs, extensive evaluations and studies will be conducted on each project, as well as on the project as a whole. These will be published and made available upon request to individuals and institutions in the field. (See address at end of article.)

To date, most projects have been affiliated with universities, professional societies, or hospitals, working with the various telecommunication entities in the countries involved. Each sponsor designs and dictates the content of the project and is responsible for securing financial support, whether private or governmental, and for the terrestrial links. Once the project application has been submitted to INTELSAT, it is reviewed by the International Advisory Council – a special panel of experts in international communications from around the world. The review determines if the project fits the image and spirit of Project SHARE, its potential long-term benefits, and the overall feasibility of the proposal.

Exemplary Projects

Thirty-seven different countries are currently participating in Project SHARE. In education, the People's Republic of China uses satellites to transmit daily lectures to university students throughout the country. Called "A TV University," it serves as an example of how standardized education levels can be brought to scattered populations in countries where great distances and geographical barriers make contact difficult. The use of satellites has also been successfully demonstrated for years by both the University of the South Pacific and the University of the West Indies where a high percentage of course completions, along with high test scores, have been achieved. (See *DCR* 24 and 26.)

(*Continued on page 3*)

Where in the World are Radios?

by Graham Mytton

Accurate and reliable data on radio ownership in rural areas of developing countries are notoriously difficult to obtain. On the other hand, we know quite a lot about access to and ownership of radios and televisions in urban areas of these same countries, primarily because this is where the bulk of manufactured consumer goods are sold. Those who purchase advertisement space or time want to know what consumers are buying: how many people in Lagos, Nigeria can be reached by a series of 30-second radio commercials for toilet soap or how many people in Jakarta, Indonesia have television sets, and how many watch it at home? Advertisers need this information. In contrast, there is little demand for information about rural consumers in developing countries, so not much is known about them.

Although commercial research agencies do exist in many developing countries, consumer research is not their only, or even their major activity; they do many other types of research as well. What about research by broadcasting organizations? In Latin America, commercial radio stations commission audience surveys, but these too concentrate on urban audiences. In Asia, audience research is carried out with growing frequency only in Sri Lanka, India, and Pakistan. In sub-Saharan Africa, the picture is even less clear. Other than in South Africa, no radio or TV stations do regular audience research. In North Africa, only Morocco, Tunisia, and Egypt have done systematic research and these have been mainly urban-based studies of their audiences.

(*Continued on page 2*)

DCR INDEX INSIDE

The four center pages of this issue contain the first comprehensive subject index of *DCR* issues 40 through 54, encompassing the dates of December 1982 to August 1986. We hope it is a useful guide to our work.

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Project SHARE 1
Worldwide Radio Survey 1
Communicating Health in Swaziland 4
Briefly Noted 4
Training Broadcasters 5
Malaysia Media Use Survey 6
DCR Index 7
Women Communicating Health 11
Communicator's Checklist 12
Influencia de la Comunicación en El Campo 14
On File at ERIC 15
Satellites for Health Care 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel.(202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Assistant
William Amt, Program Assistant
ISBN0192-1312

AED
International Division
Academy for Educational Development

(**Mytton** *continued from page 1*)

BBC's Survey Findings

This lengthy introduction serves to suggest some caution when interpreting the following facts and figures. Since 1944, the BBC has applied the sample survey methodology to gather audience data, interviewing randomly selected people in designated areas of a particular country. Their External Services Division performs regular audience research in countries around the world in order to collect accurate information about radio ownership and to determine who listens to the BBC and other international broadcasters.

In recent years, increased attention has been given, whenever possible, to rural areas. These studies verify the already-assumed high levels of exposure to the media in urban areas and the generally lower listening levels in rural areas. Nonetheless, increased radio ownership among rural people in developing countries has been confirmed by these surveys.

Given the expense and difficulty of research in developing countries, it is understandable that the information we have is both meager and incomplete. In 1964, for example, a survey in the West African country of Togo, showed 44 percent radio ownership in urban areas, but rural surveys indicated only four to five percent ownership. No more recent data are available. Elsewhere in West Africa, figures are somewhat more current. In neighboring Ghana, an extensive survey in 1977 showed that 72 percent of urban households had radios, with 46 percent ownership in the rural areas. In Nigeria, Africa's most populous country, a 1983 national survey showed 85 percent ownership or access to radios in urban households and an impressive 62 percent were found in rural households.

In eastern African countries, surveys have occured more regularly, making it possible to show change over time within a country. In Tanzania, for example, a nationwide audience survey in 1960 indicated that 10 percent of urban households had radios, but fewer than two percent of rural homes had radios at that time. By 1967, the situation had been transformed. In the capital city, Dar es Salaam, ownership had grown to 58 percent. Another survey in 1974 showed that among the 14 million people in the country, there were 1.7 million radios with nearly 1.6 million of these located in rural areas. At that time, it was one of the highest levels of recorded radio ownership in the developing world.

Less spectacular, but equally significant growth has occurred elsewhere. In Kenya, radio ownership grew from a very low base in 1960 to 72 percent of urban households and 36 percent of rural households with radios by 1978. Five years later, this figure had risen to 78 percent and 42 percent respectively.

Potential in China

In Asia, the picture has been broadly similar. In China, individual radio ownership was not encouraged during the cultural revolution, but since then it has rocketed. While there has not been a nationwide survey, recent estimates put ownership at over 100 million, perhaps five times as many radios than in the years before the cultural revolution. At that time, the dominant equipment was the ubiquitous wired radios, delivering only local broadcast services. Since then, much of the growth has been in individual ownership of portable radios in rural China. Moreover, there remains enormous potential for even greater growth in radio ownership in a country of more than one billion people.

In India, where so much emphasis has been put on the developmental role of radio, in some rural areas a majority of people still do not have their own radios. Therefore, despite the fact that there is widespread community and group listening, there are still many who are not reached at all. The pattern is very similar to that in Africa – a high level of radio ownership in towns and a smaller but growing presence in the countryside. In a 1975 survey of eight Indian states, 75 percent of those interviewed in urban areas had a radio at home, while in rural areas, ownership came to only 38 percent.

Elsewhere in South Asia, one finds a similar picture. In 1975, a very limited survey done in accessible regions of rural Pakistan, showed that no more than 11 percent of households had radios. By 1982, the situation had been significantly transformed. Although a different sample of rural people was interviewed, it was clear that there had been substantial growth in ownership – more than half of those contacted had a radio.

At the present time, there are still many areas of the world where broadcast research is not possible. Afghanistan is a good example. The strategy used by BBC to assess Afghan radio-listening habits was to conduct a study of Afghan refugee camps in Pakistan, since the approximately three million refugees living there had come mainly from rural Afghanistan. In the survey, 75 percent had had radios.

We have less data for Latin America, but what exists shows a somewhat earlier expansion of radio into the homes of rural residents. Radio ownership seems now to have reached nearly saturation levels.

A Downturn Ahead?

Although the statistics seem to indicate that the trend is toward having a radio in every household throughout the world, this is not actually the case. There are signs that the growth documented in the above figures appears to have peaked. In fact, there is evidence of a decline in radio ownership in some developing countries. With the onset of worldwide recession in the late 1970s, which is still greatly affecting the poorest regions of developing countries, the purchase of radios or batteries is not foremost in the minds of people struggling with daily survival.

A lack of batteries and the need for foreign exchange for more essential commodities are major problems in many developing countries with severe balance of payments difficulties. In Tanzania, where there are two factories that could produce enough batteries to meet the local demand, most are now being exported for foreign exchange purposes. As a result,

(*Continued on page 3*)

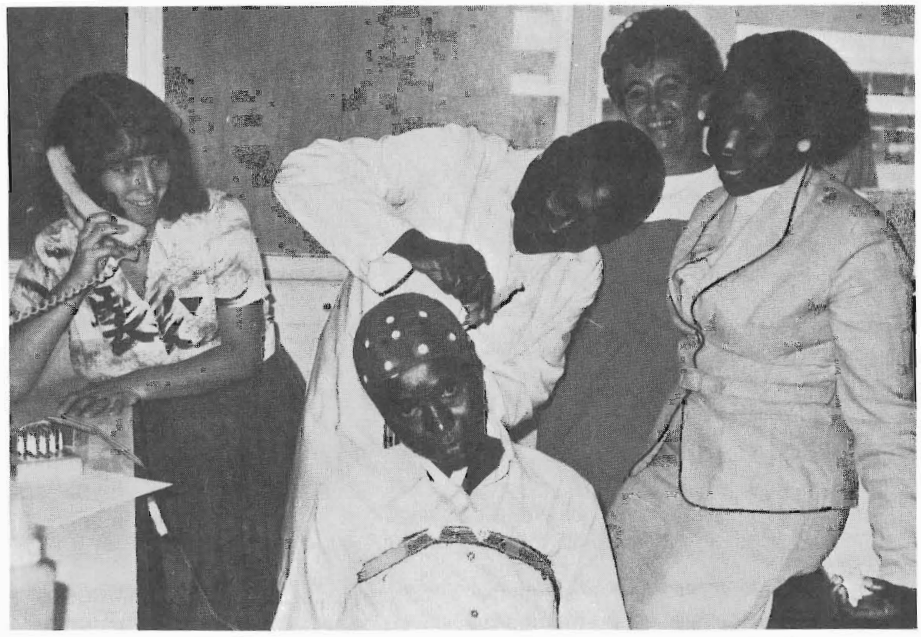
(**Mytton** *continued from page 2*)

batteries currently cost as much as US$2 each – more than 10 percent of an urban Tanzanian worker's weekly wage, and an even higher proportion of a rural dweller's income.

The dual problems of battery supplies and the shortage of radio repair services have become major obstacles to further expansion of radio ownership in developing countries. The cost of batteries has stimulated the increased use of plug-in radios, but most developing countries have only limited electricity supplies outside urban areas. And, after all, the main attraction of the battery-powered transistor radio has been its portability. As a result, attention has turned to developing an inexpensive, maintenance-free, solar-powered radio that will require no other electrical supply source.

Until these supply and distribution problems are solved, the question remains: Will a Zambian farmer ploughing his field while a transistor radio swings from the harness of his bullock become an image of the past? ■

Graham Mytton is Head of International Broadcasting and Audience Research for the British Broadcasting Corporation. He was previously a producer in the African Service of the BBC, and a Zambian Broadcasting Services Research Fellow at the University of Zambia.



A demonstration of how a brain scan of a patient is telecommunicated via INTELSAT's satellite to a remote diagnosis center.

(**Bouck** *continued from page 1*)

In order to further professional and vocational education, lectures on water management and engineering sponsored by the Higher Education for Development Organization (HEDCO) are being transmitted on a bimonthly basis from University College, Dublin, Ireland to the University of Amman in Jordan. Approximately three hundred participants, both students and professionals in the field, attend these lectures.

Because providing medical information over great distances is difficult, developed and, to a lesser extent, developing countries are turning to satellite technology. The Miami Children's Hospital is sponsoring a large and very successful project to bring the latest techniques and information on pediatrics to doctors in South and Central America. (See article in this issue.)

In another health project, brain scans are sent via telephone lines from Nairobi, Kenya to St. Johns, Newfoundland, Canada, where diagnoses are performed. This same facility maintains a link with the Makarere Medical Center in Kampala, Uganda to support their small staff of doctors and trained personnel, helping them to serve a much larger population than otherwise would be possible.

More Ideas for SHARE

Other projects also are in various stages of preparation or operation. Some innovative proposals that have been submitted include: using small, transportable microterminals to assist in coordinating famine relief; creating interactive access to international databanks for nutrition education in South Pacific island nations or for children's television programming; and relaying training programs to bring computer literacy to developing nations.

Each SHARE project carries with it a different challenge and has attracted an impressive diversity of individuals and organizations. By taking the initiative, these participants have gained insight into the problems and the promises of telecommunication for their countries. SHARE's ultimate goal, of course, is to stimulate developing countries into future activities on their own, building on the skills acquired while bringing expanded services to rural populations.

For further information about Project SHARE contact: Gail Bouck, INTELSAT, 3400 International Drive, NW, Washington, DC 20008-3089. Telex 89-2707, Telephone (202) 944-7825.

Gail Bouck is Assistant Development Affairs Officer in the Office of Policy Analysis and Development Affairs at INTELSAT where she manages Project SHARE. ■

World Resources 1986

The World Resources Institute has just published an excellent reference book on worldwide environmental and resource trends – the first of its kind. In *World Resources 1986* you will find a wealth of global, regional, and national resource trends, with dozens of charts, maps, figures, and data tables for 146 countries. Six emerging issues that seriously affect the human condition and demand urgent remedial action are highlighted, including: multiple pollutants and widespread forest decline in Europe and North America; the environment and human health; tropical deforestation; the atmosphere as a shared resource; soil degradation; and population growth and resource use, especially in Africa.

In the United States, copies can be ordered directly from the International Institute for Environmental Development, 1717 Massachusetts Ave., N.W., Suite 302, Washington, D.C. 20036, for US$32.45 cloth, and US$16.95 paperback, with discounts on multiple orders. Prepayment or purchase orders, plus $2.50 for UPS postage and handling, is required on all orders. It also is available from IIED Publications, 3 Endsleigh Street, London, WC1H 0DD, Great Britain for cloth £22.95, paperback £11.95. Postage and handling additional.

Call for Papers

The International Communication Association is calling for papers and program proposals for its 37th Annual Conference to be held May 21-25, 1987, in Montreal, Canada. Proposals should address one of the nine established divisions, four special interest groups, or the Conference theme of "Ecology of Communication." Proposal submission deadline is November 1, 1986.

For a description of the categories and submission guidelines, write to Robert L. Cox, Executive Director, International Communication Association, P.O. Box 9589, Austin, Texas 78776, USA. Telephone (512) 454-8299.

Supporting Health in Swaziland

by Alfred B. Mndzebele

In order to successfully disseminate health messages to general audiences in a developing country, careful planning and implementation is required. It is important to consider all the components that contribute to bringing about successful change in a systematic manner, including research and evaluation, media, resources, and training.

During 1984-1985, the Ministry of Health in Swaziland applied mass media communication techniques to promote the use of oral rehydration therapy (ORT) to overcome infant dehydration from diarrhea. Building on this successful dissemination activity, another communication campaign was designed for Swaziland's Expanded Program on Immunization acceleration campaign. Radio, print, and interpersonal channels were used to disseminate the ORT messages.

In developing countries, use of these media are often accompanied by inherent drawbacks. Radio messages associated with a project may not be very effective unless they are preceded by adequate preprogram research or built-in feedback measures to assure that the messages are relevant. Print messages are susceptible to misinterpretation because audiences may not have regular exposure either to the written word or to graphic materials. Training programs within an extension system may begin dynamically, but then lose their effectiveness over time without constant updating of training materials and techniques. In light of these constraints, a communication system that endeavors to orchestrate these trouble-prone media into a coordinated program must be based upon a strategy that is developed from a comprehensive, preprogram planning process.

Development Research Phase

Planning the communication component of the Expanded Program on Immunization acceleration campaign in Swaziland began with a development research phase – the first essential step in any development communication project. We conducted field investigations and reviewed data to determine current patterns of rural mothers' behavior, attitudes, and practices regarding immunization. A knowledge, attitude, and practices study was also done in order to systematically plan an in-service training strategy for clinic nurses as well as to gather information for the design of a general health education campaign on immunizable diseases.

In our development research, we were looking for evidence of existing appropriate behaviors to build upon that would lead to increased knowledge and use of immunization, and to uncover areas of audience unfamiliarity that our campaign would need to focus upon. For example, our field research revealed that Swaziland mothers want their children, particularly those under one year of age, to be protected against traditional diseases through the application of traditional medicines. Building on this, messages were designed that were based on the traditionally practiced behavior of protecting children against diseases. The focus of the messages was not that the diseases were "modern" as opposed to "traditional," but that immunization should be practiced on their young children as is other protective behavior.

In addition to designing messages based upon our research, we were able to implement three other components of our planned development communication project:

1. Media Use: By determining current media use behavior, attitudes, and knowledge of the target audience, we could devise health messages that addressed the desired changes.
2. Resources: By ensuring that an ample supply of vaccines and refrigerators would be available to implement the immunization campaign, we were able to reach the campaign goal.
3. Training: By designing and holding a training program we could be assured that all health personnel coming in contact with the target audience knew their teaching responsibilities.

The Power of Communication

With the experience gained in the use of systematic development communication, we have learned some important lessons including:

- *Systematic development communication commands a special authority.* Research confirms that greater impact is possible when interpersonal communication is combined with radio or TV messages, newspaper items, or poster illustrations.
- *Systematic development communication assures better control of the message.* Since message conception and design are of primary importance, the most desirable means of communication is the one that guarantees the message will be delivered consistently and correctly.
- *Systematic development communication lends a cumulative impact to a message.* Messages that are consistently reinforced through different media produce a greater overall impact and have a stronger psychological advantage over a campaign that does not consistently repeat its message.
- *Systematic development communication reaches audiences more quickly.* Multiple media applications can disseminate the message further than a single medium in a comparable amount of time. A single medium may take months to saturate an audience, whereas repeated use of mass media exposes a larger audience to a stronger dose of the same information in a shorter period of time.
- *Systematic development communication influences other major audiences while directing the message to its target audience.* For example, although directed to mothers, a nutrition message will be seen and heard by farmers who learn of the special emphasis on selected foods, or by government officials whose support for new policies is always necessary.

Without a thoroughly designed communications strategy, otherwise well-planned development projects will be doomed to failure. It is not an exaggeration to say that a development project is only as successful as the communication system that supports it. ■

Alfred Mndzebele is a Health Education Officer with the Swaziland Ministry of Health.

Briefly Noted

by Robert Vittel and William Amt

- IBM has recently released *The Guide to Software in Developing Countries*, a compilation describing personal computer software programs covering the areas of agriculture, ecomomic and social resources, physical infrastructure and administration. Programs described cover a wide range of developing-country applications, among them farm planning, aquaculture management, timber yield forecasting, census processing, population growth monitoring, water supply requirements, foreign debt, loan, and payment monitoring, and many others. The guide also includes descriptions of related software literature, supporting software, national language supplements, (IBM) hardware, a glossary of terms, and a list of software sources. Most materials included in this guide are free of charge. The *Guide* is available at no charge from: Communications and External Programs Manager, IBM Area South, 190 Avenue Charles de Gaulle, 92523 Neuilly sur Seine, France.
- The Pacific Telecommunications Council (PTC) has published the proceedings of their eighth annual conference on *Evolution of the Digital Pacific,* held in Honolulu, Hawaii on January 12-15, 1986. Over 60 of the conference papers appear in this volume. They address issues such as Pacific facilities' developments and requirements; policy, planning, and facilities; business strategies; network applications; socio-economic impacts; educational programs; and others. The 384-page volume is available for US$45 from the University of Hawaii Press, 2840 Kolowalu Street, Honolulu, Hawaii 96822, USA.
- We have recently received three periodicals that will be of particular interest to our readers looking for literature on educational technology and communications, and informatics. *AGORA: Informatics in a Changing World*, a quarterly journal published by the Intergovernmental Bureau for Informatics (IBI), examines developments in informatics

(Continued on page 13)

TUNING IN

Training Broadcasters: The Amoz Gibson Training Centre

by Randie S. Gottlieb

In a lush tropical setting fifteen minutes' drive from Arecibo, Puerto Rico, a vital new educational facility has come into being. Situated on a five-acre hillside farm, the Amoz Gibson Training Centre was established in 1982 and is operated by CIRBAL, an international Baha'i field agency for development media. The center provides practical, "hands-on" training in appropriate media and technology for the spiritual, social, and economic development of people the world over.

Within easy reach of all the Americas, the training center shares space with CIRBAL's Broadcast Division, which oversees the planning and construction of Baha'i radio stations throughout the world. These highly successful radio operations have been featured in professional journals because of their unique emphasis on local participation and management, and their innovative educational and cultural programming. Radio stations currently exist in Ecuador, Peru, Bolivia, Panama, and the United States, with others under construction in additional Latin American countries and in Africa. They are staffed by members of the local community, many of whom received their training at the Amoz Gibson Centre. Several articles about Baha'i radio stations have appeared in earlier *Development Communication Reports*. (See Nos. 40, 42, and 44.)

Baha'i radio stations are bases for education and community service. In the Andes, these stations have become the most popular in the region. When the station at Lake Titicaca, Peru stopped broadcasting for a week while awaiting parts for its transmitter, *campesinos* went to the city to demonstrate, thinking the Government had taken the station off the air. In Bolivia, thousands of villagers walked for days to attend festivities associated with the anniversary of Radio Baha'i.

Course Offerings

Originally established to prepare volunteer workers for these stations, the center began with a three-week, 140-hour radio broadcasting course. The course, now offered annually, is organized around an intensive, six-day per week schedule covering the fundamentals of educational and cultural broadcasting, programming and production, legal and technical topics, and managment. In the classroom, a wide range of instructional methods are employed, from traditional lectures to role playing, mock interviews, audiovisual presentations, panel discussions, independent projects, workshops, and self-administered exams. Throughout the course, students are immersed in a multicultural environment designed to foster a spirit of cooperation and service, in addition to providing instruction in specific knowledge and skills.

An Expanding Curriculum

In response to rapidly expanding media opportunities and the corresponding need for skilled volunteers, the curriculum has evolved to become an integrated program in Development Communication with six to eight training sessions held each year. The program is intensive and practical, designed to prepare students for all communication-related aspects of project management, including technical maintenance and the training of others. The curriculum is divided into five broad areas: hardware, software, human development, international service, and participatory media theory and practice – all presented from a Baha'i perspective. Academic offerings range from weekend workshops to month-long courses in communication management, broadcast engineering, graphic arts, radio programming and production, photography, scriptwriting and announcing, silkscreening, journalism, and exhibit design.

Special Training

Courses have also been designed to meet the needs of special groups, like that given for the future staff of the Baha'i radio station recently constructed in rural Panama. Instructors for this course were challenged to develop new teaching methods appropriate for the Guaymi Indian participants, who had little formal schooling and no experience with even the most basic audio production equipment. In one session, students learned to produce "oral scripts," in which pictographs are organized into an outline that then serves as a guide for a radio interview or presentation. In the evenings, the Guaymis alternated between studying and sharing beautiful examples of their folktales, traditional music, and dance. During the final course evaluation, they commented that the two-week session had taught them "what radio *really* is and what it can be – for education, for our culture, for teaching humanity . . . ."

Occasionally, the center sponsors off-campus activities such as a 14-country media training trip through the Caribbean in 1984, and an international "Scriptwriting, Programming, and Production Workshop" conducted for staff members and managers from three Baha'i radio stations in South America, that was held in Puno, Peru, during that same year.

As one of the very few institutions that offers training for media trainers as well as for local participants in a media project, the Amoz Gibson Centre has brought in students from over 25 developing nations, including members of national Baha'i administrative bodies, nonliterate villagers, university professors, young people investigating career possibilities, and North Americans who train to serve abroad as volunteer workers and as consultants to the local project staff. Classes are conducted in both English and Spanish – many times on a fully bilingual basis. The center is currently consulting with several universities about the possibility of offering joint degree programs, a step that will allow eligible students to receive college credit for courses taken at the Arecibo campus.

The center has attracted a highly qualified faculty with extensive media and international

(*Continued on page 6*)

Amoz Gibson Centre students preparing to shoot their first rolls of film at a photography workshop.

(**Gottlieb** *continued from page 5*)

experience including: the executive producer of a national radio education project in Kenya; a doctor of education specializing in cross-cultural communication and media; the manager of a rural black community-service radio station; and a well-known South American TV and film producer who now heads National Radio and Television in Peru.

Staff and faculty are, for the most part, volunteers, contributing their expertise to a "bootstrap" operation whose facilities have been built gradually, financed by proceeds from course tuitions. Much of the equipment and educational materials were acquired through donations.

With its emphasis on appropriate media and technology, the Amoz Gibson Centre also hosts an ongoing program of research and development. In conjunction with CIRBAL's Broadcast Division, faculty members have pioneered inventions ranging from solar-powered community radio to low-cost 12-volt power for lighting and small appliances in rural homes. The center makes extensive use of this alternate energy system to power everything from the ceiling fan in classrooms to the computer in the office.

For the Bahai's, development is largely dependent upon needs at the grassroots, from which it should receive its driving force, rather than by imposition of plans from above. The purpose of the Development Communication program at the Amoz Gibson Centre is to assist these grassroots efforts – promoting education in science and technology, training in the techniques and tools of communication, and promoting respect for the spiritual foundation of human progress. ■

For more information about the center, contact Dr. Randie Gottlieb, Administrator, Amoz Gibson Training Centre, HC 02, Box 14765, Arecibo, Puerto Rico 00612.

Randie Gottlieb is the administrator of the Amoz Gibson Training Centre. She received her doctorate in Media and Instructional Development from Boston University.

1986 Agricultural Catalog

Winrock International has recently distributed an expanded version of their *Agribookstore 1986 Catalog*. It contains over 200 abstracts of agriculture-related publications available through the Agribookstore. For a catalog, write to Agribookstore, Winrock International, 1611 North Kent Street, Arlington, Virginia 22209, USA.

The Brazilian Society of Interdisciplinary Studies of Communication (INTERCOM) is holding its 1986 meeting from September 1-7, 1986 in Sao Paulo, Brazil. The focus of the meeting will be "Communication for Development."

A Media Use Survey in Malaysia

The following article is a good example of how information from a small-scale survey can be used at the local level to improve training courses for audiovisual aids users. With relatively little effort, data can be gathered and assessed for the purpose of pinpointing strengths and weaknesses in local applications of media for effecting change.

by Zaharah S. Keeney and Musa Abu Hassan

The link between effective communication practices, appropriate media use, and successful development efforts is well established worldwide. In Malaysia, however, current development efforts are still highly dependent on oral communication. Research shows that the level of material retention relayed orally is characteristically low, and mere awareness of new ideas and technology is not enough where changes in attitudes and practices are the ultimate goals. At the same time, it has been shown that when interpersonal communication is supported by the use of audiovisual aids (AVAs), it is a most effective means of persuading people to change.

In Malaysia, especially over the last twenty years, the availability of AVAs has increased greatly, but better understanding of their applications is still needed. In order to improve courses given in AVA use and in general communications at the Agricultural University of Malaysia, and to meet future needs of Malaysian organizations involved in agricultural development, the authors conducted a survey of relevant agricultural institutions. Among the 23 agencies surveyed were the Malaysian Agricultural Research and Development Institute, the Rubber Research Institute, the Department of Agriculture, the Veterinary Services Department, the Palm Oil Research Institute of Malaysia, and the Agriculture Bank.

Who Uses Which Aids?

The survey was limited to asking those responsible for an organization's communication division: 1) what communication media and software they owned and used; 2) how they used these aids; 3) who within their organization used them; and 4) where they were used. Twenty of twenty-three agencies responded.

Fewer than ten respondents indicated they provided the follwing AVA support services: 1) publication and production assistance, 2) equipment and software servicing, and 3) lending audiovisual equipment.

Allocation of funds for AVAs varied widely. Nine agencies reported yearly AVA budgets in excess of US$4,100. Three agencies reported having AVA budgets between US$3,400 to US$4,100 for 1984. Eight agencies indicated they had no funds specifically allocated for this purpose. Generally, AVA money was used for new equipment, software purchases, and production of publications. However, funds for *training* staff in the use of AVA equipment were noticibly lacking.

The data indicate that the *availability* of audiovisual aids and software is not a problem. All agencies have slide and overhead projectors; a majority noted they have public address systems, cassette recorders, pamphlets, black and white, and color photography capability, 35mm cameras, television sets, 16mm film projectors, slides, models, posters, video cassettes, mobile units, and video cameras. However, other questions revealed limited *usage* of some of these aids.

While a full 75 percent of the agencies reported using AVAs for extension and training courses, indicating that audiovisual aids are being used to support oral communication, a static use pattern is still apparent according to Table 1 below:

Table One
Media Most Often Used by Agencies

Media/AVA	Number of agencies
Slide projector	12
Overhead projector	11
Movies/films	6
Video	3
Pamphlet	2
P.A. system	2
Poster	1
Slide series	1

Although there is potential for greater AVA use with the wide range of audiovisual aids and software owned by agricultural development agencies in Malaysia, users indicate a need for better understanding of when and where AVAs have the most impact on development.

This study, although limited in scope, demonstrates how educators can use this type of data to develop future training sessions. It also brings to light other questions for future investigation; for instance, which media and audiovisuals are most effective and for what purposes? In what situations do AVAs contribute the most to learning and attitude change? How can Third World countries develop software more suitable to their particular needs? ■

Musa Abu Hassan and Zaharah S. Keeney are lecturers with the Department of Development Communication at the Agricultural University of Malaysia, Serdang, Selangor. Musa specializes in communication media, and Keeney in technical writing. Both conduct in-service training courses in these subject areas.

DEVELOPMENT COMMUNICATION REPORT

SUBJECT INDEX

Issues 40 through 54

AGRICULTURAL COMMUNICATION
A Media Use Survey in Malaysia, No.54, p.6
Linking Knowledge Systems in the South Pacific, No.53, p.1
DCFRN: A Radio Network for Small Farmers, No.52, p.9
Communication Strategies for Agriculture: Hybrids of a Different Kind, No.50, p.1
Quebral and Middleton: Some Thoughts on Development Communication, Past, Present, and Future, No.43, p.1

AGRICULTURAL DEVELOPMENT
Making an Agricultural Video, No.53, p.3
Communication Strategies for Agriculture: Hybrids of a Different Kind, No.50, p.1
The Training and Demonstration System of Agricultural Extension: A Nigerian Experience, No.47, p.7
Agricultural Extension and Mass Media, No.44, p.16

AGRICULTURAL EXTENSION
Linking Knowledge Systems in the South Pacific, No.53, p.1
Continuing Education Centers: A Tanzanian Example, No.53, p.16
The Training and Demonstration System of Agricultural Extension: A Nigerian Experience, No.47, p.7
Growing More Rice in Sierra Leone: Baseline Survey Guides Media Campaign, No.46, p.3
Agricultural Extension and Mass Media, No.44, p.16
Extension and Communications in Nepal: Reforestation Program Uses Media Support, No.40, p.1

APPROPRIATE TECHNOLOGY
The A.T. Microfiche Reference Library: Information When You Need It, No.46, p.12
Microcomputers and Health Improvement in Developing Countries, No.46, p.16
Numeracy Project Makes New Use of Pocket Calculators, No.44, p.11
Using Audiocassettes in Distance Education, No.41, p.14

AUDIENCE RESEARCH
Where in the World are Radios? No.54, p.1
A Media Use Survey in Malaysia, No.54, p.6
Taking Video on the Road in the Philippines, No.53, p.5
IEC Planning: Eight State-of-the-Art Principles, No.44, p.6

BEHAVIOR CHANGE
Influencia de la Comunicación en El Campo, No.54, p.15
A Focus on Behavior: The Role of Health Practices Studies, No.51, p.7
A Nutrition Prescription for the Dominican Republic, No.51, p.15

COMMUNICATION
Where in the World are Radios? No.54, p.1
The Pan-African News Agency: A Preliminary Assessment, No.50, p.16
IPDC Update: Fifth Council Session Meets, No.48, p.9
The Coming Age of Development Communication, No.47, p.16
Quebral and Middleton: Some Thoughts on Development Communication, Past, Present, and Future, No.43, p.1
Dr. Henry Cassirer Talks About Development Communications and UNESCO, No.41, p.1
The Communication Process: Why Communication Must be a Two-Way Exchange, No.40, p.5

COMMUNICATION BARRIERS
Transcending Barriers: SHARING Satellite Technology, No. 54, p.1
A Focus on Behavior: The Role of Health Practices Studies., No.51, p.7
Perspectives on Communication Problems in the English-Speaking Caribbean, No.45, p.16
Africa's Search for Communication Technologies for Education: A Reflection of Problems and Prospects, No.43, p.3
The Communication Process: Why Communication Must be a Two-Way Exchange, No.40, p.5

COMMUNICATION POLICIES
Women, Communication, and Primary Health Care, No.54, p.11
IPDC Update: Fifth Council Session Meets, No.48, p.9
A.I.D. Development Communications, No.47, p.5
Dr. Henry Cassirer Talks to DCR About Development Communications and UNESCO, No.41, p.1

COMMUNICATION STRATEGIES
Supporting Health in Swaziland, No.54, p.3
A Communication Strategy to Improve Nutrition in Indonesia, No.51, p.5
Reaching Mothers in Swaziland: Preliminary Findings of a Child Survival Program, No.51, p.7
The Colombian Immunization Crusade: Coordination and Communication, No.51, p.20
Communication Strategies for Agriculture: Hybrids of a Different Kind, No.50, p.1
The Measure, the Problem: Communication at Work in Ecuador, No.48, p.7
Social Marketing: Two Views, Two Opportunities, No.47, p.1
Wonsuom – A Rural Communication Project in Ghana, No.47, p.3
Community Radio in Ecuador Playing Local Music, Strengthening Cultural Ties, No.44, p.4
Africa's Search for Communication Technologies for Education: A Reflection of Problems and Prospects, No.43, p.3
Mexico's National Literacy Program, No.43, p.15
Time for a New Approach to Population Communication, No.40, p.10

COMMUNITY DEVELOPMENT
Influencia de la Comunicación en El Campo, No.54, p.15
Participatory Radio in Arequipo, No.52, p.9
Teaching Where There Are No Schools, No.49, p.5
Message from Puno: Radio Onda Azul, No.48, p.8
Community Radio in Ecuador Playing Local Music, Strengthening Cultural Ties, No.44, p.4
RADECO: Radio-Based Primary Education in the Dominican Republic, No.42, p.1
Community Radio in Ecuador Meeting People's Needs, No.42, p.16
Extension and Communications in Nepal: Reforestation Program Uses Media Support, No.40, p.1
Using Puppets to Teach Ideas, No.40, p.3
Community Radio Thriving in Ecuador: Otavalo Indians Running Their Own Show, No.40, p.11
Villages: The Forgotten Resources, An Interview with Revelians Tuluhungwa, No.40, p.16

CONTINUING EDUCATION
Satellite Technology: A Vehicle for Health Care, No.54, p.16
Continuing Education Centers: A Tanzanian Example, No.53, p.16

COST ANALYSIS
Interactive Radio Cost Estimates, No.49, p.12
Using Audiocassettes in Distance Education, No.41, p.14

CURRICULUM DEVELOPMENT
Radio Science: Completing the Interactive Radio Instructive Curriculum, No.49, p.7
From Oral Traditions to Elementary Textbooks: A Description of the Maternal Languages Project in Niger, No.44, p.1

DISTANCE EDUCATION
Colombia Could Have the Biggest School in the World, No.53, p.13
Learning Math by Radio, No.49, p.16
Instruction by Audio Conference: An Alaskan Example, No.48, p.1
The Coming Age of Development Communication, No.47, p.16
Policy Considerations in Global Telecommunications, No.46, p.1
Using Audiocassettes in Distance Education, No.41, p.14
Foreign Television by Satellite Enhances Language Studies in the U.S.A., No.41, p.16

EDUCATIONAL INNOVATIONS
From Nicaragua to Thailand: Adapting Interactive Radio Instruction, No.52, p.5
Nyegezi School of Journalism Spearheads Training of Development Communicators, No.45, p.2
Innovations in Education: Hand-Held Electronic Aids in Lesotho, No.45, p.4
From Oral Traditions to Elementary Textbooks: A Description of the Maternal Languages Project in Niger, No.44, p.1
Numeracy Project Makes New Use of Pocket Calculators, No.44, p.11
Kenya Explores New Ways of Producing Literacy Materials for Basic Education, No.42, p.4

EDUCATIONAL PLANNING
Continuing Education Centers: A Tanzanian Example, No.53, p.16
Radio and the Educational Needs of Africa, No.50, p.3

EDUCATIONAL RADIO
Colombia Could Have the Biggest School in the World, No.53, p.13
From Nicaragua to Thailand: Adapting Interactive Radio Instruction, No.52, p.5
Kenya's Radio Language Arts Project: Evaluation Results, No.51, p.17
Radio and the Educational Needs of Africa, No.50, p.3
A Model for Interactive Radio Lessons: The Radio Mathematics Project, No.49, p.1
Interactive Radio and Educational Development: An Overview, No.49, p.1
The Radio Language Arts Project: Adapting the Radio Mathematics Model No.49, p.3
Selected Bibliography on Instructional Radio, No.49, p.4
Teaching Where There Are No Schools, No.49, p.5
Radio Science: Completing the Interactive Radio Instructive Curriculum, No.49, p.7
The Fourth R – (Interactive) Radio, No.49, p.13
Learning Math by Radio, No.49, p.16
Radio Santa Maria: A Case Study of Participatory Evaluation, No.48, p.1
Message From Puno: Radio Onda Azul, No.48, p.8
An Overview and Guide: Planning Instructional Radio, No.45, p.1
The Radio Mathematics Project: New Examples of Technology Transfer, No.45, p.1
The School Classroom and the Radio Classroom, No.45, p.3
Formative Evaluation in Educational Radio and Television: A Fundamental Need in Developing Countries, No.44, p.3
Radio Improving the Status of Women in Nepal, No.41, p.5

EDUCATIONAL TECHNOLOGY
Learning Math by Radio, No.49, p.16
Microcomputers for Education in Developing Countries, No.47, p.1
A.I.D. Development Communications, No.47, p.5
Literacy Work in Peru, No.46, p.14
Innovations in Education: Hand-Held Electronic Aids in Lesotho, No.45, p.4
The Future of Computers in Education in the Developing World, No.43, p.2

EDUCATIONAL TELEVISION
My Experience Teaching Video in the Maldives, No.53, p.9
Foreign Television by Satellite Enhances Language Studies in U.S.A., No.41, p.16

ELECTRONIC MAIL
Microcomputer-Based Information: Big Rewards for Small Agencies, No.40, p.6

EVALUATION
Evaluation: Past and Present, No.52, p.1
Kenya's Radio Language Arts Project: Evaluation Results, No.51, p.17
Evaluations of Three Interactive Radio Projects, No.49, p.11
Radio Santa Maria: A Case Study of Participatory Evaluation, No.48, p.1
Interactive Radio in the Classroom: Ten Years of Proven Success, No.48, p.4
Formative Evaluation in Educational Radio and Television: A Fundamental Need in Developing Countries, No. 44, p. 3

FIELD WORK
Field Experience in the Gambia: Screening and Training Fieldworkers, No.47, p.11
Field Research in Botswana Leads to More Relevant Media Production, No.42, p.3

The Communication Process: Why Communication
Villages: The Forgotten Resources, An Interview with

FILM PRODUCTION
Documentary on DSC Shows TV Doesn't Have to be

FOLK MEDIA
Rural Development Through Puppetry, No.42, p.5
Using Puppets to Teach Ideas, No.40, p.3
Printed Cloth Posters: Practical Communications To

HEALTH COMMUNICATION
Funding Organizations Look at Communications a
A Selected Bibliography on Health Communication
A Health Campaign in Zaire, No.50, p.1
Addressing Health Communication in Africa, No.50
Comic Books Carry Health Messages to Rural Childr
Social Marketing Strategies for Diarrheal Disease Workshop, No.41, p.7

HEALTH EDUCATION
Supporting Health in Swaziland, No.54, p.3
Reaching Mothers in Swaziland: Preliminary Findir
A Focus on Behavior: The Role of Health Practices S
Funding Organizations Look at Communications a
A Health Campaign in Zaire, No.50, p.1
Mass Media in Peru Promotes "Responsible Parenth
Addressing Health Communication in Africa, No.50
Comic Books Carry Health Messages to Rural Childr
Breaking the Cycle, No.41, p.10

HEALTH SERVICES
Two-Way Radio for Rural Health Care Delivery, No.
A Focus on the Consumer: Social Marketing for Cha
A Nutrition Prescription for the Dominican Republi
Sharing Information for Rehabilitation in the Third
Microcomputers and Health Improvement in Develo

INFORMATION CAMPAIGNS
Music Carries the Message to Youths, No.53, p.1
Communication for Improved Health Services, No.5
Communication Works Across Cultures: Hard Data
Reaching Mothers in Swaziland: Preliminary Findir
Saving Children's Lives: A Communication Campaig

INFORMATION DISSEMINATION
A New Source of Information on Latin American E
The A.T. Microfiche Reference Library: Information

INFORMATION NETWORKS
Linking Knowledge Systems in the South Pacific, No
DCFRN: A Radio Network for Small Farmers, No.52,
Formative Evaluation in Educational Radio and T No.44, p.3

INFORMATION SERVICES
DCFRN: A Radio Network for Small Farmers, No.52,
A New Source of Information on Latin American E
Sharing Information for Rehabilitation in the Third
Microcomputer-Based Information: Big Rewards for

INTERACTIVE RADIO
From Nicaragua to Thailand: Adapting Interactive
Two-Way Radio for Rural Health Care Delivery, No.
Kenya's Radio Language Arts Project: Evaluation R
A Model for Interactive Radio Lessons: The Radio M
Interactive Radio and Educational Development: A
The Radio Language Arts Project: Adapting the Rad
Selected Bibliography on Instructional Radio, No.49
Teaching Where There Are No Schools, No.49, p.5
Evaluations of Three Interactive Radio Projects, No
Interactive Radio Cost Estimates, No.49, p.12
The Fourth R – (Interactive) Radio, No.49, p.13
Interactive Radio in the Classroom: Ten Years of Pr
The Radio Mathematics Project: New Examples of T

LITERACY
Video in the Village, No.53, p.7
Literacy Work in Peru, No.46, p.14
Africa's Search for Communication Technologies for p.3
Mexico's National Literacy Program, No.43, p.15

e a Two-Way Exchange, No.40, p.5
ians Tulubungwa, No.40, p.16

nsive to be Good, No.47, p.4

African Countries, No.40, p.7

ealth, No.51, p.10
ials, No.51, p.12

Honduras, No.41, p.3
ol Programs: PAHO "Communications for Health"

a Child Survival Program, No.51, p.7
, No.51, p.7
ealth, No.51, p.10

No.50, p.7

Honduras, No.41, p.3

5
No.51, p.6
51, p.15
l, No.46, p.1
Countries, No.46, p.16

RT, No.51, p.3
a Child Survival Program, No.51, p.7
Egypt, No.51, p.13

on, No.50, p.11
You Need It, No.46, p.12

1

on: A Fundamental Need in Developing Countries,

on, No.50, p.11
l, No.46, p.1
l Agencies, No.40, p.6

Instruction, No.52, p.5

No.51, p.17
atics Project, No.49, p.1
view, No.49, p.1
hematics Model, No.49, p.3

1

uccess, No.48, p.4
ogy Transfer, No.45, p.1

ation: A Reflection of Problems and Prospects, No. 43,

Kenya Explores New Ways of Producing Literacy Materials for Basic Education, No.42, p.4
Radio Improving the Status of Women in Nepal, No.41, p.5

LOCAL PARTICIPATION

Training Broadcasters: The Amoz Gibson Training Centre, No.54, p.5
Participatory Radio in Arequipo, No.52, p.9
Radio Santa Maria: A Case Study of Participatory Evaluation, No.48, p.1
Message From Puno: Radio Onda Azul, No.48, p.8
Villagers Teaching Us to Teach Them, No.43, p.6
Rural Development Through Puppetry, No.42, p.5
Community Radio Thriving in Ecuador: Otavalo Indians Running Their Own Show, No.40, p.11

MASS COMMUNICATIONS

Communication for Improved Health Services, No.51, p.1
The Colombian National Immunization Crusade: Coordination and Communication, No.51, p.20
Mass Media in Peru Promotes "Responsible Parenthood", No.50, p.7
The Pan-African News Agency: A Preliminary Assessment, No.50, p.16
The School Classroom and the Radio Classroom, No.45, p.3
Perspectives in Communication Problems in the English-Speaking Caribbean, No.45, p.16
Agricultural Extension and Mass Media, No.44, p.16
Extension and Communications in Nepal: Reforestation Program Uses Media Support, No.40, p.1
Time for a New Approach to Population Communication, No.40, p.10

MATERIALS DEVELOPMENT

Learning to Use Visual Training Materials, No.52, p.3
Spreading Good Ideas: Adapting Illustrated Materials, No.48, p.3
Kenya Explores New Ways of Producing Literacy Materials for Basic Education, No.42, p.4
Comic Books Carry Health Messages to Rural Children in Honduras, No.41, p.3
Printed Cloth Posters: Practical Communications Tool for African Countries, No.40, p.7

MESSAGE DESIGN

Supporting Health in Swaziland, No.54, p.3
Formative Research: Pretesting, Revising, and More Pretesting, No.51, p.9
Saving Children's Lives: A Communication Campaign in Egypt, No.51, p.13
Spreading Good Ideas: Adapting Illustrated Materials, No.48, p.3
The Measure, the Problem: Communication at Work in Ecuador, No.48, p.7

MICROCOMPUTERS

Microcomputer Update, No.50, p.13
Microcomputers for Education in the Developing Countries, No.47, p.1
Microcomputers and Health Improvement in Developing Countries, No.46, p.16
Two Thoughts on the Use of Microcomputers in Developing Countries, No.44, p.11
The Future of Computers in Education in the Developing World, No.43, p.2
Computers Come to the Aid of Planners: New Software Package Available, No.41, p.4
Microcomputer-Based Information: Big Rewards for Small Agencies, No.40, p.6

NONFORMAL EDUCATION

The Radio Mathematics Project: New Examples of Technology Transfer, No.45, p.1
RADECO: Radio-Based Primary Education in the Dominican Republic, No.42, p.1

NUTRITION EDUCATION

Taking Video on the Road in the Philippines, No.53, p.5
A Communication Strategy to Improve Nutrition in Indonesia, No.51, p.5
A Nutrition Prescription for the Dominican Republic, No.51, p.15
Resources for Infant and Maternal Nutrition, No.50, p.15
South Pacific Islanders Use Satellites in Nutrition Communication, No.41, p.10

OPEN BROADCASTING

Colombia Could Have the Biggest School in the World, No.53, p.13

ORAL REHYDRATION THERAPY

Communication Works Across Cultures: Hard Data on ORT, No.51, p.3
A Focus on the Consumer: Social Marketing for Change, No.51, p.6
A Guide for Primary Health Care: The MEDEX Series, No.51, p.19
The Measure, the Problem: Communication at Work in Ecuador, No.48, p.7
Social Marketing: Two Views, Two Opportunities, No.47, p.1
An Overview and Guide: Planning Instructional Radio, No.45, p.1

POLICY MAKING

A.I.D. Development Communications, No.47, p.5
Policy Considerations in Global Telecommunications, No.46, p.1

POPULATION COMMUNICATION

Music Carries the Message to Youths, No.53, p.1
Visual Communication Training for Family Planning Workers, No.52, p.3
Addressing Health Communication in Africa, No.50, p.13
IEC Planning: Eight State-of-the-Art Principles, No.44, p.6
Time for a New Approach to Population Communication, No.40, p.10

PRETESTING
Formative Research: Pretesting, Revising, and More Pretesting, No.51, p.9
A Health Campaign in Zaire, No.50, p.1
Mass Media in Peru Promotes "Responsible Parenthood", No.50, p.7
Spreading Good Ideas: Adapting Illustrated Materials, No.48, p.3
IEC Planning: Eight State-of-the-Art Principles, No.44, p.6

PRIMARY EDUCATION
A Model for Interactive Radio Lessons: The Radio Mathematics Project, No.49, p.1
Interactive Radio and Educational Development: An Overview, No.49, p.1
The Radio Language Arts Project: Adapting the Radio Mathematics Model, No.49, p.3
The Fourth R – (Interactive) Radio, No.49, p.13
From Oral Traditions to Elementary Textbooks: A Description of the Maternal Languages Project in Niger, No.44, p.1
RADECO: Radio-Based Primary Education in the Dominican Republic, No.42, p.1

PRIMARY HEALTH CARE
Women, Communication, and Primary Health Care, No.54, p.11
Communication for Improved Health Services, No.51, p.1
A Communication Strategy to Improve Nutrition in Indonesia, No.51, p.5
A Guide for Primary Health Care: The MEDEX Series, No.51, p.19
The Colombian National Immunization Crusade: Coordination and Communication, No.51, p.20
South Pacific Islanders Use Satellites in Nutrition Education, No.41, p.10

PRODUCTION TECHNIQUES
Training Broadcasters: The Amoz Gibson Training Centre, No.54, p.5
Documentary on DSC Shows TV Doesn't Have to be Expensive to be Good, No.47, p.4
Field Research in Botswana Leads to More Relevant Media Production, No.42, p.3

PROJECT MANAGEMENT
Evaluation: Past and Present, No.52, p.1
Computers Come to the Aid of Planners: New Software Package Available, No.41, p.4

RADIO FORUMS
Participatory Radio in Arequipo, No.52, p.9
Wonsuom: A Rural Communication Project in Ghana, No.47, p.3
Community Radio in Ecuador Meeting People's Needs, No.42, p.16

REFERENCE MATERIALS
A Selected Bibliography on Health Communication Materials, No.51, p.12
A Guide for Primary Health Care: The MEDEX Series, No.51, p.19
Microcomputer Update, No.50, p.13
Resources for Infant and Maternal Nutrition, No.50, p.15
Selected Bibliography on Instructional Radio, No.49, p.4
Results of DCR Reader Survey, No.47, p.15
The A.T. Microfiche Reference Library: Information When You Need It, No.46, p.12

RURAL DEVELOPMENT
Where in the World are Radios? No.54, p.1
Influencia de la Comunicación en El Campo, No.54, p.15
Wonsuom: A Rural Communication Project in Ghana, No.47, p.3
Growing More Rice in Sierra Leone: Baseline Survey Guides Media Campaign, No.46, p.3
Community Radio in Ecuador Playing Local Music, Strengthening Local Ties, No.44, p.4
Field Research in Botswana Leads to More Relevant Media Production, No.42, p.3
Rural Development Through Puppetry, No.42, p.5
Community Radio in Ecuador Meeting People's Needs, No.42, p.16
Community Radio Thriving in Ecuador: Otavalo Indians Running Their Own Show, No.40, p.11
Villages: The Forgotten Resources, An Interview with Revelians Tuluhungwa, No.40, p.16

SATELLITE COMMUNICATIONS
Transcending Barriers: SHARING Satellite Technology, No.54, p.1
Satellite Technology: A Vehicle for Health Care, No.54, p.16
Instruction by Audio Conference: An Alaskan Example, No.48, p.1
South Pacific Islanders Use Satellites in Nutrition Communication, No.41, p.10
Foreign Television by Satellite Enhances Language Studies in the USA, No.41, p.16

SCRIPTWRITING
Making an Agricultural Video, No.53, p.3
Radio Training: Who for What? No.45, p.6

SOCIAL MARKETING
Communication Works Across Cultures: Hard Data on ORT, No.51, p.3
A Communication Strategy to Improve Nutrition in Indonesia, No.51, p.5
A Focus on the Consumer: Social Marketing for Change, No.51, p.6
Saving Children's Lives: A Communication Campaign in Egypt, No.51, p.13
Commercial Cinema: A Medium for Development Communication, No.50, p.5
Social Marketing: Two Views, Two Opportunities, No.47, p.1
Social Marketing Strategies for Diarrheal Disease Control Programs: PAHO "Communications for Health" Workshop, No.41, p.7

TELECOMMUNICATIONS
Training African Communicators: A Message to Media Trainers, No.48, p.11
Policy Considerations in Global Telecommunications, No.46, p.1

TELECONFERENCING
Satellite Technology: A Vehicle for Health Care, No.54, p.16
Instruction by Audio Conference: An Alaskan Example, No.48, p.1

TELEMEDICINE
Transcending Barriers: SHARING Satellite Technology, No.54, p.1
Two-Way Radio for Rural Health Care Delivery, No.51, p.5

TRAINING
Training Broadcasters: The Amoz Gibson Training Centre, No.54, p.5
A Media Use Survey in Malaysia, No.54, p.6
Video: A Development Tool for Women, No.53, p.4
My Experience Teaching Video in the Maldives, No.53, p.9
Learning to Use Visual Training Materials, No.52, p.3
Visual Communication Training for Family Planning Workers, No.52, p.3
Training African Communicators: A Message to Media Trainers, No.48, p.11
The Training and Demonstration System of Agricultural Extension: A Nigerian Experience, No.47, p.7
Field Experience in the Gambia: Screening and Training Fieldworkers, No.47, p.11
An Overview and Guide: Planning Instructional Radio, No.45, p.1
Nyegezi School of Journalism Spearheads Training of Development Communicators, No.45, p.2
Radio Training: Who for What? No.45, p.6
Numeracy Project Makes New Use of Pocket Calculators, No.44, p.11
The Future of Computers in Education in the Developing World, No.43, p.2

VIDEOTAPE RECORDINGS
Making an Agricultural Video, No.53, p.3
Video: A Development Tool for Women, No.53, p.4
Taking Video on the Road in the Philippines, No.53, p.5
Video in the Village, No.53, p.7
My Experience Teaching Video in the Maldives, No.53, p.9

VISUAL COMMUNICATION
The Purpose of Visuals, No.52, p.1
Visual Communication Training for Family Planning Workers, No.52, p.3
Villagers Teaching Us to Teach Them, No.43, p.6
Using Puppets to Teach Ideas, No.40, p.3

VISUAL LITERACY
The Purpose of Visuals, No.52, p.1
Formative Research: Pretesting, Revising, and More Pretesting, No.51, p.9
Villagers Teaching Us to Teach Them, No.43, p.6
Mexico's National Literacy Program, No.43, p.15

VISUAL MEDIA
The Purpose of Visuals, No.52, p.1
Learning to Use Visual Training Materials, No.52, p.3
Commercial Cinema: A Medium for Development Communication, No.50, p.5
Printed Cloth Posters: Practical Communications Tool for African Countries, No.40, p.7

WOMEN IN DEVELOPMENT
Women, Communication, and Primary Health Care, No.54, p.11
Video: A Development Tool for Women, No.53, p.4
Radio Improving the Status of Women in Nepal, No.41, p.5

WORKSHOPS
Video in the Village, No.53, p.7
Social Marketing Strategies for Diarrheal Disease Control Programs: PAHO "Communications for Health" Workshop, No.41, p.7

Women, Communication, and Primary Health Care

by Elayne Clift

Women provide more health care than all the world's health services put together, according to United Nation's data.

Women are often the innovators and opinion leaders responsible for successful diffusion of new health practices in developing countries.

Women's health and status are intricately related to the health of all persons, especially children.

The above points often can be lost or muted in development communication planning, implementation, and evaluation. Conversely, when they are integrated into the complex process of communications designed for primary health care in developing countries, outcomes can be vastly improved. Closer examination of each point sheds light on this perspective.

According to United Nation's findings, hospitals, clinics, and health programs are less vital to the world's health than are the actions of women, whose key role in the home enables the rest of the world's inhabitants to eat and drink, to live in a warm, clean environment, and to work outside the home for wages. When illness strikes a family, a mother's intervention is essential: it is the mother who must recognize and treat common diseases, or make the decision to seek outside help. Women have thus become the principal targets and beneficiaries of global programs to prevent disease and to promote health. This emphasis is especially evident in recent programs to promote child survival, using techniques such as oral rehydration therapy (ORT), immunization, growth monitoring, breastfeeding, and child spacing.

Discovering the Key

Women, therefore, play a key role in executing the primary health care approach and in diffusing new health innovations. In the social marketing model of diffusion, the user's perception, preference, and satisfaction are crucial factors in terms of health behavior. Cultural sensitivity and a sound knowledge of the audience are extremely important. For this reason, it is essential that opinion leaders come from the target group.

Dr. Maybelle Arole understood this when she created what is now recognized as a model primary health care program in the Indian state of Maharashtra. When the program began, trained Indian nurses were sent into villages to work, but these nurses were rejected by the local villagers because they were not indigenous to the community. Dr. Arole decided that villagers should choose a woman from among themselves – an opinion leader – to be trained as a primary health care worker for her own village. During weekly instructions, the selected women eagerly learned about family planning, maternal and child health, nutrition, and sanitation. They carried this new knowledge back to the other women in their own villages. Through these interpersonal channels, a new health innovation – a cadre of locally trained village workers delivering primary health care – has been built up to a current ratio of 1:1000 people. The program now extends to over 200 villages, accounting for a population of more than 350,000. This woman-to-woman, door-to-door transfer of information has led to 98 percent of the state's children being immunized, pregnant women receiving regular pre- and post-natal care, dramatic drops in infant mortality and morbidity, and elective sterilization, in most cases, after two children.

Carrying the Message

While health has traditionally been a somewhat reluctant partner of communication, it is increasingly recognized that much health care activity is a form of communication between health providers and health receivers, and not just the provision of drugs and acute care administered in clinical settings.

A growing appreciation for the role of communication in health delivery in developing countries has led to expanding health education activities referred to as the *public health communication approach*. This approach attempts, in a pre-defined period of time, to change a particular set of behaviors in a large audience which has a specific health problem.

> *"...credibility with rural women...was a key element in the success of this effort."*

Here again, women have played a key role in delivering public health messages. In the Gambia, for instance, Executive Producer Ami Joof worked with the country's leading female radio announcer, Maimuna Bah, to produce a series of programs for Radio Gambia. In a program called "Hospital Request," Bah visited rural hospitals and conducted spot interviews with patients. Often, this was the only way for patients to communicate with their families who were many miles away. Bah also conducted another radio program, "For Women Only," during which she provided practical advice about subjects such as child care and personal hygiene, as well as the proper mixing of sugar, salt, and water for oral rehydration therapy. Maimuna Bah's credibility with rural women, and her understanding of their vocabulary and experience was a key element in the success of this effort.

Other women, working primarily within non-profit educational organizations, have been instrumental in assisting host government counterparts to design and implement appropriate public health communication campaigns. In many countries, illiterate women are successfully producing radio programs and instructional videotapes to be shared with other women. Still other women serve a critical function in the evaluation of messages designed for health; it is often their insight through focus groups, surveys, and questionnaires that helps planners to understand why a project is not working.

Women's Health Status

Women are receiving increased recognition for their contributions in the technical fields of health and for their role as caregivers. What is less well recognized is the relationship of women's personal health status and societies' role in the World Health Organization's goal of "Health For All by the Year 2000." The commitment to saving children's lives is encouraging, and the techniques used to meet the goal are impressive. But has enough thought been given to women's role and status in improving children's health?

Viewing women as extension workers within the health delivery system can be risky unless special efforts are made to understand the reality of women's lives within a developing country context. Women cannot effectively work toward child survival if they are too overworked, malnourished, and sick to deliver and raise healthy children. A woman's own health, especially her nutritional status, is a key determinant in her child's survival. Even with the strongest will in the world, women may lack time, energy, or understanding to do their part in providing primary health care for their children. It is not always easy to prepare special foods in addition to regular meals, or to leave the field to take a child to a health center for immunization or weighing.

Women's skills, creativity, and leadership ability are unquestionably needed in development communications aimed at health interventions. Therefore, it is in the interest of all that women's personal health status be improved and maintained along with that of their children's. The continued success of communication programming to ensure health for all can best be accomplished when women are recognized as active participants and change agents, as well as beneficiaries. ■

★★★

The author wishes to acknowledge the contribution of Bernadette Orr of the National Council for International Health, to this article.

Elayne Clift is Associate Director of HEALTHCOM, an international health communication project, at the Academy for Educational Development, Washington, D.C. This article is adapted from her paper: "Diffusion and Development: Women, Media and Primary Health Care in the Third World" (in press).

A Communicator's Checklist

1

Methods of Communication Planning, John Middleton and Dan Wedemeyer, editors (Paris: Unesco, 1985) 487pp.

Methods of Communication Planning is Unesco's third monograph on communication planning. This edition was prepared by the East-West Communication Institute, Honolulu, Hawaii.

The need for efficient use of resources and the importance of systematically planning ahead are irrefutable. The question is, what planning methods are appropriate for the design and management of communication projects in developing countries? This book suggests using the method of systems analysis and its derivatives such as: resource assessment, trend extrapolation, the Delphi technique, scenarios, simulation and gaming, cross-impact analysis, input-output analysis, zero-based budgeting, and goal achievement matrices.

The book begins well with two chapters by Middleton presenting definitions and a sensitive conceptual framework. These introductory chapters rightly stress that the nature and methods of communication planning in developing countries should reflect the nature of their social, economic, and political conditions. Would that the methods prescribed in the subsequent 21 chapters provide supporting evidence on the appropriateness of this methodological technology. Actual experiences with its use, given the constraints on the availability of technologically skilled human resources and information data bases, are lacking.

The question is asked: What basic requirements must be met by users of systems analysis techniques in communication agencies? First, systems analysis requires large amounts of reliable, quantitative data, and hence good data collection and data analysis mechanisms. Many developing countries do not have accurate birth and mortality statistics. Wedemeyer's successful use of trend extrapolation to estimate probability of occurrence of electronic shopping in the U.S., Satia's use of *estimate* rather then real data, and the large number of illustrative *imaginary hypothetical* cases used in this book speaks loudly of the lack of experience with these methods in developing country communication planning.

The book recognizes the limitations of systems analysis approaches that are preoccupied with efficiency criteria, but it does not deal with it other than to say, "In the Third World, the absolute need for efficient use of resources can lead to unequal access to communication resources in society, and the use of communication for domination and exploitation." Systems analysis methods demand quantification; if a dimension of the problem is not quantifiable, it is not counted. Thus, reliance on systems analysis alone can lead to quantitative conceptualizations of communication, even though communication and its financing are essentially social, political, and economic in quality.

Therefore, it is with relief that I turned to the chapters on the more inclusive data collection methods and planning tools such as brainstorming, planner's workshops, suggestions for interorganizational coordination, and the case study and sample surveys presented by those who had used them in developing-country settings.

Written in technical terms, for the most part, *Methods* illustrates the transfer of systems analysis techniques to the civilian communication sector in developing countries. Systems analysis originated in the unique political environment of developed-country defense and aerospace establishments with methods drawn from engineering, math, statistics, and economics. The approach has been applied to public policy and planning in the U.S., and has been found wanting. *Methods of Communication Planning* presents a prescription for developing country communications without significant in-country trials. Middleton's introductory framework deserved to be followed up by readable documentation of planning attempts made by communication practitioners operating within developing country constraints as illustrated by some of the contributors, particularly Beal, Domingo, Herms, and Dissanayake. ■

Available in the U.S. for $37.25 plus 5 percent for postage, from Bernan/Unipub, 10033 F, Martin Luther King Highway, Lanham, Maryland 20706, USA, or from Unesco booksellers worldwide.

Reviewed by Bella Mody, currently teaching Telecommunications at Michigan State University. She participated in the Indian Satellite Instructional Television Experiment (SITE), and has worked in Nepal, Thailand, Malaysia, and other developing countries, specializing in the design and evaluation of media systems.

2

Media Education, by Zaghloul Morsy, editor (Paris: Unesco, 1984) 406 pp.

Bringing together the work of 25 writers representing 16 countries, the editor of *Media Education* has assembled a group of articles that focus on a major problem in education today, as succinctly stated in the preface:

> ...all over the world, there coexist two sources of information and knowledge for school-age children. There is the traditional school, that of writing and books ... facing it, around about and all pervading, is the "parallel school" of the media, whose techniques, operation, modes of presentation, and even content are completely different from those of the school and which subject the intelligence, the emotions, and the moral character to a substantial influence that is not always in keeping with the aims pursued by education.

The first two sections of this book discuss some of the relationships between formal education and media from several points of view. It is pointed out that the traditional concept of mass media is no longer adequate, since the process of education must be considered as related to the use of videotape recorders and satellites. It is suggested that the roles of the two parallel schools should reflect three criteria: the need for communication, the individual's mental development, and the individual's preparation for work.

The third section considers some teaching and learning strategies that might be considered in integrating the parallel schools. Some of these are that:

- It is important to know more about mass media and the roles they can play in the education process.
- Audiovisual materials can help learners absorb and integrate new information.
- Computers offer new possibilities in information storage and retrieval for education.
- Information from mass media must be integrated with school curricula.

Sections four and five address communication activities and programs that have been successful in Europe, Asia, and the Americas. Examples are taken from Norway, Switzerland, Finland, Australia, Brazil, Cuba, Japan, France, and the United States.

In section six, focusing on developing countries, India is used as an example where the media have tended to channel information and entertainment to urban and wealthy rural residents. India's high hopes that mass media would play an important role in aiding development have not yet been fulfilled.

Two questions are raised in a discussion of mass media and the transmission of values. What is the power of media in transmitting foreign values to school-age children, and do these values conflict with those that are fostered in the formal educational system? The author notes the importance of introducing media education into the schools in order to reduce the disparity between the two value systems.

In the final section, the differences between education and mass media are discussed. The writer concludes with the point that new technologies, the availability of additional broadcast channels, interactive systems, reduced costs, and other factors will enter into the picture in the next decade, but that changes will come through the educational system, not through technological developments.

It is not possible to fully summarize the variety of facts and opinions presented in *Media Education*. Many important ideas are expressed that are worth careful study by those

who are concerned about education.

One point this reviewer would make in summary, is that a major barrier to the effective use of instructional technology has been the traditional classroom system. Education, to be truly effective, must develop new structures that make optimal use of facilities, personnel, and all appropriate forms of media. ■

Available in the U.S. for $22.50 plus 5 percent for postage, from Bernan/Unipub, 10033 F, Martin Luther King Highway, Lanham, Maryland 20706, USA, or from Unesco booksellers worldwide.

Dennis W. Pett is Chairperson of the Instructional Systems Technology Program at Indiana University. He was the Chief-of-Party for a USAID/University of Indiana Communications Media Project in Nigeria.

3 Women and Media: Analysis, Alternatives and Action, K. Bhasin and B. Agarwal, editors, (New Delhi: Kali for Women, 1984) 132 pp.

Women and Media is a collection of articles which alerts development and mass media communicators that women of the Pacific and Asia regions are going to start to "fight back" and create their own media. The articles have been compiled by Isis International, an international women's information and communication service, and the Pacific and Asian Women's Forum, a network concerned with women's issues.

In Part One, several highly critical yet insightful articles assess the societal effects of development communication's and mass media's portrayal of women. In "Women, Development and Media," Kamla Bhasin, one of the editors, sets the tone for the journal. She says that development communication and mass media "reinforce the conservative view of women and ignore their economic participation and contribution...." She believes that women have been neglected because "their concerns and interests remain unarticulated." Her conclusion calls on women to create media alternatives "to inform and empower women, to get women out of their isolation."

In the second section, "Action/Alternatives," the reader learns that women are no longer "passive consumers of sexist media," but "active agents in media creation." The 13 articles in this section represent a wide array of actions and alternatives, including launching a campaign of protest against sexist, negative, and distorted portrayals of women; involving rural women in video production to make a development program more relevant to their situation; publishing a women's journal totally supported by individual donations and non-sexist advertising; and organizing "jalsas"—a special kind of public gathering at which women from all walks of life communicate their concerns and raise the consciousness of others through entertainment, speeches, and resolutions. The editors selected articles that show how women are involving other women through participatory and non-hierarchical interaction.

Over half of the articles are from India or written by Indians. As the editors explain, this reflects easier access to, and familiarity with, the people and literature of India and is "evidence there of media analyses, action for change, and alternatives." However, the remaining articles from Sri Lanka, Malaysia, Australia, Pakistan, Bangladesh, and Thailand, indicate there is much happening in other Asian-Pacific countries as well.

Unfortunately, none of the articles focus on the status of, or employment opportunities for, women in mass media and development communication. This omission leaves the reader wondering what progress, if any, has been made by women in these potentially influential areas.

As a whole, this book begins to fill the gap in media literature of the region, on the relationships between women, media, and development. There is a weakness, however, in several of the articles, particularly in the "Action/Alternatives" section, in linking examples from these three areas.

These are minor drawbacks, however, since *Women and Media* is successful in revealing how women are taking creative steps to change how they are viewed and presented by development and mass media communicators. This book gives them a good opportunity to share their strategies with women in other countries. Also included is a useful list of key women-oriented media resources and networks and a selected bibliography on women and media issues and programs. d media issues and programs

At a time when technological advances are expanding the outreach and impact of development communication and mass media worldwide, *Women and Media.* is important reading for those who are concerned with women's role in social and economic development. ■

Available in English and Spanish from Isis International, via Santa Maria dell 'Anima, 30, 00186 Rome, Italy for US$6.00.

Reviewed by Deborah Ziska, Director of Press and Media Communication for OEF International, a nonprofit development organization focusing on women in developing countries.

New Ph.D. Program at University of Hawaii

September 1986 marks the commencement of a new Ph.D. program in Communication and Information Sciences at the University of Hawaii at Manoa. This new interdisciplinary program will focus on the training of telecommunication researchers and policy analysts to serve the rapidly emerging government, business, and academic needs in these areas.

For further information contact Dr. Miles Jackson, Chairman *pro tem*, Doctoral Program in Communication and Information Sciences, Graduate School of Library Studies, University of Hawaii at Manoa, Honolulu, Hawaii 96822, USA.

(**Noted** *continued from page 4*)

related to national strategies and policies, projects and applications, education, technology, law, and impact on society. This is a colorful, well-illustrated publication printed in English, Spanish,and French. For subscription information write to IBI, 23, viale Civiltá del Lavoro, 00144, Rome, Italy. *Tecnologia Educacional*, a bimonthly journal of the *Associação Brasileira de Tecnologia Educacional (ABT)*, (Brazilian Association of Educational Technology), covers recent developments and applications in educational technologies mainly in Brazil. It is available in Portuguese only from ABT, Rua Jornalista Orlando Dantes, 56 Botafogo, 22231 Rio de Janeiro, RJ, CEP 22231, Brazil. *Tecnología y Comunicación Educativas*, a new quarterly publication of the *Instituto Latinoamericano de la Comunicación Educativa (ILCE)*, (Latin American Institute of Educational Communication), reports on educational advancements in technology and communication in the 13 Latin American member countries of the *ILCE*. Progress in education, educational technologies, professional training, *ILCE* research, proceedings of *ILCE* meetings, and new publications are covered in each issue. This publication is available in Spanish only from: *ILCE*, Juan Luis Vives, 200-1 Col. Chapultepec Morales, C.P. 11570, México, D.F., México.

- In the past, agricultural advancements may have raised overall farm production levels in developing countries, but the improved living standards that were promised to small farmers seldom materialized. *Five Essays on Science and Farmers in the Developing World*, edited by Steven Breth, is a collection of scholarly papers that examines how science and technology can be tailored to address farmers' needs in a way they can understand and afford. The essays raise such points as: the need for new technologies to be integrated into existing socio-economic systems rather than into the pedogogy of natural science; that development planners need to prepare logical and systematic plans; that the diminishing returns of some agricultural research may not warrant continued funding; and that scientists and decision-makers should recognize that farmers know their own environment well, and can contribute valuable information that will improve the effectiveness of new technologies. Available in English from Winrock International Institute for Agricultural Development, Route 3, Morrilton, AR 72110, USA. ■

Communication Tech Conference

Between August 25th and 30th, 1986, the International Association for Mass Communication Research will be holding its Fifteenth Conference and General Assembly in New Delhi, India. The session's theme is *"Communication Technology, Development, and the Third World."* In a coming issue of *DCR*, we will report on the proceedings of the Conference as information becomes available.

Influencia de la Comunicación en el Campo

DCR has frequently received requests for foreign-language translations of its articles. Although we cannot translate the entire newsletter, we will, as we have below, carry Spanish or French language articles from time to time, to more widely disseminate information on the impact and uses of communication technologies in developing countries.

by Mario Villarroel Terán

En apariencia, no obstante las medidas de orden social y económico resultante de una reforma agraria, el altiplano boliviano no ha cambiado. Y así parece, porque los cambios que allí se producen no resaltan a la visión simple de aquellas personas que tan sólo atraviezan los caminos que surcan la inmensa altiplanicie.

Sin embargo, para el observador acucioso que, desviándose de los caminos principales, se adentra por los senderos que conducen a las aldeas, villorrios y pueblos donde habita el campesino aymara, verá que el panorama está realmente cambiando, que se está operando una transformación positiva, especialmente en los modos o formas de vida de ese campesino.

Observará, por ejemplo, que las llamas y asnos tradicionalmente utilizados como animales de carga, fueron sustituidos por bicicletas y camiones, vehículos en los que hombres y productos de la tierra son transportados con mayor rapidez.

A su vista se le ofrecerá una nueva faceta de la forma de vivir del campesino que, por fin, está dejando la triste, antihigiénica y rústica vivienda, para reemplazarla por otra de líneas modernas, un tanto más confortable y dotada de ventanas que, antes de ahora, eran consideradas como los puntos de entrada de las enfermedades y de entes o espíritus malignos.

Se sorprenderá de ver que el campesino aymara, ya no es el elemento huraño y estático, carente de ambiciones y ansias de progreso, sino que se ha convertido en una de las fuerzas más vigorosas con que cuenta Bolivia para su desarrollo.

Una Escena que Cambia Paulatinamente

Y en ese incesante cambiar de las cosas que está ocurriendo en el ámbito rural del altiplano, no es raro observar que colgado del yugo al cual van uncidos los animales que tiran el ancestral arado de palo, va un radio-receptor, a través del cual llega hasta el campesino una serie de mensajes que, la mayoría, son emitidos en su idioma nativo.

La temática de esos mensajes se refiere a la agricultura, ganadería, salubridad, mejoramiento del hogar, alfabetización y extensión agrícola, aunque ello en menor proporción en relación al contenido publicitario en pro de artículos de diferente índole.

Este nuevo aspecto en la vida del campesino aymara, se debe en cierto sentido, al advenimiento del "transistor," ese maravilloso invento japonés que hizo posible que el radio, antes de difícil acceso al campo por las limitaciones emergentes de la falta de electrificación rural, llegue hasta los más recónditos lugares del altiplano, venciendo las barreras del analfabetismo y las distancias, cumpliendo su finalidad de informar, entretener y promover la acción de la gran masa de oyentes campesinos.

La Radio, Instrumento de Educatión

Entre los campesinos, el que menos o el que más dinero dispone, poseen radios y aún los menos favorecidos por la fortuna, recurren hasta aquellos hogares donde el punto de atracción e interés es el receptor de radio transistorizado. Alrededor de ese aparato se reunen grupos, unas veces de amable conversación y otras, de interesante cambio de opinión respecto a los mensajes que les entregan los "comunicadores de la radio".

Instituciones educativas, servicios de promoción social y económica, organismos religiosos y otras entidades, estatales y privadas, han volcado su interés al uso de la radio, para hacer de ella uno de los instrumentos más importantes y eficientes en la educación de los grandes conglomerados campesinos que, en Bolivia, constituyen la mayoría de la población.

Escuelas que Surcan el Espacio

En Bolivia funcionan varios sistemas de escuelas radiofónicas que poseen modernos y poderosos transmisores que cubren grandes áreas del territorio nacional. Numerosos centros de alfabetización funcionan a lo largo y ancho de la extensa meseta andina, atendidos por un guía o "monitor" a quién bien podríamos llamarlo "líder" de la comunicación educativa por radio.

Los programas de alfabetización por radio, están demostrando el alcance y eficacia de este instrumento de comunicación que no solamente está siendo utilizado en esos fines, sino que sus contenidos programáticos incluyen diferentes temas, entre ellos preponderantemente la agricultura y ganadería.

Canales para Divulgación Agropecuaria

Si bien no dependientes directamente de organismos creados para atender los problemas del subdesarrollo agrícola, funcionan en Bolivia, programas que se encargan de divulgar e informar conocimientos tecnológicos sobre agropecuaria, cuyo objectivo fundamentalmente es orientar y motivar al campesino hacia la adopción de técnicas para un mejor uso de la tierra y de los recursos naturales que pródigamente nos ofrece.

Trabajando para y en esos programas, han empezado su actuación campesinos genuinos en calidad de "periodistas." No es raro encontrar algun de ellos realizando entrevistas mediante la utilización de una grabadora magnetofónica, para utilizar después ese material en programas radiales que tienen un diseño muy suigeneris y propio de ellos.

Los campesinos no sólo han incursionado en el campo del periodismo propiamente dicho, sino que otros se han situado en el papel de locutores, libretistas, guionistas y otras tareas propias de la utilización de la radio. Existen interesantes conjuntos de radioteatro que utilizan este género para difundir contenidos educativos. Lo interesante de la programación radial campesina e incluso suburbana, es que se utiliza exclusivamente el idioma nativo de aquellos para quienes va dedicado el esfuerzo educativo.

Al igual que la radio, otros canales de comunicación están actuando masivamente en la adopción de cambios. Y los comunicadores, considérense profesionales o meros amantes del arte de la comunicación, vienen contribuyendo de manera importante a los propósitos de desarrollo socio-económico. Y en ese dramático, como apasionante proceso le toca al campesino el doble papel de gestor y actor, roles que los cumple con un sentido altamente positivo.

Sin embargo, para que la acción educativa sea más eficiente, se requiere preparer a los comunicadores que hacen uso de la radio, capacitarlos para un mejor desempeño de su trabajo y el uso de la tecnología de comunicación.

En suma, que el maravilloso y eficaz instrumento de la comunicación, como es la radio, sea utilizado como verdadero medio de educación, mediante el cual se pueda promocionar y luego conseguir cambios favorables en los modos de vida de los campesinos aymaras que habitan la gélida altipampa boliviana.■

Mario Villarroel Terán, Director General de Comunicación Social y Técnica del Ministerio de Agricultura de Bolivia, tiene 20 años de experiencia en programas de extensión agrícola para beneficio de campesinos bolivianos.

(The following is an abstract of the preceding article.)

The Influence of Communication on the Countryside

The lives of Aymaran peasants of the altiplano region of Bolivia have been changed by the adoption of new health and farming practices. Radio has played a major role in bringing about this change. Radio broadcasts now reach into the most isolated areas of the altiplano, overcoming barriers of illiteracy and distance, informing, entertaining, and promoting social action among the peasant audience. Most Aymarans have access to a radio which often serves as a gathering point where they exchange ideas and opinions about the social messages they hear. Therefore, radio has dramatically increased interchange among these people, and is seen as a solidifying force in their communities.

Educational institutions, social and economic service groups, religious organizations, and other public and private entities have begun using radio to educate and inform the Aymarans who make up the largest segment of the

(Continued on page 16)

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include a collection of papers delivered at a conference on nutrition education, instructions for easy-to-make aids for nutrition teaching and learning and a bibliography of materials on curriculum development in population education. *All of these documents are available in microfiche, and two are also available in paper copy, from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Avenue, Alexandria, Virginia 22304, USA. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs may be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.*

● Turner, Sheila, and Ingle, Richard, Eds. *New Developments in Nutrition Education. Nutrition Education Series, Issue 11.* 1985, 235 pp. (ED 261 981).

This monograph is an edited collection of some of the papers presented at the conference on "New Developments in Nutrition" held in London in 1983. One of the strengths of the conference was the diverse background of the participants, who represented more than 30 different countries. This diversity of interest and expertise is reflected in the papers, which examine a wide range of important issues in nutrition education. Discussions are included on the effectiveness of traditional nutrition education activities which have taken place outside the education sectors, and experiences are reviewed which included extensive experimentation with new and different approaches, attitudes, and behaviors. The following issues and problems are addressed: (a) the importance of nutrition education; (b) teaching approaches; (c) teaching resources; (d) the training and education of teachers and individuals; (e) use of mass media; (f) coordination of education agencies; (g) national and local level food and nutrition policies; and (h) evaluation of nutrition education. Descriptions of programs making use of videotapes and radio in Thailand, and mass media in Chile are included. Available from EDRS in microfiche only for 75 cents; paper copy available from the Division of Science, Technical, and Environmental Education, Unesco, 7 place de Fontenoy, 75700 Paris, France.

● Barclay, Ellen and Van der Vynckt, Susan, *Easy-to-Make Teaching Aids for Nutrition Teaching-Learning. Unesco Nutrition Education Series, Issue 10.* 1984, 132 pp. (ED 261 772)

This issue of the *Unesco Nutrition Education Series* presents a sampling of ideas for teaching aids created from experiences in developing countries and is representative of materials currently being compiled for the fourth volume of the Unesco resource pack for nutrition teaching-learning. The selection of easy-to-make teaching aids is designed for persons interested in trying out innovative ways to promote effective nutrition teaching and learning. Instructions for animating teaching and stimulating learners to explore the important problems and issues of nutrition and health are provided. Although learner levels, teaching expertise, educational and cultural environments, and resource availability will differ from area to area, the materials included can be adapted easily to meet local needs. The teaching aids described include flannel boards and flannel graphs, flipcharts, flashcards, posters, bulletin boards, chalkboards, cardboard boxes, educational games, puzzles, drama, demonstrations, tools, and common recipes for paint, clay, and other materials. An initial explanation of the role of teaching aids and suggestions for their preparation are also provided. Available from EDRS in microfiche for 75 cents or in paper copy for US$10.80.

● *Curriculum Development in Population Education. Abstract-Bibliography, Series 6.* 1985, 112 pp. (ED 260 960).

One of a series of annotated bibliographies (compiled by the United Nations Fund for Population Activities), dealing with issues and problems raised by educators involved with population education programs, this bibliography focuses on curriculum development in this area. Entries are presented in six major categories: (a) Strategies for Curriculum Development in Population Education in the Formal Education System; (b) Strategies for Curriculum Development in Population Education in the Non-Formal Education System; (c) Development of Curriculum Materials in Specific Subject Areas; (d) State-of-the-Art on Curriculum Development in Population Education; and (e) Evaluation and Research in Curriculum Development in Population Education. While Parts One and Two deal with the general processes of developing curriculum materials in the in-school and out-of-school sectors, Part Three details procedures for integrating population education concepts into more specific subject areas. Thirteen of the 16 publications reviewed in this section focus on the subject areas of social studies, home economics, health education, environmental education, science, medical education, hygiene and physiology, biology, teacher education, and geography. The three abstracts for nontraditional education programs deal with various aspects of farm management and agricultural training courses. The publications listed document curriculum development experiences in Asia, Bangladesh, India, Malaysia, Nepal, the Pacific Islands, Pakistan, the Philippines, the Republic of Korea, and Thailand. Highlights of these reports include the conceptual framework and structure of population education, goals and objectives, population education content used in enriching selected subjects at specific grade levels, types of curriculum materials developed, teaching methodologies used, and evaluation tools used to determine the effectiveness of the curriculum materials and teacher training. Subject and geographic indexes are provided, as well as sources for the individual publications reviewed. Available from EDRS in microfiche only for 75 cents; paper copy available from the Unesco Regional Office for Education in Asia and the Pacific, P.O.Box 1425, General Post Office, Bangkok, Thailand 10500. ■

Barbara Minor is Publications Coordinator at the ERIC Clearinghouse on Information Resources, School of Education, Syracuse University, Syracuse, New York 13244-2340, USA.

Short Training Courses Offered in Bangkok

The UNDP Asia and Pacific Programme for Development Training and Communication Planning (DTCP), a Bangkok-based service unit of the UNDP, provides short training courses in media-related subjects. Some of the courses available are: "Audiovisual Production Techniques for Rural Development," "Communication Campaign Planning," and "Training, Planning, Management, and Methods." Courses run from two to four weeks, with fees from US$1,867 to US$2,910. They are open to government staff who perform training and/or communication support functions in their agencies. Ability to work in English is essential.

For registration information contact either your local UNDP Resident Representative's office or write to UNDP/DTCP, P.O. Box 2-147, 19 Phra Atit Road, Bangkok 10200 Thailand. Cable: UNDEVCOM (Bangkok).

Call for Abstracts

The National Council for International Health (NCIH) is calling for abstracts for its 1987 annual conference to be held June 14-17, 1987 in Washington, D.C. This year's conference theme is *Influencing Health Behavior: Communication, Education, and Marketing*. Subject categories include descriptions and evaluations of communication, education, and marketing (CEM) programs; designing CEM strategies; ethics of behavior change through CEM; communication vs. education vs. marketing vs. other strategies; health behaviors most susceptible to CEM strategies; institutional issues and management; market research and evaluation; training and CEM; private vs. public sector role in CEM; and schools and CEM.

The submission deadline for abstracts is November 15, 1986. For an application write to: Director of Programs, NCIH, 1101 Connecticut Avenue, N.W., Suite 605, Washington, D.C. 20036-4390, USA. Telephone (202) 833-5900.

Satellite Technology – A Vehicle for Health Training

by Norman P. Fenton

Man has long been fascinated with speed and distance, and their relation to communication. The need to relay important messages has been a concern ever since man has felt the desire to explore beyond his immediate environment.

Today, thanks to the impressive advances in satellite technology, we are able to communicate faster and in ways that, not long ago, only science fiction novels predicted were possible. In the field of health, particularly in the transfer of medical information, patient diagnoses, and continuing educational programs, it is now possible to connect facilities located in opposite corners of the world.

In January 1986, after nine months of development, Miami Children's Hospital, Miami, Florida, initiated a pilot continuing education demonstration program under the sponsorship of International Telecommunications Satellite Organizations' (INTELSAT) "Project SHARE," which has marked a new era in international medical education exchange. (See SHARE article elsewhere in this issue.) The program is composed of a series of continuing medical and health education teleconferences, each transmitting for 24 hours, over a four-day period, and is carried free of charge as part of INTELSAT's 20th Anniversary project.

Miami Children's Hospital is the first and only hospital in the United States designated as a sponsor for this worldwide project. Development of a worthwhile program called for sensitive and complex political and economic negotiating in each of the participating countries. Because of its sophisticated domestic communication network, Colombia was selected as the pilot country to receive the first transmission. Following three months of program design, the Colombian government, via their signatory, Empresa Nacional de Telecommunicaciones (TELCOM) in Bogotá, filed their request to receive our programming.

After INTELSAT's approval of the pilot program, separate negotiations began with other countries as well, including: Venezuela, Costa Rica, Chile, Peru, and the Dominican Republic. Bolivia, Ecuador, and Honduras later joined to receive delayed programming.

Course Transmission Begins

At 8 a.m. on January 27th, 1986, Miami Children's Hospital began its live satellite broadcast of the 21st Annual Pediatric Postgraduate Course, directed by Donald H. Altman, M.D. Twenty-eight specialists lectured on 40 medical topics over the 24-hour, four-day educational course. The program's one-way video, two-way audio format made it possible for physicians at the remote sites to participate in question-and-answer sessions throughout the four-day period. All sessions were translated into Spanish at the remote sites.

A video equipment truck and two satellite antennas, comprising the portable up-link facility, were taken to the Miami hotel conference site where local health practitioners had assembled for the annual course. A selected team of doctors stood by throughout the four-day course to take questions that were telephoned in from the remote sites as the course proceded. Similarly, at each remote site, antennas and portable down-link facilities were taken to the designated course facility. Teams of doctors were in place at each site where they fielded and translated questions from their respective audiences and then telephoned them to the awaiting doctors in Miami. Responses were again relayed by telephone once an appropriate specialist had been consulted in Miami. More than 3,500 pediatricians, physicians, and health professionals attended the live teleconference, with an additional 2,500 pediatricians attending the delayed program.

Evaluation

A questionnaire was prepared and sent to all participants to evaluate the effectiveness of this teleconferenced course. Responses were received from six of the nine participating countries – 675 questionnaires were returned in all. The responses, as indicated below, were overwhelmingly positive to all of the questions, each of which could be rated from poor to excellent.

Was the subject matter adequate?	87%
Was the presentation clear and adquate?	85%
Did the program enhance you professionally?	82%
Was the transmission clear and acceptable?	85%
Were the visual aids clear?	93%
Did the program have practical applicability?	87%
Was the quality of translation acceptable?	87%
Was there correlation between sound and image?	86%
Did the presentation time seem adequate?	80%
Would you attend another teleconference?	88%

This enthusiastic evaluation response was very gratifying. The successful transmission of the course has set the groundwork for an ongoing series of programs designed to disseminate life-saving medical information at a distance throughout the world.

In addition, this valuable exchange of information was accomplished at a minimal cost to its participants, as it allowed physicians and health professionals throughout the hemisphere to attend the conference without leaving their respective countries. Most remained in their home cities, which means that the course expense amounted to less than five percent of the overall expense they would have had if attending a similiar conference in the United States.

22nd Annual Postgraduate Course

Dr. Altman's annual postgraduate course will again be carried by satellite in January 1987, and will incorporate some of the latest technological advances in audiovisual transmission. It will feature two-way video, and two separate audio channels for simultaneous English and Spanish transmission. The bi-directional video will add an important dimension to the conference, as it will allow leading pediatric figures in these countries to contribute as well. Participating countries where languages other than Spanish and English are spoken will be able to translate the audio portion of the program simultaneously at their country's down-link site, and broadcast the transmission locally. Arrangements are now underway for translations into French, Italian, and Portuguese.

It is predicted that by the 1990s, satellite supported educational programs will be commonplace. With the increasing cost of attending conferences that are great distances from where health practitioners live and work, continuing education via satellite may, in the future, help to fill the gap that might otherwise be created by economic and time constraints. There are still complex issues that must be addressed before satellite conferencing can become an economical alternative for continuing education courses and other health delivery purposes, but this experiment has clearly demonstrated many of the advantages that accompany the use of this technology in the health sector. ■

Dr. Norman P. Fenton is the Director of Business Development and Telecommunications for Miami Children's Hospital. He has participated in over sixty projects related to health care in the Americas during the past fifteen years.

(**Villarroel Téran** *continued from page 14*)

Bolivian population. Radio schools and literacy centers are operating across the altiplano, regularly broadcasting educational programs. Other programs contain information that encourages listeners to adopt new agricultural techniques.

The Aymaran peasants who have worked for and in these programs have developed radio production skills and are now producing their own material, sometimes even using tape recorders in the field to collect material to use in broadcasts that they gear to their particular needs. Others have become involved in scriptwriting, program producing, and broadcasting as well. ■

dcr
Development Communication Report
Clearinghouse On Development Communication
Autumn 1986
No.55

In recent years, communicators have looked anew at the potential of print media to carry educational messages in dramatic and captivating ways. New research and new applications have shown us how effective well-planned, well-integrated, (and well-tested) print materials can be in informing both literate and nonliterate audiences. These include photonovels, comic books, illustrated booklets, rural newspapers, and posters. Developed on the spot for the local audience, using local talent, and addressing local conditions, these materials have an immediacy and an impact that hold great promise for development activities.

In this issue of DCR (and its accompanying calendar) we have shared with you some of the interesting work and projects that are using innovative print materials which have come to our attention. We hope that you, in turn, will share with us your own interesting print materials, and tell us how they are used in your programs or projects. I would like to thank Bonnie Cain for her suggestions and comments as we compiled this special issue.

Saying it with Feeling: Photonovels and Comic Books in Development

DEC 16 1986
LIBRARY

by Bonnie Cain

Photonovel: A dramatic story accompanied by captioned photographs. Comic book: A group of illustrations in a narrative sequence.

Print medium that uses either text with illustrations or drawings, or with just photographs, holds a unique place in development communication. These materials are often the only in-hand memory aid available to the poor in developing countries. Print is a medium that can also present detailed information with some complexity to an audience with limited literacy skills. When presented in the very popular format of photonovels or comic books, they can be fun and emotion-provoking as well. Although they require special skills to produce, can be expensive, and have had only a brief history as couriers of educational messages, in some cases, photonovels and comics will be the most effective format in which to present persuasive messages that can induce people to change their behavior or to take a desired action.

A photonovel or comic format contains a sequenced story told in both pictures and words, building emotional links to the story or situation through attractive characters and dramatic action. Photonovels, comic books, photo- to and comic strips, and some graphic booklets are distinct from other educational materials in that they have a story line and a set of characters going through a sequence of activities.

Special Advantages

All illustrated print materials can be used to set the agenda for public action, provide a symbolic reminder of how to do things, and make information immediately available at time of need; but comics and photonovels have special advantages that permit story writers to:

- Explore emotional subjects;
- Improve retention of messages;
- Explore cause and effect relationships;
- Introduce technical subjects in the midst of a more traditional story.

The educational photonovel or comic is a strong argument against the charge that an entertaining format dilutes a message. On the contrary, entertainment is capitalized upon to dramatize information to improve lives, to highlight the need for behavior change, and to clearly and powerfully transmit information about a product or service that is part of a larger social improvement program. This is so because:

- Audiences love a good story and will follow a plot through the driest of materials. If the audience is interested in the lives of appealing people they will learn along with them about any public health subject or educational theme.
- Audiences love to identify with dramatic characters – people who are somewhat

(*Continued on page 2*)

El Agricultor – *A Rural Honduran Newspaper*

by Carleton Corrales, Richard Martin, and Eduardo Apodaca

"Look for it, ask for it, read it, and save it."

Loudspeakers mounted on delivery vehicles announce the arrival of *El Agricultor* with the official theme song of this new newspaper that is directed toward the rural population of Honduras. For over a year now, weekly editions have been distributed to every major city in the country.

El Agricultor is thriving in an environment where print materials are virtually nonexistent. The paper is a unique exercise in private-sector sponsorship of public-sector educational efforts, and at this time it is close to breaking even based on direct sales figures.

Honduran educators know that only by making more print materials available to the rural population, will efforts in providing educational services and in adult literacy be worthwhile investments. Interesting, relevant reading material is essential if literacy skills are to be retained, improved, and used.

A Special Purpose

In 1984, a group of 26 leading Honduran businessmen and women organized a nonprofit organization called *AVANCE* to provide media-based educational services. Its first project was to publish and distribute a rural newspaper that would: 1) supply the rural literate population with helpful information; and 2) provide newly literate readers with an oppor-

(*Continued on page 2*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Saying it with Feeling 1
El Agricultor Newspaper 1
Tips on Graphics 3
Briefly Noted 4
Picture Use in Nepal 4
On File at ERIC 6
Once Upon a Time. Telling a Story 7
Communicator's Checklist 8
Visual Comprehension in Nonliterates 10
Women Learn with Visual Aids 11
Creative Choices for Latin American Photonovels and Comics . .12
Literature Review on Comics 13
Cost of Graphic Literature 14
Radio Education in the Dominican Republic 15
Why Another Handbook? 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel.(202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Assistant
William Amt, Program Assistant
ISBN0192-1312

AED
International Division
Academy for Educational Development

(**Cain** *continued from page 1*)

glamorous but not too dissimilar. Convince the audience that the people and their actions are similar to theirs and they will become increasingly drawn to the characters and more thoughtfully consider the messages.

Challenge: Sell Information

Commercial photonovels and comic books are a proven success. People buy them and read them avidly. Why are they so popular and why should an educational communicator use this format? Often it is necessary to package information so that people take the time to understand its importance. People must relate to it and believe that the prescribed actions could make their lives better.

Sometimes the telling of a story with illustrations or pictures can take a great number of pages as opposed to the same message that could have been presented in a small educational pamphlet or set of posters that directly address the issue. So why use the story line format? Research shows that a majority of people think in "story" format, and that they remember these messages better than those delivered didactically. Three features of the story line format make it a particularly good candidate for educational campaigns: 1) Stories contain analogies to real life; 2) they can carry themes within themes; and 3) they can be used to create identity. Analogies help the reader analyze the results of certain actions, to identify the cause and remember the effect. The "two-families" theme, widely used for delivering family planning messages, demonstrates the consequences of one family following the recommended activity and of the other family ignoring it.

Other peoples' lives, sexual intrigues, encounters with the supernatural – all are themes that appeal to a wide audience. The educational message may seem irrelevant to these "interesting" stories, but subthemes can be effectively woven into the drama. The theme-within-a-theme has been used effectively to present ideas that are both technical and emotional. For instance, use of contraceptives may be a difficult topic to discuss within a family in some cultures and a photonovel or comic book about contraception, read by both husband and wife, may help to spark a discussion between them.

A well-developed story evokes a response from the audience because they see it as relevant to their lives. If readers believe the story line, they are more likely to take remedial action that ends, changes, or continues a behavior. And, audiences relating well to a message tend to remember it better.

Pretesting Your Design

"Attractive" is a very subjective concept. Your material must prove to be attractive, understandable, and educational to your intended audience through pretesting. What constitutes an attractive design is defined by the culture and the specific environment in which the graphic material is used. It must be attractive to the user, not necessarily to the communicator. If photonovels are popular with adults in a specific culture, adults will be attracted to that format in hopes of a similar entertaining experience. This is where skilled illustrators and photographers serve as a vital link between author and reader.

An "attractive" design does not ensure that a viewer will understand or remember the message, even if he or she is attracted to it. Attraction, perception of a drawing, the meaning of a drawing, the educational value of a picture or sequence of pictures are audience-specific reactions. Any graphic intended for educational efforts should be pretested to determine its impact on the audience and to identify where improvements should be made. Commercial producers know when their comics and photonovels please an audience; they sell. Educational communicators have a far more ambiguous task – to measure comprehension, retention, and adoption.

Conclusion

Producing an attractive, motivating, well-paced photonovel or comic with strong, relevant characters who display realistic and identifiable behavior in stories that transmit technical information or educational messages is not an easy task. Still to be answered are the questions of determining whether or not to charge for an educational publication and how to best distribute them. (See articles elsewhere in this issue.)

All difficulties aside, photonovels and comics are rising stars in development communication. They are two of the few formats that can dramatize the dramatic and put emotion into discussion of emotional issues. ■

Bonnie Cain is president of B.J. Cain and Associates, a media-based training company. She has worked in development communication for ten years.

(**Corrales** *continued from page 1*)

tunity to strengthen their recently acquired skill. *AVANCE* has become a strong and effective institutional base for *El Agricultor*, protecting it from political pressures and providing prestige and stature that have made it a highly respected and credible medium throughout Honduras. Funding was provided by the U.S Agency for International Development with technical assistance from three affiliated organizations – the Simon Bolivar Foundation of New York, Media and Contents, Inc. (MEDCON) of Miami, Florida, and *Acción Cultural Popular* of Bogota, Colombia.

El Agricultor began publication in March 1985, and has built a weekly circulation of over 20,000. To date it has been printed as a full-sized, rather than a tabloid-sized newspaper, as are most Latin American papers. It is designed for easy and enjoyable reading – its typeface is large and writing style straightforward, and it abounds with photographs and illustrations, many of which are in color. As a weekly, it is distributed on Sunday to avoid competing directly with the national daily newspapers.

The 16-page paper is divided into two parts. The first section contains articles on rural development programs and issues. And the se-

(**Corrales** *continued from page 2*)

cond section is devoted to practical, instructive articles for rural families on topics such as health, sanitation, first aid, early childhood stimulation, breastfeeding, animal care, and cultivation of vegetables. The centerfold of each issue contains a large two-page color poster that can be removed and displayed on the wall. Posters usually contain maps or schematic drawings of scientific phonomena such as the structure of the eye or the elements of a seed.

Interesting Innovations

AVANCE intends that *El Agricultor* be self-sufficient within three years. It is sold throughout Honduras at the same price as the national urban daily newspapers. In addition to being sold to the general public, thousands of copies are purchased by *PLANALFA*, the national literacy program, which distributes it free-of-charge to literacy classes.

El Agricultor continues to explore new distribution channels to reach a larger rural audience. Distribution to rural communities is costly and large parts of Honduras have yet to be reached. One innovation being tried is promoting the newspaper through the radio. *El Agricultor* has developed a jingle – an advertising theme song that is played on the radio announcing the Sunday distribution. In addition, sound trucks drive through a marketplace playing the theme song, drawing people to the sales booth. Some radio announcers have begun to read sections of the paper to their rural listening audience.

Continuing Challenges

A recently completed evaluation shows that in just one year, *El Agricultor* has achieved wide acceptance and is regarded as an appealing and trustworthy publication wherever it is sold. Each copy is read by approximately three people, and copies are saved by readers for use as reference material. Particularly valued is the heavy concentration of information about rural life and the attractive colored graphics. However, it is not as widely used by new literates and poor farmers as had been intended. Instead, the people who buy the paper are mid-level rural professionals such as public health workers, extension agents, and schoolteachers, who average ten years of schooling.

The newspaper staff is still familiarizing itself with the needs of its audience. In the future, different types of articles will be featured to provide a break from the current serious tone of most articles. Entertainment features, in particular, should attract a larger and more diverse readership – a major goal of the newspaper.

A professional advertising sales force is being developed to address the need for more advertising revenue. Its large physical size has been an obstacle to selling advertising space because businessmen resist paying more for one quarter of a large page than they do for one quarter of a tabloid-size page. Conversion to the tabloid format is scheduled for January 1987, which will standardize advertising space rates with the four major national newspapers and should result in increased advertising revenues.

AVANCE has had an impressive first year with the establishment of *El Agricultor*. Because of the enthusiastic response by schoolteachers to the colored posters, the paper will soon direct poster topics to the national primary school curriculum. Now that *AVANCE* has launched its first project, it will go on to publish other popular print formats such as photonovels and magazines, develop a broadcasting service, and design social marketing campaigns. ■

Dr. José Carletón Corrales Calix is director of the Escuela Superior del Profesorado "Francisco Morazán" and staff of the Institute for International Research, Communications Support Project.

Richard Martin is an Education Development Officer with the U.S. Agency for International Development currently working with the El Agricultor *staff in Tegucigalpa, Honduras.*

Eduardo Apodaca is director of Vocational Education Productions at California Polytecnic State University in San Luis Obispo, California, and is a consultant specializing in the development and marketing of educational products.

Tips on Getting Started with Graphics

by John Comings

Nonprofessionals can produce graphic literature such as a comic book or photonovel with simple equipment and limited outside help. I produced my first photonovel with Bonnie Cain (see her article elsewhere in this issue) with no previous materials development experience or special equipment. If you are in a similar situation, here are some guidelines that will help you develop your own graphics.

- Your audience doesn't have to be visually literate. A nonprofessional might believe that without special knowledge about visually illiterate people, communication will be difficult if not impossible through print media. This is not the case. Some people may not understand a drawing when they first see it, but once it is explained to them, they will. Often, if people cannot read the material, they have family, a neighbor, or a community worker who can.

- You can write a story. Writing a story is easy; borrowing one is even easier. There are no new stories in the world, just variations of common human themes of conflict and resolution. Take a story from classic literature, from a folktale, or from TV and adapt it to your needs. Or, better yet, collect stories from members of the target audience.

- Your target audience can help you. The more you involve members of the audience in the design and production of your material, the more popular it is likely to be. They can help you to integrate local stories, issues, and folktales. You may find if they are directly involved in the production process, they will help to promote it as well.

- Your production process can be kept very simple. There are many different ways of drawing comics or graphics, some are quite simple. Even commercial photonovels often have simple formats and less-than-perfect pictures. The content, the characters, and the dramatic story are what attract and hold attention. I have seen effective photonovels that used poloroid photos and pictures cut from magazines and postcards.

- Pretesting simply means listening to your audience at a draft stage of production. The jargon of market research – focus groups, mall intercepts, etc. – may lead you to believe that pretesting is difficult and complicated. All you need is a small group of people from your target audience and some well-designed questions. This representative audience is asked to read the material, and to explain what it means to them, if they believe what is presented, and if they would show this to a friend. Use the answers to these questions to improve your draft. When the changes have been made in your materials, ask the same questions of a larger group.

- Set reasonable goals to avoid becoming discouraged. The social, political, and economic problems these materials address are complicated and not easily solved. Print materials can inform, educate, and change attitudes, but they will only be effective when integrated into a larger, well-coordinated effort. Evaluation of your materials should focus primarily on their popularity, their credibility, and how effectively they provide information.

John P. Comings is Senior Program Officer at World Education in Boston, Massachusetts. He has been involved in materials development, training, and adult education in the U.S. and Asia for more than 15 years.

Briefly Noted

by Robert Vittel and William Amt

• *How to Prepare Materials for New Literates*, originally published in Spanish, and now available in English and French, is a 35-page book that surveys the needs of newly literate people and demonstrates simple techniques for producing and evaluating post-literacy print materials for maintaining reading skills. Divided into four clearly and simply written sections, the book will assist literacy workers in developing print materials and services for new literates, who often lack printed materials written at a slightly higher level than basic teaching texts. Available in English, Spanish, and French for US$7 (members) and US$5 (nonmembers) from: International Reading Association, 800 Barksdale Road, P.O. Box 8139, Newark, Deleware 19714-8139, USA.

• Primary health care (PHC) is considered by a majority of health professionals to be the most cost-effective and practical method of achieving the goal of "Health for All by the Year 2000." *Primary Health Care Technologies at the Family and Community Levels* reports on an international workshop held in Sri Lanka in the fall of 1985 which was sponsored by the Aga Khan Foundation, Unicef, and the World Health Organization. The report emphasizes the need for communications that facilitate the dissemination of appropriate PHC information; particularly needed are innovative participatory communication strategies that take advantage of existing traditional communication structures, such as the oral tradition. The key targets of such information flow are community organizations and training programs for villagers that: 1) involve the community in the planning, formative evaluation, and maintenance of health programs; 2) improve the status of women, who are the primary health care deliverers in the villages; and 3) are integrated with a well-coordinated national health program. Available free from Unicef, 866 United Nations Plaza, New York, NY 10017, USA.

• Two volumes have recently arrived at the Clearinghouse that will interest our African readers. The first is published by the Thomson and Freidrich Naumann Foundations in association with the Commonwealth Media Development Fund. *Reporting Africa*, edited by D. Rowlands and Hugh Lewin is a 181-page manual written by and for Anglophone African reporters. It is intended as a training manual for beginning reporters. Topics covered include source development, interviewing, political and legal news coverage, radio and TV reporting, and photography for journalists. Each chapter concludes with a handy bibliography. Copies are available from the African Council on Communication Education, P.O. Box 47495, Nairobi, Kenya for £5 (US$7.15).

The second volume, *Training Manual: Photography*, by Margaret Waller, is published jointly by the Zimbabwe Institute of Mass Communication and the Freidrich Naumann Foundation. It contains practical, step-by-step instructions on how to use a 35mm single-lens reflex camera, develop and print photos, and use lenses, paper, and flash equipment. The manual contains a section with examples of photographs from some of the leading photographers in Zimbabwe, who explain how they came to take the pictures and how to take good photos. Copies are available from the Friedrich Naumann Foundation, P.O. Box 1636, Harare, Zimbabwe for £10 (US$14.30).

• *Global Guide to International Education*, edited by David Hoopes, is a comprehensive volume that lists addresses and descriptions of U.S.-based programs, organizations and publications concerned with international studies and global education. Designed for students and educators, this guide provides information on such topics as educational exchange organizations; grants, awards, and fellowships for international studies and programs; foreign language learning; regional studies centers; and academic programs and selected resources for country studies. The cloth-covered Guide costs US$75.00 and is published by Facts on File, 460 Park Ave. South, New York, NY 10016, USA.

• *A Farmer's Primer on Growing Rice*, by Benito Vergara, is one of the most widely translated and distributed agricultural handbooks in print. Published in English by the International Rice Research Institute (IRRI), this 221-page book uses illustrations with simple captions to teach farmers and rice technicians about how and why improved rice varieties and agricultural technologies increase crop yields. Topics covered include the life cycle of the rice plant, selecting good seedlings, increasing the efficiency of fertilizer, and controlling weeds. This book and addresses for other language editions are available from the Communication and Publications Department, IRRI, P.O. Box 933, Manila, Philippines.

• Another publication brought to our attention that will interest those who follow African telecommunication issues is a new newsletter, the *African Telecommunication Report*. A private venture, this newsletter has been established to keep readers informed about important issues and developments of telecommunication applications in Africa. Published monthly, introductory subscriptions are US$78 per year (US$98 regularly) plus $12 overseas postage and handling. To subscribe contact: African Telecommunication Report, 1718 Connecticut Avenue, N.W., Suite 410, Washington, D.C. 20009. Phone (202) 939-8327. ■

Robert Vittel and Bill Amt work in the Clearinghouse.

Pictures Open

by David A. Walker

It is sometimes said that illiterate villagers have trouble getting meaning out of pictures. In our adult literacy work in Nepal we tackled this problem head on. In fact, picture literacy is one of the important accomplishments of Nepal's Nonformal Education Program.

Earlier research had shown us that Nepalese adults did indeed have trouble understanding three dimensional spatial relationships depicted on flat, two dimensional surfaces, but that they were astute at identifying pictured objects. Even distorted illustrations, such as cartoons, were easily understood. But identifying what is shown is not the same thing as understanding the meaning or the intended message of an illustration. Villagers simply see a picture for what it is and feel no compulsion to "read" any additional meaning into it.

Beyond Picture Description

As in many literacy programs, we use pictures in Nepal to introduce key words. Consider, for example, a picture showing a family migrating. The intended meaning is to call attention to the way increased population pressure has depleted the traditional agricultural resource base. Deforestation and land erosion have been two of the most serious consequences. Marginal farmers can no longer survive in the hills of Nepal and are being forced to move to the lowlands in the south. A typical villager describing such a picture might say: "The girl is carrying a baby. The man has something under his arm. This looks like a cow. These are goats, or maybe sheep. Look, this woman has an umbrella." If encouraged to describe what these people appear to be doing, the villager might add that the picture shows a family migrating. A response such as this shows the observer has no trouble identifying what is depicted, yet the intended message of the picture is hardly touched upon, let alone consciously articulated.

Participants in the literacy program are asked to study and describe illustrations such as this one throughout the six month course. As a first step, the class is broken into small groups to discuss the picture among themselves. Then one member is selected from each group to come to the front of the class and, using a large poster reproduction, tell what his or her group understood from the picture. We found that these group reports rarely went beyond a superficial description of what objects were being depicted or what actions were taking place. This did not mean that the participants could not say more when encouraged to do so; it simply meant that they defined their task very narrowly.

In order to help the participants respond to illustrations at other levels, the facilitator finally questions the entire class. He might ask: "Where do you think this family is going and

Unexpected Horizons in Nepal

why? Have any people from our village migrated? How do you think this family feels about what is happening? Is this a good thing or a bad thing?" Questions such as these help the group to analyze the picture, to relate it to their own life experience, to empathize with the situation and to make value judgments. In this way, after repeated experiences, the participants learn to read more meaning into illustrations. As the course progresses, their spontaneous reports begin to show the kind of perceptiveness that we would call getting the meaning or the intended message of the picture.

From the beginning of Nepal's Nonformal Education Program, which was developed and tested over a period of seven years with technical assistance from World Education, a conscious effort was made to develop ways to communicate through pictures. Adult learners meet six days a week for a period of six months. During that time they learn to read and write and to solve simple arithmetic problems. They are also exposed to a wide range of functional content in areas relevant to Nepal's development priorities, such as health, child care, family planning, agriculture, and resource conservation.

Unanticipated Discovery

An unanticipated discovery we made while developing and testing the curriculum was that the use of pictures tremendously increased the number of meaningful ideas we could communicate in the early lessons. This was important, because we wanted to introduce the local script (Devanagari) in manageable increments, while giving the participants the experience of using the written language for learning and enjoyment as early on in the course as we could. We introduced the syllables gradually and tried to provide as much interesting reading in each lesson as the pool of syllables allows.

Introducing Comics

Because question words could often be written with a single syllable, many of our earliest reading passages were in the form of dialogues – questions and answers. The dialogue idea was confusing for the new learners, however, as it involved two speakers and they easily lost track of who was saying what. We thought of illustrating the dialogues in the manner of a comic strip, the purpose being to clarify who was speaking in each instance.

As we began to work with comics, however, we found them taking on a life of their own. Using the lists of possible words, we wrote stories and comics for each of the early lessons. We discovered that the comics for any given lesson were vastly more interesting and complex than the stories we were able to develop. Looking over our work we found that the stories were limited in vocabulary and simple, if not to elementary, in theme, whereas the comics were dramatic, provocative, and were able to address serious social issues. This was because the dialogue and pictures of the comics were able to convey an array of actions and ideas in a variety of ways while our stories had to be grammatically correct. We had to leave out many good ideas simply because we could not write one important word.

As an example, the script in one early lesson reads: "Gopal lives in Gorkha. Gopal has a son. Gopal has a cowshed. Behind the cowshed there is a forest. Gopal's son takes the animals into the forest," etc. It is hardly one you could get excited about. The frequent repetition of the name Gopal is used because the syllable needed to write "he" is not introduced until several lessons later.

In the same lesson there is a four-page comic about a hard-working woman whose husband is a gambler and a drunkard. She earns money by selling vegetables at the weekly market. Six frames of the text of the comic depict a confrontation between Suntali and her husband in which he demands the vegetable money that she has hidden away. This episode ends when Suntali finds that Biray has taken the money. In the next installment, Biray loses the money at cards and returns to take some of Suntali's jewelry. There is a fight. He ends up unconscious on the floor and Suntali takes her child and leaves for her father's village. In the final episode Biray repents and swears to give up drinking and gambling. The story ends with Suntali debating whether or not to return to him. This comic was very popular among the participants and the problems it depicted were considered realistic and relevant to their own concerns. (They invariably felt Suntali should go back to Biray.) (See illustration.)

Although some of our problems preparing reading materials in Devanagari had to do with the particular nature of that script and the order in which we introduced the syllables, I think more general conclusions can be drawn. A comparison of the two formats shows that the written story must be coherent while the comic can be fragmentary. This difference allows for a great deal more freedom when writing comics. It is even possible to carry on the action for one or two frames without words at all. This means that much more ground can be covered with a given number of words in a comic format than in a story format. That is an important consideration when preparing reading material for new literates. Too many words on a page can be overwhelming. The pictures make the page less formidable and at the same time reinforce the written word. The story line can be carried along much more swiftly in comics as well – a big advantage for slow readers. As they struggle to read the words of a story or essay, they can lose the thread, much like not being able to see the forest because of the trees.

Once we had pictures and comics in our primer we were able to experiment with other ways to use them. For example, we had the participants role-play the comics (a confidence-building activity). We were surprised to see how quickly they were able to mimic not only the actions but even the facial expressions. Later we asked them to create their own stories around the discussion pictures and role-play those. As a form of creative writing we drew situations with blank "bubbles" and asked the participants to fill in the dialogue.

The many different kinds of illustrations in Nepal's literacy program not only added to the attractiveness of the package, it opened up the possibility for many valid learning activities. Constant testing and revision showed many of these activities to be educationally sound and appropriate to the cultural setting in which we worked. The further forward we went the more our horizons kept expanding. The end is not yet in sight. ■

David Walker served as World Education's Resident Adviser in Nepal from 1979 to 1986. During that period he oversaw the development of Nepal's Nonformal Education Program from starting as a pilot project at a university research center to becoming the government's national adult education program.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include a manual for writing distance education instructional materials and sample materials, a resource book for adult basic education, a report on the development of fotonovelas for teaching literacy, a guide for teaching reading through the newspaper, and a guide for producing publications. All of these documents are available in microfiche, and three are also available in paper copy, from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs may be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

- de Jardon, Linda King, ed. *Writing for Distance Education. A Manual for Writers of Distance Teaching Texts and Independent Study Materials.* 1983, 91pp (ED246 896)

Six instructional units from the International Extension College (Cambridge, England) offer guidance in the process of writing printed educational materials. Each unit provides objectives, writing exercises and activities, and end-of-unit discussion questions. Unit One considers the first steps in writing, emphasizing the importance of varying instruction according to student needs and background, and discussing how people learn. Active learning and different types of learning activities are then examined in the second unit. The third addresses ways of improving a presentation, such as writing in an appropriate style; using clear, simple language; and trying alternative presentation forms, as with pictures and diagrams. Unit Four covers all steps of production and starts students on an individual project to produce materials in their own subject area. Unit Five emphasizes specific instructional writing skills with advice on distinguishing between different kinds of instructional materials, what to include and how to organize it, and writing correspondence units. The final unit outlines processes of editing, reproducing materials, administration, tutoring, and evaluation. Four supplements provide additional information on learning theories, behavioral objectives, media, and readibility and layout. Available from EDRS in microfiche only for 75 cents.

- *Writing for Distance Education. Samples Booklet* 1983, 46pp. (ED 246 897)

Approaches to the format, design, and layout of printed instructional materials for distance education are illustrated in 36 samples designed to accompany the manual reviewed above. Each sample is presented on a single page with a note pointing out its key features. Features illustrated include use of typescript layout, a comic strip story, various question and instruction formats, checklists, signs and a key, study guidance, diagrams, list formats, pictures reinforcing written messages, objectives, culturally relevant design, charts, flowcharts, tables, photographs, and illustrations. Materials used in the examples are taken from a variety of actual projects and courses in such institutions as the Mauritius College of the Air, Javeriana Open University (Colombia), Botswana Extension College, Kenya Cooperative College, Open University, Lesotho Distance Teaching Centre, and the National Extension College. Available from EDRS in microfiche only for 75 cents.

- Cheyney, Arnold B. *Teaching Reading Skills through the Newspaper* Second Edition. Reading Aids Series: An IRA Service Bulletin. 1984, 60pp. (ED 250 672)

Recognizing that newspapers are among the best supplementary instructional materials, this booklet from the International Reading Association offers suggestions for the use of newspapers for teaching or reinforcing specific reading skills. The booklet focuses on inferential and evaluative comprehension skills, and the suggestions range from how to teach students to identify main ideas and details to the development of higher order critical reading competencies. Though its major emphasis is on comprehension, the booklet gives some attention to the reinforcement of decoding skills through the use of newspapers. Following an introduction, the first two chapters provide a rationale for using the newspaper as an instructional resource and using it to teach reading. The remaining chapters provide suggestions in the following areas: (a) teaching a reading lesson with the newspaper; (b) developing critical readers; (c) developing vocabulary and word identification skills; (d) developing appropriate reading rates; and (e) reading and the language arts. A list of suggested books, materials, and periodicals is appended. Available from EDRS in microfiche for 75 cents or in paper copy for US$5.40; or from the International Reading Association, 800 Barksdale Rd., P.O. Box 8139, Newark, Delaware 19714, USA (IRA Book No. 210, US$3.00 member, US$4.50 nonmember).

- Barton, Frank and Lehrke, Gunter. *The Layman Printer Communication Manual* 1983, 96pp. (ED 257 056)

Intended for those responsible for all kinds of publications in developing countries, this manual from the Friedrich Ebert Foundation (Bonn, West Germany) has three main objectives: (a) to give the ordinary person who knows nothing about printing or printing processes enough information to be able to deal intelligently with a printer; (b) to show how it is possible for a person or group of persons with no previous experience to set up their own printing operation; and (c) to demonstrate how modest publications – from leaflets to small booklets, and even rural newspapers serving particular groups of people – can be produced. Various sections of the manual deal with relief block, rubber printing, letterpress, linotype, offset litho, stencil duplicating, dealing with the printer, starting one's own publication, getting price quotations, preparing the manuscript, proofreading, and pagination. Available from EDRS in microfiche for 75 cents or in paper copy for US$7.20. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York 13244-2340, USA.

A Call for Papers

The Association for Educational and Training Technology is holding its Twenty-second Annual Conference in Southampton, England from April 13-15, 1987. The theme for the Conference is "Designing for Learning: Education, Work, and Community Perspectives." Papers should reflect one of the facets of the conference theme: "What has happened to learning design?" using one or more of the conference perspectives of education, work, and community. Papers and workshops on theory and practice are also welcome.

For submission guidelines and further information about the conference please write to: Robin Budgett, Conference Coordinator, ETIC '87, Department of Teaching Media, The University, Southampton, SO9 5NH, England

"URTNA SCREEN" TV for and by Africans

The First International Screening of African-made TV Programs, "URTNA SCREEN," was held in Nairobi, Kenya, October 1-3, 1986, sponsored by the Union of National Radio and Television Organizations of Africa's (URTNA) Programme Exchange Centre. Designed specifically for professional media people in Africa, this event allowed participants to meet one another, to discuss common problems, to review programs from across the African continent, and to plan constructive TV programming for the future. Winners of the best TV programs of the year were announced at the conclusion of the screening.

The 1986 session of the Programme Exchange and Cultural Affairs Commission of URTNA followed immediately after the screening.

URTNA provides a vital broadcast development link to its 43 member-organizations throughout Africa. It focuses particularly on program development, program exchanges, training, and technical research. Recently, URTNA assisted in organizing media coverage of international events, and advising on the protection of copyrights. There are plans to hold more workshops and screening sessions for the benefit of member-organizations. News from the screening and the conference proceedings will be reported in a future issue of *DCR*.

Once Upon a Time . . . Telling a Story

by Mary Whittington

Employing a story that carries a development message is a successful way of reaching an audience, and a piece of graphic literature that tells a story, such as a comic book or a photonovel, is a unique way of transmitting that message.

Many development professionals prefer to address the audience in a didactic manner – one of instruction, not persuasion. Some professionals view their message with such importance, that using an illustrated story appears to be unnecessary "sugar-coating." However, in a community that has coped with a situation for a long time or is facing more pressing problems and cannot take the time to respond immediately, a more appealing format is needed to hold their attention.

Selecting an Approach

The needs of the audience determine whether or not a story-oriented approach will work and what type of story to use in delivering an educational message. The story/illustration format can be very effective in certain situations. A community that has already decided to install a well needs only clear instructions and illustrations on how to proceed to install one. In this case, much of the educational task is already accomplished because they have taken a course of action. Illustrated print material is a powerful tool to convey these "how-to" messages.

A more difficult task is to convince an audience to change a particular behavior. In this case, both instruction and persuasion are called for. For example, convincing a couple that they should practice family spacing calls for both clear instructions and illustrations on effective contraception practices, and for persuasive messages that family spacing is for them. This is a "will-you" situation; that is, will you change your behavior to accomodate this practice?

Effective Story Development

In order to effect an emotional response, a story should have an interesting plot and characters that appeal to the audience. The plot is the action or what happens in the story. It usually consists of a main conflict between people, organizations, families, with an endless combination of possibilities. In the beginning of the story, the audience should recognize the cause of the conflict and begin to develop alliances with certain characters.

Characterization is another important factor in story writing. The audience should quickly develop feelings about the characters, and care about the outcome of their struggles. Audience identification, such as with a woman who does not want any more children, can be a solid basis for persuading the audience, or even for exposing the issues and generating discussions.

Pacing is the selection of which actions take place in which frames (sequences of illustrations that "tell" the story). Commercial photonovels and comic books usually follow two principles: 1) Do not confuse the audience with an unfamiliar layout. If the audience is used to reading from left to right, let them continue to do so in your publication; 2) Explain the conflict quickly, depict the crisis in the conflict, show how the people will continue their lives after resolution of the crisis. After introducing the characters and plot, the author builds the story with scenes that increase in intensity as they approach the end of the conflict. The pace of the plot should vary, gradually building to a climax, then slowing down to permit characters to reflect on their actions, plan new actions, and continue. Pacing the drama effectively is an important key to developing a good story.

The climax of the story reveals the final resolution or attempted resolution of the main conflict. Most authors quickly wrap up the story after the climax.

Ensuring Effectiveness

An exciting plot and impressive visuals will be wasted if the audience does not understand or identify with the actual message. Pretesting of the materials is an absolute must, as all the factors that have been discussed – plot, characterization, visual style, and pacing – must reflect the culture in which the story unfolds. Pretesting should focus not only on the audience's perception of the character's visible traits such as facial features, clothing, or body carriage, but also indicate the emotional reaction of the readers to the story. Which character did you like best and why? Do they remind you of someone you know? How? Or what makes them different? Could any of these events happen to you, or someone you know?

For example, the illustrations below would not be interesting to many Western readers who are used to action-packed novels. It is a story line from the comic book that was produced in Pakistan by the Aga Khan Central Health Board with technical assistance from the Program for Appropriate Technology in Health (PATH). This comic book was part of a twofold project, an accelerated program that encouraged people to take iodized oil capsules to prevent goiter development and a long-term program to promote replacing noniodized rock salt with iodized salt.

The comic book chronicles the story of Hur Bibi, who has had a goiter since childhood and is now pregnant, and her interaction with Rabia, a Lady Health Visitor. Rabia compares Hur Bibi's son, who has goiter, with another child who does not.

Although they are the same age, the child with a goiter is shorter and smaller. Rabia explains that the other family uses iodized salt, and that iodized salt will produce healthy, active children, while children with goiter lack the energy to play or concentrate in school. The merchant extends his support to the program and will no longer carry noniodized rock salt.

The pamphlet, developed by a local artist, uses bright colors, details of the local landscape, indigenous farming practices, animals, food, and even common body positions; it speaks directly to the intended population.

Story-oriented comic books and photonovels can be a powerful tool in development communications. Through audience market research, communication practitioners can be assured that the intended audience has played a central role in designing an educational message and that the message is more likely to be received by an attentive and responsive audience. ■

Mary Whittington is a writer and researcher with B. J. Cain & Associates, Inc. and, as a freelance writer, has produced programs for public and cable television. She holds a M.F.A. in Theatre from The Catholic University of America.

A Communicator's Checklist

1 Guide to Mass Media and Support Materials for Nutrition Education in Developing Countries, by Marcia Griffiths, et. al., (Newton, Mass.: International Nutrition Communication Service, 1985) 128pp.

This Guide contains 316 reviews of nutrition education materials, which are organized by topics including nutrition for the family, maternal nutrition, young child feeding, growth monitoring, and nutrition-related health problems. Furthermore, names and addresses of the producers are provided so that the reader can request additional information and samples of the materials. It combines the efforts of Manoff International, Inc., and the Education Development Center, Inc., two well-known and respected groups in the field of education and communication.

The worldwide acceptance and use of mass media and educational materials in nutrition education programs is well demonstrated by the broad range and diversity of materials reviewed in this book. The Guide includes charts, radio spots, puppets, stories, games, flannel graphs, filmstrips, booklets, manuals, slides, etc. Contributions come from many developing countries in Africa, Asia, Latin America, and the Middle East. The reader is given a good overview of the types of and trends in educational materials being developed throughout the world.

Materials included in this publication are described according to their country of origin, language, content, format, and target audience. In some instances, the authors provide further information about how the materials were designed and evaluated. However, the book does not provide an evaluation of the materials' positive and negative features.

In defense of this approach, the authors give recommendations for the successful incorporation of mass media and educational materials into nutrition education programs. They suggest that evaluation of materials should be based on more than physical appearance and statistical impact; it should include the process used in developing the materials and the role they play within the overall communication strategy. Thus, specific questions and guidelines are provided for the reader to use as a standard for measuring the materials.

In addition to the reviews, the Guide provides a glossary of communication terminology and a nutrition education game. The glossary is helpful in establishing a common frame of reference. The game is useful in providing a concrete example of a non-formal educational tool. It leads one through the steps to follow in developing such materials and in this respect it follows the guidelines suggested in the beginning of the Guide. Nevertheless, the game does not seem to offer an opportunity for discussing alternatives in food selection or preparation, which is an important aspect of the participatory education process.

The Guide is extremely useful as an annotated description of materials. It provides an easy reference for educators wishing to use examples and types of education and media materials that have been developed in nutrition. The reader will have to use his or her own judgment as to whether any of the materials would be appropriate for their target audience, given the large diversity of educational, cultural, climatic, regional, and linguistic differences between populations of the world. ■

Available free to nutrition educators in developing countries, and for US$10 elsewhere from: INCS, Education Development Center, 55 Chapel Street, Newton, Massachusetts, USA. 02160

Reviewed by Marilyn Rice who is the Regional Advisor in Health Education at PAHO/WHO in Washington, D.C.. She has worked in the field of public health project coordination and education in the U.S. and abroad for 13 years.

2 Understanding Visual Illiteracy: A Study of Comprehension of Pictorial Messages Among Farmers by Milton Munoz, Richard Powers, ed. (Madison, Wis.: University of Wisconsin, 1986) 94pp.

Most people, whether they can draw or not, often refer to the old adage that a picture is worth a thousand words. Those who work in developing countries and who like to draw, tend to try and prove this saying by using many graphics they consider to be good. But as Munoz says in the introduction to his study, pictures might not always be worth a thousand words. Some people in developing countries might have a difficult time interpreting pictures because of their lack of exposure to illustration techniques or because their life experiences do not allow them to relate to what they see in a drawing. The study points out that illustrations are often selected on the basis of subjective feelings of design and on concepts of pictorial composition that are intuitive rather than scientific in nature, and thus not always perceived in developing countries as intended.

By examining the differences in perception patterns among individuals with different literacy levels, Munoz believes his study will help to increase people's comprehension of communication theory, particularly about visual communication. In addition to its theoretical contributions, the study also seeks to provide practical recommendations for communication programs in Colombia, where the study took place, as well as in other countries.

Understanding Visual Literacy is a technical study, that asks two major questions. First, what are the differences between the perceptual patterns of literate or illiterate individuals when they look at an illustrated page; secondly, how much do different literacy levels and life experiences effect people's comprehension of photographs and drawings?

The methodology section includes descriptions of the region, sampling procedures, the application of variables, the questionnaire, data, statistical analysis, and the limitations of the study.

In the results section, Munoz concludes that the tests support the hypothesis that illustration is not an intercultural language, but that interpretion of illustrations is primarily a learned skill. Munoz suggests that rural people be given more exposure to illustrated materials to encourage development of their visual skills, and that this should be supported by research to increase our understanding of visual literacy.

The monograph has a 92-entry bibliography, a 23-page literature review, and an appendix with numerous statistical tables. The paper did not have a table of contents, which considering its technical nature, would have been helpful.

This useful study made me aware of what can be done to improve illustration techniques I have used as a resource scientist who has had to communicate with Africans of different educational backgrounds ranging from college-educated technical counterparts or administrators to rural villagers. I believe others who are involved in visual communications, particularly in developing countries, will benefit from reading this study with its thorough and rigorous approach. ■

Available free of charge from the Department of Agricultural Journalism, 440 Henry Hall, University of Wisconsin-Madison, Madison, Wisconsin, 53706, USA. Include US$1.35 for postage.

Reviewed by Chuck Dorigan, an environmental scientist and consultant who has worked for ten years in remote sensing and integrated resource assessment projects in Africa.

3 Issues in Planning and Implementing National Literacy Programmes, G. Carron and A. Bordia, editors. (Paris: Unesco, International Institute for Educational Planning, 1985) 385pp.

Despite some significant national programs mounted in recent years, the international literacy effort has languished for more than a decade. Following the disappointing results of the Experimental World Literacy Program (EWLP), Unesco has done little refashioning of its assumptions, concepts, or approaches.

The EWLP (1967-73) was a series of pilot efforts through which Unesco developed its concept of functional literacy and tried to promote a methodology which would be used for a global literacy program. The results of the EWLP were not compelling enough to push the international community toward an all-out attack on illiteracy.

The present book is a collection of papers presented at a workshop held in 1982. The reader is left to judge whether it was worth the wait. In any case, the book is thoughtfully orga-

nized and well-edited. It contains useful national "self reports" on literacy efforts in China, Nicaragua, Vietnam, Iraq, Ethiopia, Kenya, India, Tanzania, Nepal, and Brazil. Other papers treat topics related to training, evaluation, mass media usage, language, post-literacy, and the relationship of literacy to formal schooling and to providing other basic services. As a sourcebook of descriptions of recent experience in literacy, the book succeeds and is of interest to development professionals.

Unfortunately, the book contributes little to the understanding of literacy's role in national development. Much of what is said has been said many times before. Worse, many difficult policy issues are not treated openly or in their full complexity, and this is a disservice to those hoping to learn more about planning and managing literacy programs.

One gets the impression in the Preface that the international literacy effort has blossomed since the end EWLP. It has not. We are reminded of Unesco's contention that "literacy education for adults and the provision of schooling for children must be seen as two sides of the same coin." This had appealing face value, but it masks the difficult policy and resource allocation choices: adult literacy activities must compete with primary school education for scarce development funds. In the majority of developing countries, provision of schooling for children is both sides of the coin.

Also, in the Preface, readers are referred to the Persepolis Declaration (1974) and the notion that functional literacy should be regarded as "not just the process of learning reading, writing, and arithmetic skills but a contribution to the liberation of man and his full development." The poetry above obscures reality; in fact, "literacy for liberation" emerged as a reaction against functional literacy and not as its extension. The idea of government-sponsored literacy efforts contributing to liberation can hardly be taken seriously.

The books's Introduction sketches a process of planning and managing literacy programs that might play well at an international meeting but has little connection with the realities outside the meeting room. Consider the following conclusion for the Introduction (p. 18):

> Expressed in more general terms, different dimensions of functionality could be introduced at different points of an integrated package of pre-literacy, literacy and post-literacy according to the needs and possibilities of participants. It was further stressed that the operationalization of the functionality concept implies that systematic linkage mechanisms with various agencies be established at different levels and at appropriate moments in time.

In what developing countries do conditions permit such an orchestration of reality? Where are there literacy program planners and managers who have the time, resources, or the control over events to engage in planning exercises that consider where to insert this or that "dimension of functionality" at specific points in integrated training packages systematically coordinated with all other aspects of development? Most planners and managers spend their time and limited resources getting materials printed and delivered; convincing often unwilling participants to join or stay in a group; recruiting and retaining tutors to work without pay; trying to generate new income; and then trying to demonstrate a connection between income and acquiring rudimentary skills in reading , writing, and arithmetic.

Many of us look forward to a renaissance at Unesco and for its return to a position of leadership in international education. A rethinking of its approach to literacy is long overdue and might well be a good place for the renaissance to begin. ■

Available for US$29.75 from Bernan/Unipub, 10033F Martin Luther King Jr. Highway, Lanham, Maryland 20706, USA, and from Unesco distributors worldwide.

Reviewed by Stephen Anzalone of the Institute for International Research, McLean, Virginia. He is co-author of Making Literacy Work: The Specific Literacy Approach.

Management Skills Training

Courses designed to enhance skills in management of rural development programs and agencies are being offered by the International Institute of Rural Reconstruction, Silang, Philippines.

A six-week course starting Feb 9, 1987 "Middle-level Managers' Course," is designed to increase participants' knowledge and skills in project planning, implementation, and evaluation. Subjects covered include history and philosophy of rural reconstruction, reflection on development, and strategies in working with peasants. The cost is US$2,500 including room and board.

The "Senior Managers' Seminar," also starting February 9, 1987, will broaden and reinforce the participants' skills and knowledge needed for effective management of rural development agencies and programs. Macro issues and trends in development, organizational and program management, comparative analysis of rural development agencies and programs, and history and philosophy of rural reconstruction will be covered in the seminar. The cost is US$1,800 including room and board.

English proficiency, experience in rural development programs, and a B.S. degree are required for both courses. For further information and application material please contact: Training Director, IIRR, Silang, Cavite, Philippines 2720, or Vice President, IIRR, 1775 Broadway, New York, NY 10019, USA.

Health Care Courses

Boston University Schools of Medicine and Public Health offer a number of courses in 1987 for those interested in health care in developing countries. From February 27 – April 12, 1987, a course on "Management for Child Survival," will be offered for participants from countries with limited resources. Specific child survival technologies and program approaches will be reviewed and state-of-the-art developments discussed. There will be a one-week field practicum in the Caribbean. Course costs of US$4,276 include tuition, field practicum expenses, materials and health insurance. Allow an additional US$1,770 for housing, meals, and miscellaneous expenses. Applications must be received by January 15, 1987.

For applications write to: Management for Child Survival Course, Office of Special Project, Room A-310, Boston University School of Public Health, 80 East Concord Street, Boston, Massachusetts 02118-2394, USA.

Also offered by Boston University is a summer certificate program in "Health Care in Developing Countries." The course will emphasize effective application of epidemiological principles and methods to primary health care, and the impact of development and urbanization on health status and services delivery in countries where resources are limited. Course costs of US$5,110 include tuition, books medical insurance, and housing. An additional US$1,500 for other expenses should be anticipated. Inquiries and applications should be addressed to: Certificate Program, Boston University, School of Public Health, 80 East Concord Street, Boston, Massachusetts 02118-2394. USA.

PTC Ninth Annual Conference

The Ninth Annual Forum of the Pacific Telecommunications Council, PTC '87, will be held at the Sheraton Waikiki Hotel, Honolulu, Hawaii from January 18-21, 1987. Telecommunication professionals from some 30 countries representing government, industry, and education will participate in this year's conference entitled: "Pacific Telecommunications Users: A Spectrum of Requirement."

For more information or to register contact: PTC, 1110 University Avenue, Suite 308, Honolulu, Hawaii 96828, USA. Telephone (808) 941-3789.

Publications Available from Clearinghouse

The Clearinghouse on Development Communication has compiled a thematic collection of its *Project Profiles*. Entitled *Selected Project Profiles: Health*, the booklet summarizes 18 selected health projects that have used communications to promote better health practices.

The collection is available at no cost to those from developing countries, and for US$5.00 each to those in industrialized countries from: Clearinghouse on Development Communication, 1255 23rd Street, N.W., Washington, D.C. 20037, USA.

Improving Visual Comprehension in Nonliterates

by Sikandra Spain

(This article has been adapted from the 1983 Master's Thesis of Sikandra Spain, who died in an automobile accident shortly after completing her research with the Mass Media and Health Practices Project in The Gambia. I would like to thank Sikandra's family who kindly granted DCR permission to share her research with our readers. I would also like to thank Dr. Robert Hornik of the Annenberg School of Communications, under whom Spain studied and who assisted in the preparation of this article. KM)

How do you know if your target audience is receiving an intended message from specially prepared visual materials when they have not had regular exposure to this medium, and are likely to be visually nonliterate? The results of a special study in The Gambia indicate that in a community with low visual literacy, materials with pictures can be used successfully if training is given in interpreting the pictures.

This special study, funded by the Annenberg School of Communication, University of Pennsylvania, was conducted during a nationwide campaign of the Mass Media and Health Practices Project, in The Gambia (see *DCR 51* for articles that describe this project). It was funded by the U.S. Agency for International Development and implemented by the Academy for Educational Development. The purpose of the project was to introduce home-based oral rehydration therapy (ORT) to rural Gambian mothers, and to improve mass communication techniques used by existing health services in The Gambia.

ORT Flyer

Instructional flyers were to play an important educational role in teaching mothers to properly mix and administer the simple water-sugar-salt solution to their children suffering from diarrhea. While visiting Gambian villages prior to the development of printed materials, project planners observed that there were few print and visual materials (photographs, posters, and drawings) in compounds or public places. With the possibility that visual literacy might be low because so few materials were available, only two pictorial flyers were developed, and these were specially designed so radio could be used to teach mothers (the primary target audience) how to interpret the pictures.

The multi-step ORT flyer illustrated how the ingredients should be measured, mixed, and then administered to a child suffering from diarrhea. The flyer was distributed throughout the country and explained during radio broadcasts that were aired during a special campaign called the "Happy Baby Lottery."

To determine how effective the mixing flyer was in teaching mothers the correct ORT preparation and administration techniques, when combined with radio instruction and trained health workers, a questionnaire was assembled and administered to a sample group of Gambian mothers in 20 villages in August 1983. Flyer comprehension was measured by showing mothers the flyer and asking them to describe what they saw. Simple line drawings were used to measure mothers' ability to identify and make inferences about depicted scenes, and to measure depth recognition. Pictorial experience was measured by determining previous exposure to pictures in books, photographs, and other sources.

Results

Survey results showed that comprehension of the flyer was high, with approximately three-quarters of the mothers in the sample group correctly answering at least 10 out of the 17 items in the questionnaire. There was also a very strong relationship between pictorial experience (having seen photographs, drawings, etc.) and the ability to understand pictures. Fifty-five percent of the mothers who had had exposure to all three types of pictures used in the survey, scored high on the pictorial comprehension test, whereas among mothers who had had exposure to only one kind of picture or no pictures, under five percent had a high score.

Measurements of the relationship between training in "reading" the flyer and flyer comprehension indicated that the two were clearly and positively related. Mothers who had no training scored the lowest in flyer comprehension; those who had heard instructions over the radio scored higher, and those with both radio and personal training by health workers scored highest in flyer comprehension.

The effect of training was strongest on mothers with low initial ability to understand pictures. Radio training alone clearly enhanced flyer comprehension scores. Radio and personal training together increased the average score for this group even further. The training effect was far less pronounced among those women who already had moderate to high picture comprehension.

Conclusion

In summary, the findings confirm that exposure to pictorial materials correlates with the ability to understand pictures which, in turn, is associated with the ability to comprehend particular educational material. They showed that nonliterate Gambian mothers could be taught to "read" pictures of the ORS mixing flyer and several months later still recall how to correctly prepare the solution according to the instructions given on the flyer. By providing the mothers with a flyer of their own and giving them training in interpreting it, their ability to understand the flyer was significantly increased. Radio, particularly, was found to be an effective medium for training them to understand the mixing instructions. In fact, test results show that exposure to the flyer combined with radio training could close the gap in flyer comprehension between mothers of low and high ability to understand pictures.

This suggests that even though an intended audience may not be visually literate, pictorial educational materials can be used effectively if explanations are provided either in person or by radio, preferably both. The results also demonstrate how crucial pretesting is for a project that plans to use posters, flyers, or other visual materials in an educational campaign. ■

New Education Journal

Journal of Distance Education (JDE) is the newest addition to scholarly distance education publications. A peer-reviewed international journal of the Canadian Association for Distance Education, the *Journal* is intended as a forum to reflect current theory, research, and practice related to teaching and learning at a distance. Submissions of a theoretical or empirical nature that represent original work in the field of distance education are welcome. Manuscripts are accepted in English or French. *JDE* is published twice yearly beginning in October 1986. The subscription fee is $40.00 in Canada, US$62.55 elsewhere. For subscription and submission information please write to: Dawn C. Howard, Editor, *Journal of Distance Education*, c/o Centre for Distance Education, Continuing Studies, Simon Fraser University, Burnaby, British Columbia, Canada V5A 1S6.

Cornell Communication Courses

Cornell's Department of Communication summer 1987 courses have been announced. The regularly offered four-week "Communication Planning and Strategy" course offers the background and skills that will help participants organize and carry out systematic and effective information and communication activities. The course blends discussions and lectures with case studies, problem-solving, and hands-on experience.

Another course, "Training and Development: Theory and Practice" is an intensive four-week course focusing on the analysis, design, and administration of training programs for the development of human resources in small-farm agriculture, rural health and nutrition, literacy and nonformal education, and general community development. The course is appropriate for professional personnel and graduate students.

Admission is based on relevance of the applicant's background to the program. Each course costs US$1825.00, with an additional US$650 for housing. Meals and personal expenses are extra. For an application please write to: Dr. R.D. Colle, Communication Arts, Cornell University, 640 Stewart Avenue, Ithaca, New York, 14850, USA.

Women Learn with Visual Aids: Experiences in Peru

by Joan Haffey,

Nancy Newton,

and Blanca Figueroa

Female literacy plays a critical role in child survival. Even though mothers may be poor, if they have received some schooling, the chances of their infants surviving childhood increase dramatically. In the *World Health Statistics Annual 1985* (WHO, 1985), analysis of data from World Fertility Surveys involving 160,000 women in approximately 30 countries shows that in countries where the adult female literacy rate is low (less than 35 percent), children are two to three times as likely to die during the first two years of life than in countries where the literacy rate is above 90 percent (WHO, 1985). Over 24 separate studies in 15 countries have established that the level of a mother's education is a key determinant of her children's health, *State of the World's Children*, (UNICEF, 1984).

Despite the importance of formal education in improving women's and children's lives, many literacy programs have been criticized for their heavy reliance on primers which may have little relevance to the adults using them. The impact of maternal education on child health is related not so much to the mother's absorption of printed information as it is to her acquired ability to question, analyze, and act upon new information. A mother with some schooling is better able to assess the health status of her family, to understand and adopt preventive health practices, and to know when and how to intervene when a family member becomes ill. An example of such a project follows, where carefully designed visual materials were used to promote the active participation of Peruvian women in child survival activities.

Asociación Peru-Mujer is a private, nonprofit organization whose main objective is to stimulate, through study and action, the participation of women in national development at all levels. Since September 1984, PATH (Program for Appropriate Technology in Health) has been collaborating with *Peru-Mujer* on a project to develop materials, as well as to provide technical and financial support that motivate illiterate and semi-literate women to participate in family planning and child immunization services. Booklets on these two subjects were developed – one each for the coastal, the highland, and the jungle regions of Peru – based on initial qualitative research and locally conducted pretesting. The materials are primarily pictorial *but* contain a simple line of text on each page for the benefit of semi-literate booklet recipients, as well as for community development workers in their program activities. (See illustration.)

Materials Use Training

Once the booklets were printed, community activity leaders were selected from ten different areas of the country to receive a training course in how to use the materials to stimulate group discussion and problem-solving. In addition, a guide was developed for the promoters to assist them in this process. Illiterate women in each of these communities were invited to attend sessions in which the promoters used the print materials as a complement to other participatory techniques, such as role-playing and dramatization, to encourage group identification of problems, discussion of possible solutions, and decisions on what action to take.

Participants were also given crayons and encouraged to color or decorate their booklets at home. This activity in itself was motivating to the women, some of whom commented that this was the first opportunity they had been given to learn to read. As one participant said, "Education is the best thing we can have and pass on. They haven't let us women learn, as if we were animals in the field." Pride of ownership of the materials also contributed to this new sense of self-reliance. A number of women subsequently enrolled in literacy or other adult education activities.

Several beneficial health-related community activities emerged as a result of the group problem-solving orientation of the course. In Chiclayo, course participants organized a day of activities to focus public attention on the need for improved maternal and child health services in the community. In Cajamarca, a group of participants organized to gain support from the local government to build a health post. In Puno, the participants of one course planned a community pharmacy.

Women in a number of the courses throughout the country requested additional family planning and immunization materials so they could conduct courses of their own with their neighbors. The demand from other women for additional courses in the community has far exceeded the expectations of the project staff. In all areas where the courses were conducted, the use of family planning and immunization services by course participants increased, although the exact level of the program's impact is still being assessed.

Peru-Mujer has also made a concerted effort to share its experiences and materials with other Peruvian organizations involved in adult education activities. Officials from the Adult Education Program in the Ministry of Education participated in a workshop sponsored by *Peru-Mujer* and PATH on the development of health education print materials for illiterate adults and subsequently developed pictorial materials of their own on population topics.

The process developed by *Peru-Mujer* of combining well-designed visual materials with entertainment and action has led to some innovative and helpful community-oriented activities, while at the same time giving female participants greater confidence in their own abilities to gain more control over their environment. ■

Joan Haffey and Nancy Newton are Associate Program Officers at PATH (Program for Appropriate Technology in Health), Washington, D.C. Blanca Figueroa is Project Coordinator at Peru-Mujer in Peru.

LA SEÑORA QUISPE EXPLICA SU MÉTODO DE PLANIFICACIÓN FAMILIAR A SUS VECINAS.

(**Cain** *continued from page 14*)

ments of the message. Possibly a brochure with a photostrip explained by an extension worker would have comparable impact. If a comparable media treatment can be located, its cost should be compared to that of the photonovel or comic book.

Assessment Steps

There are four main steps to follow in assessing the costs and developing a plan for using graphic media cost-effectively:

1) State objectives as precisely as possible. How many people are to be reached? How many messages are there? Is it a one-time effort or an on-going campaign with plans for other media packages?
2) Decide how effective you need to be. What is your minimum successful impact level? How will you measure this impact? What are the consequences of reaching less than 100 percent of the target audience or of some people misinterpreting the message? What costs are you prepared to pay to develop a more complex campaign with higher quality materials or other media.
3) Assess the resources available. The manager should look at the net costs of the program. Include staff time, facilities, and any contributions in kind as well as finance. Also include any possibilities for cost recovery such as sales of the product, advertising revenue, and grants or contributions which may come as a result of dissemination.
4) Determine the costs of production, considering factors of scale and technical production qualities. How many books will be distributed for how much? KM ■

A SIMPLE WATER LIFT

Attention Readers:

Send Us Your Print Materials

This issue of *DCR* illustrates some innovative uses of print materials for educational purposes. Now it's your turn. We would like to know what YOU are doing with print materials. Why not share your ideas with others by sending us examples of your innovative print materials (photonovels, comic books, newspapers, etc.) along with a brief description of how you use them in your current program? In a future issue we will feature the most innovative materials so others might profit from your experience.

Creative Choices for Latin American Photonovels and Comics

by Cornelia Butler Flora

To walk the streets in a working class neighborhood or a small town in Latin America is to see first hand the popularity of inexpensive, sensational print materials or pulp media. People read comics and photonovels as they ride the bus, or buy them from little stands in town, or rent them from vendors who, for a small fee, allow readers to sit beside these curb-side libraries and read them.

Community educators in Latin America have long recognized the popularity of such print materials and have attempted to adapt them for alternative purposes, aimed at social change. In this way, educators and activists have changed the content of the message to inform and educate their target audience.

There are a variety of ways to develop alternative photonovels and comics, but the three variables that most strongly influence the extent of their success and their cost benefit ratio are: (1) who creates the content (the audience, the artist, or the publisher), (2) who absorbs the risk of production (the creator or the sponsor), and (3) how it is distributed (commercial vs. alternative channel). Combining these three variables in different ways offers a wide variety of production and publication alternatives, many of which can be found in Latin America. The mix of the variables, to a certain

Literature Review on Comics

by John A. Lent

Despite several decades of controversy about their effectiveness by educators, psychologists, and other critics, the role of comic books in national development programs has increased steadily. Today, comics are used in national campaigns to increase literacy and educational performance, to encourage family planning, and to increase high rice yields in areas such as the Philippines, Latin America, and China.

The following list includes some of the more relevant books, articles, and evaluations that consider the educational uses of comics in developing countries.

Angeles, Enrique E. "A Subjective, Thematic Analysis of Philippine Komiks." AB Thesis, University of the Philippines, 1969, 55pp.

Barta, Armando. "De Monitos: Del Carton a la Historieta." *SNIF: El Mitin del Nuevo Comic* (Mexico). 3(n.d.), 82.

Carrillo, Bert B. "The Use of Mexican Comics as Teaching Material in Bilingual Classes." *Hispania*. March 1976:126-128.

Chen, L. "Cartoons Ain't Just for Fun." *Free China Weekly*. 31 August 1980:3.

Chen, L. "How Cartoons have been Used." *Free China Weekly*. 18 May 1980:3.

Cheng Chi. "New Serial Pictures." *Chinese Literature*. 2(1974):111-117.

Constantino-David, Karina. "The Changing Images of Heroes in Local Comic Books." *Philippine Journal of Communication Studies*. September 1974:1-22.

Cruz, Agustina Ortega C. "Interest-Stimulating Qualities of Comic Strips and Comics Magazines to Grade Six Children in Certain Elementary Schools in Manila." MA Thesis, Philippines Women's University, 1957.

DevCom. 1:2 (n.d.) "Comics and Komiks," p.8; "Yellow Journalism," p.10.

Dineen, Louise. "Catechetics in Comics." *Colombian Mission 60*. February 1977: 6-7.

Epskamp, Kees. "Cross-Cultural Interpretations of Cartoons and Drawings." *Media Development*. 3(1984):38-42.

Fernandez Paz, Agustin. "Practica Lose Comics en la Escuela." *Cuandernos de Pedagogias* (Mexico). February 1981:47-53.

Flora, Cornelia B. "Roasting Donald Duck: Alternative Comics and Photonovels in Latin America." *Journal of Popular Culture*. 18:1(1984):163-183.

Fueter, Paul. "Role of Comics in Religious Teaching." *Media Development*. 2(1982):11-14.

George Washington University. *Evaluation of the Effectiveness of Illustrated Print Media (non-verbal) on Family Planning Attitudes Among Colombians*. Program of Policy Studies in Science and Technology. Washington, DC: George Washington University, 1974.

Hall, Wendell and Enrique LaFourcade. "Teaching Aspects of the Foreign Culture through Comic Strips." H. Ned Seelye, ed. *Teaching Cultural Concepts in Spanish Classes*. Springfield, IL: Office of the Superintendent of Public Instruction, 1972.

extent, determines how successful the publication will be in presenting alternative viewpoints, in reaching its audience, and in having an impact on the target audience.

Who Creates?

Creators of alternative photonovels and comics, generally those trained as specialists in media production, are attempting to mold an old form to a new content. While these specialists have the technical knowledge with which to carry out the assignment, they may be using old approaches that inadvertantly reinforce established values and accepted knowledge, often resulting in publications that come across either as too moralizing or too ideological.

In some cases, the intended audience is the creator when media professionals collaborate with them to develop materials and design messages. In other situations, production techniques are taught to members of the potential audience who then become the sole creators. In the latter two approaches, less concern needs to be given to the production and distribution phases since the targeted audience is already partially involved, which is part of the original educational goal.

Who Takes the Risks?

Funds to meet the cost of artists, production materials, and printing need to be identified before alternative comics or photonovels can enter the production phase. In the commercial market, those expenses would either be assumed by loans or covered by the future sales of the publication. I know of no such support for alternative comics or for photonovels in Latin America. Production costs tend to be assumed by an outside sponsor, meaning there is probably not a predictable cash flow. There are examples of funds coming from middle-class volunteers, but it is difficult to link them with the working class or peasants without having an outside sponsor stand the production risks.

My research shows that the risk factor is a major challenge for alternative publications. Creating the content for these publications is much more costly than it is for commercially produced comics or photonovels. The increased cost results from having to consciously and systematically change the story lines of mass produced popular comics or photonovels when applying this approach to alternative publications. Furthermore, the educational message presented in each frame of the story must first be discussed to make sure it is internally consistent – something most commercial publishers of popular pulp media generally are not concerned with.

Who Distributes?

Distribution of alternative publications presents another challenge. Often, the traditional channels are bypassed in favor of less commercial approaches. In part, this reflects the intellectual bias of those involved in the production of alternative publications. My research shows that while much thought has gone into the alteration of the content and production phases, there is little understanding of how comics and photonovels are currently distributed or which channels to use.

In examining various alternative photonovels' and comics' distribution systems, I found that the most effective technique was to create alternative forms of distribution using already established grassroots organizations as the channel. This suggests that alternative media do not take the place of other forms of outreach, but best serve to supplement it. It is expensive to produce alternative comics and photonovels in the necessary quantities to effectively exploit commercial channels; the initial capital outlay would exceed the resources available to most nonprofit operations. Also, it is difficult to track readership once the material enters the commercial channel. One never knows how the content is interpreted or how it is being used.

I am aware of two attempts, one in Colombia and another in Venezuela, where production staff and editors of commercial photonovels made conscious attempts to improve the cultural level of their publications. Their limited success suggests that had educators been working with them to introduce socially relevant educational themes into their photonovels or comics, their efforts might have been more successful.

In summary, a system that uses the existing private sector and slightly modifies the content, or that uses private voluntary organizations and grassroot organizing to produce and distribute alternative publications seem to yield better results than attempting to set up a parallel subsidized alternative source of mass culture in a developing country. ■

Cornelia Butler Flora is a professor of sociology at Kansas State University who has done research on photonovels in Latin America for the past 16 years.

and Development

Hembrador, Ma. Theresa V. "Exposure to Comics-Magazines and Knowledge/Attitude Toward Family Planning of Rural Residents." AB Thesis, University of the Philippines, 1975: 60pp

Hinds, Harold E., Jr. "Comics." Harold Hinds and Charles Tatum eds. *Handbook of Latin American Popular Culture*. Westport, CT:Greenwood, 1985, 81-109.

Hwang, John C. "Lien Huan Hua: Revolutionary Serial Pictures." In Godwin Chu ed. *Popular Media in China*. Honolulu: East-West Center, 1978, 51-72.

Lent, John A. "Comic Books, Funnies, and Political Cartoons: The Asian Experience." *International Popular Culture*. 2(1982):22-51.

Lent, John A. "A Different Japanese Comic Strip." *Media History Digest*. Fall 1985:51.

Lent, John A. *Comic Art: An International Bibliography*. Drexel Hill: Published by author, 1986, 156pp.

Maglalang, Demetrio M. "Agricultural Approach to Family Planning." Manila: Communication Foundation of Asia, 1976.

Mag-Uyon, Madeline G. "Comics Readership and Performance in Classes of Elementary and High School Students in Manila." AB Thesis, University of the Philippines, 1972:41pp

Media Development. 29:2(1982). "Children's Magazines" (special issue).

Movido, Monica S. "Comics-Magazine Exposure and Family Planning, Knowledge, Attitudes, and Practices among Murphy Libis Housewives." *Philippine Journal of Communication Studies*. September 1981:44-59.

Movido, Monica S. "The Attitude of Comics Magazines Readers on Family Planning." AB Thesis, University of the Philippines, 1970:92pp

Parlato, Ronald, Margaret Burns Parlato and Bonnie Cain. *Fotonovelas and Comic Books: The Use of Popular Graphic Media in Development*. Washington, DC: Office of Education and Human Resources, Agency for International Development, 1977: 243pp.

Peng, Sheng. "Picture Story Books of China." *Asian Culture*. January 1980:2-3.

Schodt, Frederick L. *Manga! Manga! The World of Japanese Comics*. Tokyo: Kodansha, 1983.

Vigano, Oscar. "Comic Books Carry Health Messages to Rural Children in Honduras." *Development Communication Report*. March 1983:3-4.

Vigano, Oscar. "Estudios sobre aceptacion y efectividad de las fotonovelas e historietas en la comunicacion de conocimientos en áreas rurales de Guatemala." Rural Education and Extra Scholastic Program of Guatemala. Guatemala: Academy for Educational Development, 1976.

Weaks, Daniel. *The Photonovel: A Tool for Development*. Program and Training Journal Manual Series, No. 4. Action, Peace Corps. Washington, DC, 1976.

Dr. John Lent has written extensively on mass media topics dealing with developing countries. He was the organizer of the Working Group on Comic Art at the 1984 and the 1986 meetings of the International Association for Mass Communication Research.

Looking at Costs of Graphic Literature

Adapted from "Photonovels, Comics, and Graphic Literature: Popular Print Media for Development," by Bonnie Cain.

A medium cannot be judged cost-effective unless it is first *effective*. Only when no other medium exists that is less costly for at least the same level of effectiveness, is it a worthwhile investment. And, ultimately, the medium can only be a cost-effective choice when the educational program using it can afford the costs of development and dissemination. The fact that photonovels and comic books are relatively inexpensive is not the only reason, or necessarily the best reason for considering them; rather, that they are an effective means of delivering persuasive instructional messages.

What are the costs involved in producing photonovels and comic books? Costs of any medium are the costs of obtaining services and supplies to put that medium together within a specific setting. In one country, printing paper may be readily available at reasonable prices. In another, there may not be a reliable supplier and paper costs may be excessive. Affordable graphic artists may be available in one country and nonexistent in another. Some costs can be retrieved through advertisement or sales, or by having an efficient distribution system. The following hypothetical case study illustrates the numerous cost factors that make it difficult to predict what the final expense will be.

The Case Study

A populous country has seven major ethnic groups, each with a different language. Malaria is found in all these regions and all recognize there is a need for a national educational campaign to treat the problem. The need is for universal action to cover or treat mosquito breeding grounds and for increased understanding of how to treat trauma cases of malaria. The objectives are to ensure that the families of each region learn about family and community health, control of malaria, and community organization and adult education.

The communicators decide that the messages are too complex to use the broadcast media, with language differences complicating matters further. After considerable research and analysis, the campaign directors decide that the most cost-effective approach is to produce a series of photonovels built around the lives of the Ranna family. The lessons are to be illustrated as the Ranna family grows and prospers. Story lines will be developed and messages tailored to the regional and ethnic audiences. Polaroid photography and Xerox copying techniques will be used to create culturally accurate booklets for each of the regions. Booklet covers will carry public service announcements.

Expense Factors:

- Market research, modes of message presentation, quality of illustrations, distribution systems;
- Salaries for photographers, writers, researchers, and staff support;
- Printing of covers and duplication services;
- Distribution and transportation costs.

Savings Factors:

- Costly in-country printing and paper supply problems are avoided when two local businesses agree to donate the use of high-speed Xerox machines which reproduce photographs well and to provide the paper at cost. They will also donate personnel to run the machines.
- Polaroid pictures bypass the film development process and immediately show the amateur photographers whether or not their pictures are good.
- Participating ministries have agreed to use their existing extension and community education programs to distribute the materials.
- Multiple ministries using the same medium for their educational messages, will realize savings through shared costs.
- Market research and testing will produce instructional materials that will be understood without the intervention of outside specialists.
- The photonovels will be read and shared among families and other community members. Because materials will be circulated for a long period of time, it will be attractive to potential advertisers.

Potential Cost Recovery:

- Poorly trained extension personnel will be able to use the materials as effective instructional aids.
- Public service announcements by other departments and ministries not involved in the malaria campaign, might result in paid advertisements.
- Businesses may request ad space on the covers, or wish to include inserts in the booklet.

Cost Effectiveness Decisions

The important question is, which medium will achieve the best results for the lowest price? Given the high cost of paper in the case study presented above, would radio broadcasts or print advertisements have been a better choice? Photonovel and comic books have unique cost characteristics that influence the cost decision:

- The Pass-along Factor:

The pass-along factor takes into account how many people will actually see a magazine or other periodic publication. Descriptive evidence, mostly anecdotal, shows that audiences share their photonovels and comic books with their families and other community members. Shops where used commercial photonovels and comic books are resold can be found in most countries.

The pass-along factor should also be considered in the printing and distribution costs. It can safely be projected that at least two other people will read each copy distributed. Thus, if 2,000 photonovels or comic books are handed out, the costs should be divided by 6,000 to reflect this pass-along factor.

- Commercial Versus Educational Costs:

Commercial photonovels and comic books are produced cheaply and rapidly. Often the entire production process of a photonovel—conceptualization, scripting, casting, shooting, and editing takes only four days. With wide distribution, unit costs of the materials are extremely low, and a sizable profit can be expected.

Educational photonovels or comic books, on the other hand, are developed by researchers and instructional media specialists. Their consulting fees or salaries absorb a sizable part of the production costs.

- High-end/Low-end Production Costs:

Production choices influence cost enormously. For example, photonovels can be made with a researcher, ministry personnel, evaluators, pretesters, professional photographers or artists, paid actors and professional writers. They can also be developed by one locally-trained media specialist using a Polaroid, who writes the story with help from the audience and pretests at the same time. The latter type of production can be completed in two weeks and is typically printed on newspaper stock, while the former often takes six months and may be printed in three colors on glossy stock.

A more elaborate production may still be the more cost-effective if it is widely distributed, is so well-designed that trial readers easily understand the graphics, and is integrated with other elements of the program to ensure impact.

A decision must be made on how many refinements should be made to a product. While the publication might be capturing only 70 percent of the intended audience, it may not be cost-effective to try to reach that last 30 percent. It may be cheaper to create a separate message for that group than trying to appeal to the entire audience with a single product.

- Cost Effectiveness:

How do the costs of photonovels and comic books compare with those of other media equally effective in achieving the same instructional goals? Photonovels and comic books are uniquely effective in delivering instructional, emotional, persuasive messages to audiences that wish to remember and review the ele-

(*Continued on page 12*)

TUNING IN

Radio Education in the Dominican Republic

by Beatriz Casals-Andrews and Ruth Eshgh

The following article appeared in the first issue of Radio Learning, *August 1986, a publication of the Radio Learning Project. DCR would like to thank Thomas Tilson, Project Director, for allowing us to reprint this article in its entirety.*

In 1982, the Radio-assisted Community Basic Education (RADECO) project was implemented in the Dominican Republic as a means of bringing basic education to children seven to 14 years old who do not have access to public schools. Through the cooperative effort of the U.S. Agency for International Development (AID), InterAmerica Research Associates, and the Dominican Secretariat of Education (SEEBAC), basic skills are being taught through the medium of radio in the rural areas of the Dominican Republic where there are no schools and where children must work during regular school hours.

RADECO

The goal of RADECO is to teach children the basic skills they would have learned had they gone to regular school. To achieve this goal RADECO has developed a program of practical, low-cost, effective radio-based instruction in the primary grades. Lessons are based on existing Dominican curricula and reflect the special historical, cultural, economic, and social characteristics of the nation.

RADECO faces the task of incorporating instruction for an entire grade-level into a sequence of daily, hour-long broadcasts. The resulting program has to be fast-moving enough to hold the interest of a seven-year-old child and, at the same time, cover sufficient materials so that the required skills are learned.

Each day, after completing their work in the fields, the children meet at the centers where they are given instruction in basic skills. Reading, writing, and arithmetic are stressed, while social studies, science, music, and physical education are also presented. Although the children are supervised by an adult proctor, or radio auxiliary, instruction is given almost entirely by radio.

The success of interactive radio education can be attributed largely to the innovative style of the broadcast lessons. During interactive radio lessons the learner is constantly active, asking and answering questions, engaging in structured conversations, reading, writing, calculating, solving problems, standing up, moving purposefully about, participating in active songs, games, and exercises – for the course of an hour of lively, focused study.

The results from the RADECO project are the most powerful demonstration to date of the capacity of interactive radio to provide effective instruction in basic skills, whether or not a trained teacher is present, and without significant investment in accessory instructional materials.

Institutionalization

On March 19, 1986, RADECO realized its international development goal when the Secretariat of Education formally institutionalized the project as a permanent educational program in the Dominican Republic. Key factors which contributed to institutionalization are 1) the existing need for an alternative to formal education, 2) acceptance of interactive radio by professionals as well as the communities as a viable alternative to formal education, 3) the human commitment and involvement, and 4) development of local capacity to maintain the project after AID support ends.

The scattered population of the southwest region of the Dominican Republic and the lack of schools and teachers created the need for an alternative educational approach. Initially, educators doubted the methodology of interactive radio. Open communication between the project and the educational community minimized any resistance and the positive outcome of the evaluations gained their support.

Commitment to the project existed at all levels. Local as well as AID support for the project enabled the benefits and successes of the project to be highlighted and provided the essential support needed to implement the program. Local support and acceptance were the result of the community outreach component.

By visiting the targeted communities in the southwest region of the Dominican Republic, the RADECO staff learned that education was considered an urgent need. The community members wanted to be able to write letters to friends living in other communities, to be able to read the newspaper, and to make purchases without fear of being cheated.

The communities were asked to help by identifying candidates for radio auxiliaries, potential students, and possible sites for the *enramadas* or shelters where the children would listen to the radio broadcasts. They also helped build small learning centers for the children to use. These centers were frequently very simple, but the labor put into them reflected the strong need felt by parents for an education for their children. By involving the communities in the decision-making process and in the contribution of goods and labor, they became partners in achieving the goals of the project.

The development of local ability to sustain a project of this type was as important to the institutionalization of RADECO as was the community outreach component. The RADECO management plan relied heavily on existing resources and on the host country infrastructure. By remaining flexible when designing the management plan, RADECO was able to more closely respond to local needs.

Key responsibilities of project management, design, and implementation were assigned to staff members already part of SEEBAC. Thus the project was able to provide vital training and development needed to manage such a program. By including institutionalization in the management plan from the onset of the project, the foundation needed for continuation of the program was developed.

Through clearly defined project objectives, local capacity building, utilization and expansion of existing resources and infrastructures, and hard work, RADECO has succeeded in ensuring that children in the southwestern region of the Dominican Republic will continue to have access to a primary education.

For more information on RADECO, contact Beatriz Casals-Andrews, InterAmerica Research Associates, 1555 Wilson Boulevard, Suite 700, Rosslyn, Virginia 22209, (703) 533-0870, or Dr. James Hoxeng, U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, Washington, DC 20523, USA. ■

(**Rappaport** *continued from page 16*)

lence, or hesitations. Incorrect facts presented no real problem. A too-low fence keeping a camel out of a garden or the wrong tool in a character's hand was soon put right, but the picture strip of an unfamiliar process, such as mixing kerosene emulsion, was received with bland politeness – a clear sign that it should be thought through again.

When those tested could immediately identify the characters and their actions, they could often also tell what was being said or at least find the remark in the balloon. In some pictures they could recall the words used to describe various pictures after several days. Humor, emotion, and social appropriateness serve to make a picture memorable. It pays to give as much thought to the human setting of the information as to its technical content. One accepts advice from friends much more happily than from strange or unidentified sources.

From casual audience testing, it would seem that taking advice from a book presents no particular difficulty to the preliterate rural population of the western Sahel and that reading pictures is a natural and effective way to transmit technical information. A handbook of this nature would speed rural development and repay further research. For further information, contact Rosalyn Rappaport, 31 Lodge Lane, London N12 8JG, England. ■

Rosalyn Rappaport, has worked with the U.S. Extension Service and as a research horticulturist in the Caribbean and in Africa.

Why Another Handbook?

The Clearinghouse would like to thank George Grimmett for his kind permission to reprint an abridged version of the following article which originally appeared in the June 1986 issue of Media in Education.

by Rosalyn Rappaport

After a year of working at the Mauritanian Vegetable Production Project at the Sani Oasis and observing the farmers of the Senegal River Valley, planners had confronted the problems of vegetable gardening at the edge of the desert. At Sani, simple methods had resulted in a paradise of plenty and it was time to spread the good advice around. The Project hired an artist, and I (the horticulturist) started to write "method sheets" intended to grow into a handbook of vegetable technology.

Mauritania has its share of intelligent, innovative farmers who, by trial and error, have solved many of the problems of Sahelian vegetable production. Unfortunately, distances and the costs of travel trap these ideas at their points of origin. A handbook that presented these ideas in a lively teaching format seemed the most economic, adaptable, and lasting means of technique transfer. It would inform farmers of what their peers were doing in other parts of the country and could start others thinking along similar lines.

There is a small Extension Service but, even were its numbers increased, it would always be insufficient to meet with all the gardening cooperatives in this huge country. According to the World Bank, "Agricultural Extension Services are most effective when they support a profitable or risk-free technology." The handbook is planned as a source of this kind of information.

What Kind of Handbook?

Small landholders, large-scale farmers, extension agents – all would want the facts – but in different detail and presentation. In larger villages there is usually someone who can read and, since scientific background should be available to those who can use it, this suggested two levels of text.

The contents would be confined to locally developed techniques drawn from western Sahel. In Mauritania, as throughout the Sahel, rainfall management and date-palm irrigation are ancient practices and in the thirty years since irrigated vegetables appeared in the region enough local expertise has accumulated to complete a text covering some fifteen vegetable crops. Local solutions are well adapted to climate and terrain, are within ordinary labor and financial limits, and take account of consumer preferences.

Each information unit – preparation, crops, protection, processing – would be composed of a simple account of what to do, followed by the scientific explanation of why the procedure works, the latter intended mainly for the Extension agents.

Doing It

Justification arrived at and content decided, the format seemed equally clear – a dispassionate, carefully sectioned text illustrated with diagrammatic figures. The project hired Mohammed ben Bara, a high school boy with a talent for copying. It didn't take long to produce the first sheet, "Planting Onions." Mohammed had combed the technical literature to good effect, reproducing familiar persons planting, measuring, etc., in profile. The page could not have been clearer.

Preliminary comprehension tests were carried out on the project's three drivers. The office staff read them the text, pointing out the illustrations and then asked who the drawings were of and what they were doing. The drivers duly *admired*, but were mystified. They did not understand the text nor could they theorize about the pictures. Dismayed, I started asking questions such as "Who is this man?" which produced answers such as "He is poor," "He is a picture." If our work was incomprehensible the idea must be abandoned. Our artist's job was preserved when I discovered, in a corner of his notebook, a delightful caricature of a bird perched droopily on a camel. I persuaded Mohammed to draw some cartoon people carrying out familiar agricultural tasks.

He drew a plump seductive matron hoeing and her husband, cheery and muscular, wielding a pick. Upon showing them to our drivers, they voiced the general opinion that "These are the people to ask because they know the business;" and Suzie, the bird, "the outsider," was free to speak her mind – tactlessly if necessary. The next step was to develop the story line; the real difficulties began at this point.

Each cartoon comprised six to eight conversations. Problems emerged as we merged the cartoons with the script. In particular, the farm family seemed locked into the role of lecturers who were not doing much. To emphasize the family's active role, I started to write up the scenarios as little dramas. Emphasis was moved away from technology toward the family's attempt to use the technology. This both enlivened and "telescoped" the stories, enabling more information to be included in one frame. It more closely reflected life, where family members pursue their responsibilities simultaneously. Facial expressions could express acceptance or rejection of ideas; neighbors were added; interpersonal relationships became important to the effective telling of events.

As time passed and the refinement of the cartoons proceeded, I realized the enormous potential of comic strips. Mohammed and the project's staff now contributed ideas to the comic strips. The figure below illustrates how people would benefit from having more vegetables in their diets. Marianne dreaming of cous cous topped with vegetables brought roars of laughter and set me to search for more comic situations. (See illustration below.)

Pictures Carry Information

A well-drawn picture presents a whole situation, facts plus implications at a glance—its advantage over the written word. At its best, our comic strip combined this overview with the precision of the written word in a very concise form – the "ballon." One such frame may carry multiple messages of equal or ranked importance.

The main message may be varied. Most agricultural procedures recur but, particularly with vegetables, they do so with variation. Comic strips have a special ability to present this repetition with variation. This leaves the instructor or reader free to select from several story situations exactly what he or she needs to make or understand a point. The opportunities for cross reference are practically endless.

Comprehension and Retention

As ex-farmers who had for years ranged the western Sahel, our drivers were well-qualified observers of the rural scene and their reactions to our pictorial representation of the work they knew so well, was exceptionally enlightening. Politeness forbade them to criticize openly and the existence of errors or misconceptions could be inferred only from their si-

(*Continued on page 15*)

Development Communication Report
Clearinghouse On Development Communication
dcr
1987/1
No.56

Teachers Interact with Radio in Nepal

by Philip A.S. Sedlak

In a country like Nepal, logistics problems are formidable. Much of the country is very mountainous and roads provide access to only part of the country. Reaching distant populations is far more expensive than in many other developing countries. A project currently underway is attempting to determine the efficiency of interactive, radio-based teacher training as a viable substitute for face-to-face interaction. A number of projects sponsored by the U.S. Agency for International Development (AID) have already shown that radio can be an effective, cost-efficient medium for the provision of quality instruction in the classroom. (See *DCR* Nos. 49, 51, and 52.)

The Radio Education Teacher Training Project (RETT), now in its second phase in Nepal, has many features in common with other interactive radio education projects. We are applying curriculum development principles of systematic planning, distributed learning, and cyclical instruction as well as the principles that effectively exploit the radio medium, such as intensive broadcasting, interactive learning, immediate reinforcement, an engaging instructional pace, and maximal time devoted to the given task. At the same time, RETT contrasts in many ways with projects such as Radio Mathematics in Nicaragua and Thailand, Radio Language Arts in Kenya, and RADECO in the Dominican Republic. (See above-referenced *DCR* issues.) Because of differences between these radio projects, the RETT lessons have taken on a new form, but the instructional and broadcast design principles have remained basically the same.

The major focus here will be to compare audience characteristics. I hope this comparison will be of use both to educators interested in radio for classroom teaching and to those who may want to exploit the medium for other kinds of distance teaching, especially teacher training.

Background: RETT I

In 1972, the Nepalese government, in conjunction with AID Nepal, began to develop a plan for using radio in education. The feasibility study done at that time suggested that the best use of educational radio in Nepal would be to train and upgrade underqualified primary school teachers who had not yet passed the school-leaving certificate examination (SLC) administered to most candidates at the end of the tenth and final year of the Nepali school system. At present, twenty-seven percent of the primary teachers have not passed the SLC. Approximately fifteen percent are both untrained and under-certified. Armed with the mandate to improve teachers' skills and qualifications, the first RETT phase began in 1978 under the guidance of the Ministry of Education and Culture.

In this first phase, Radio Nepal received a 100,000-watt shortwave transmitter and antenna, as well as other equipment. In-country or overseas training was provided for the newly-recruited Nepali staff. We then developed a curriculum covering teaching methodology for six primary school subjects: Nepali, mathematics, social studies, health, physical education, and art. Rural development and education were added to this basic six-subject curriculum. Two hundred hours of program material were produced and broadcast, accompanied by self-instructional materials for each lesson. Radios were loaned to participating teachers and the self-instructional materials were distributed.

Broadcasts began in August 1980, with an enrollment of 5,593 teachers from 72 of the 75 districts. Of this number, 2,944 have received certification as trained teachers. Teachers who participate in the ten-month course and successfully pass the RETT examination are recognized as trained teachers and receive monthly "training allowances" over and above their regular salaries.

The RETT project has become institutionalized within the Ministry of Education and Culture as the Radio Education Division, with its own offices and studios in a suburb of Nepal's capital city, Kathmandu.

(*Continued on page 2*)

On the 25th anniversary of the U.S. Agency for International Development (AID), David Sprague, Director of the Office of Education in the Bureau for Science and Technology, reflects on AID's past communication-related activities and looks toward a future that will involve us all in applying the lessons learned.

Approximately fifteen years ago the Office of Education in the Bureau for Science and Technology (then Technical Assistance Bureau) determined that communications technology could play a vital role in delivering information and providing instruction in developing countries. Beginning with pilot demonstrations in primary school mathematics and nutrition education, the program has developed into full-scale operations in almost every sector.

Emphasis upon the systematic use of media began with a thorough analysis of the social and economic conditions that developing countries would face for the foreseeable future. It was readily apparent that well-trained, fully-qualified teachers, trainers, extension agents, and administrators would not be available in sufficient numbers, especially in rural areas, to implement development programs. As a result, many people would never receive the education, training or information they need to improve the physical conditions of their lives. In addition, many of the development programs would be of such uneven quality that even if the information or training reached the intended audience, it could be ineffective and consequently wasteful of scarce human and fiscal resources.

Countries as culturally diverse as Honduras, Kenya, and Nepal have successfully demonstrated with AID support that communications technology can overcome the barriers of distance and isolation and make up for the scarcity of trained personnel. Children have been successfully taught reading and mathematics, mothers have learned how to administer oral rehydration therapy to sick infants, universities have extended the reach of talented professors to distant campuses where students would otherwise rarely have the opportunity to hear them, farmers have learned how and when to use fertilizer – all by the systematic and judicious use of communications technology.

It is our task now to inform governments, donors, all who are concerned with development, that a tremendous tool exists which demonstrates its effectiveness and affordability if properly designed and implemented. That is the task that lies ahead. ■

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue. . . .

AID Message 1
Nepal Interactive Radio 1
Briefly Noted 4
Liberia's Health Vehicle: Radio 5
On File at ERIC 6
Managing Telephone Systems 7
A Communicator's Checklist 8
Supporting Development Communication 10
Mahaweli Community Radio 11
Chinese Health Audiovisual Program . . 12
How Large the Gap? 13
"L'Ecole des Moniteurs" 15
Agricultural Communication in Sri Lanka 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel.(202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Specialist
William Amt, Program Assistant
ISBN0192-1312

AED
International Division

Academy for Educational Development

(**Sedlak** *continued from page 1*)

An evaluation toward the end of the first phase of the project showed that the target group of untrained, rural primary teachers had been successfully reached. Because the first phase concentrated primarily on methodology, the evaluators recommended a second phase be implemented to focus on improving the teachers' understanding of core subject areas.

Background: RETT II

The second phase, RETT II, has two purposes: to upgrade teacher proficiency in major content areas, and to continue to prepare teachers for the SLC examination. Under RETT II, radio lessons are produced to coordinate the content from years 7, 8, 9, and 10 of the Nepalese school system in English, mathematics, science, and Nepali. Listeners are currently receiving three lessons per week over a 39-week period.

For 1986, the RETT II pilot year, we prepared radio lessons in one subject area only – English. Two hundred teachers from five districts of the country are participating. The number of participants and subject areas offered will both gradually be expanded. Current plans are to include lessons in mathematics in 1987 and science and Nepali at a later date.

Project design and planning were carried out jointly by AID and the Ministry of Education and Culture's Radio Education Division. The interaction element was first included during this phase. If the interactive method is successful in reaching the current target audience, there is a strong likelihood that the radio series can also be used by high school students who are preparing for the SLC examination. With the consolidation of institutional structures at the Radio Education Division and further training of scriptwriting, production, and administrative personnel in radio education, sufficient potential will exist for the logical move to in-class interactive radio instruction.

Audience Characteristics Comparisons

As noted, the RETT project is similar in many ways to other interactive radio projects. There are, however, major differences, dealing primarily with audience characteristics, which have played a major role in shaping the teacher training project. I will briefly discuss these differences along with other related issues.

The formative evaluation process provides the type of information about these differences that is particularly helpful in making design and production changes of radio lessons. This in-process evaluation requires scriptwriting, production, and research and evaluation personnel to observe the target audience of teacher-listeners regularly while they receive their lessons over the radio. Careful notes are taken of the listeners' responses and reactions and no assumptions are made about the appropriateness of the lessons. All features of the programs undergo the same rigorous assessment through intensive formative evaluation in order to determine what does and what does not work.

RETT Phase II Projects	Other Interactive Radio Projects
Audience Characteristics	
1. Adults	Children
2. Teachers	Students
3. Individuals	Group
4. Unmonitored	Monitored
5. Home setting	School setting
6. Voluntary	Captive
Level of Instruction	
7. Secondary	Lower Primary
Time of Broadcast	
8. Evenings	School Day
Incentives	
9. Internal	External

1. Adults comprise the audience for the RETT projects whereas children are the target audience for other interactive radio projects. The implications for the design of the radio programs are many. Because adult attention spans are longer, teaching segments within individual broadcasts may be longer as well. Radio characters and content must be presented in a style appropriate to an adult audience. The quantity and quality of songs and games must be carefully measured.

   Listener interaction is important from the start. If listeners do not participate, it is very likely they will fall behind and eventually drop out. A major question at the beginning of the series was how well adults would interact with the radio. Would they be as willing to risk providing responses to a radio as children have done? In fact they do, but they need encouragement, both over the radio and through orientation sessions.
2. While RETT learners are primary school teachers, in other interactive radio projects the learners have been pupils. This difference has influenced both the dramatic and the pedagogical content of the lessons. The appropriateness of these content features is ascertained through the formative evaluation process. Observation of teacher-participants in RETT II revealed that drills are an important feature of the programs. They assist listeners in reinforcing structures that they have been learning and also give listeners increased self-confidence. The drills are often simpler for the listeners than other program material and become second-nature after a little practice.
3. In RETT II, learners participate as isolated individuals, whereas in other interactive radio projects learners participate in a group. This distinction was critical in the design of the learning package. With RETT II's emphasis on individual learning, there was not a strong need for training in the use of participation cues as is usually the case in most programs for group learning. Instead, we spent considerably more time in designing off-radio orientation sessions and on-radio repetition of participation instructions in order to train isolated listeners to respond appropriately.

   The single-listener audience for RETT

(*Continued on page 3*)

(**Sedlak** *continued from page 2*)

II has presented a serious problem for the formative evaluation team. Because of transportation problems in Nepal, it has been difficult to assemble a group of individual learners who could be observed at regular intervals throughout the course broadcasts. The individuals to whom we have easiest access, those from the Kathmandu Valley, are observed listening to every lesson, although during the current phase we are also receiving limited information from observers of distant listeners which is more valuable because they are less frequently observed. In classroom situations, students are likely to improve their behavior under observation conditions, but improvement is even greater with the intense one-on-one intervention which we have been required to use thus far. Participants who are intensively observed are rapidly outpacing listeners who are never monitored. During the next phase of the project we hope to recruit a larger pool of individuals for observation who will be monitored less frequently, thus be more representative of the group as a whole.

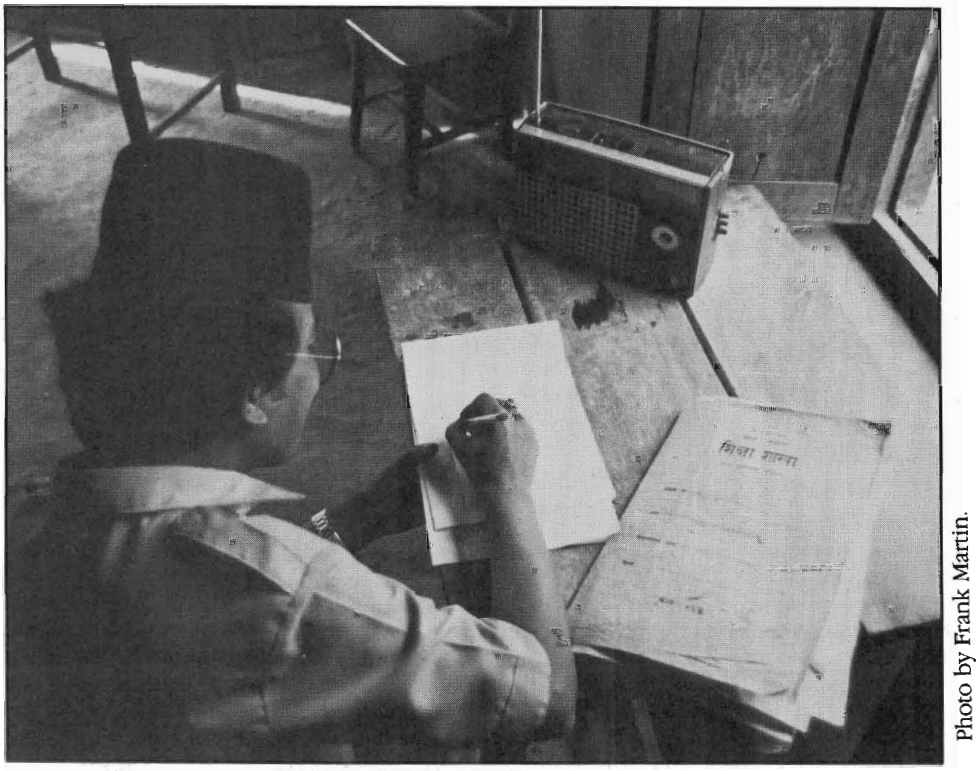


Photo by Frank Martin.

A Nepali teacher sits in a quiet corner in his home, upgrading his skills with help from interactive radio programming.

"... the advantage interactive radio offers ... is its compelling participatory element ..."

4. Other projects have used a teacher or a facilitator to oversee the activities of the learners. In the RETT projects, the learners themselves are responsible for their activities, meaning instructions to the listeners must be conveyed clearly, either during the orientation sessions or during the broadcasts. There are no teachers nearby to be sure that instructions are correctly understood and that listeners are performing them.
5. RETT II listeners receive the programs in their homes whereas pupils in other interactive radio projects receive radio programs in the schoolroom, or, in the case of the RADECO project, in a school-like setting. Distractions, such as the on-going activities of family members or the presence of visitors are by their nature, more difficult to control in a home than in a schoolroom environment. Home-bound listeners also miss broadcasts more often than do those in a classroom setting since "attendance" is self-enforced. By using on-the-air "social marketing" announcements and face-to-face orientation sessions, we have encouraged listeners to minimize distractions and to find an isolated listening spot if at all possible. We have also stressed that if learners fail to tune in to broadcasts they are likely to fall behind and may eventually drop out.
6. Related to the nature of the listening environment is the captive status of other interactive radio project audiences. The RETT participants are voluntary listeners, which means we must market our programs more forcefully than would be necessary in a classroom setting where a teacher would be present to ensure listener participation.
7. In other interactive radio projects, instruction is focused at the primary level – making it relatively easy to establish a consistent starting point for the curriculum sequence. Since RETT II focuses on the secondary level, we have had to pretest participants to establish a curriculum baseline starting point. We have been able to determine the average level of achievement in various skills through this pretesting, but it does not tell us how to determine the pacing of the programs. Obviously, the starting point in the curriculum is not the average achievement level. Instead, it must fall somewhere below that level. Therefore, pretesting of early lesson segments and rigorous formative evaluation are essential to ensure that the level both of broadcasting and of average listener's progress are harmonious.
8. Other interactive radio projects broadcast their lessons during the school day, whereas RETT projects broadcast in the evening, creating conflicting demands on RETT listeners' time. One way of responding to this conflict is to repeat the course offerings more often than is done in other interactive radio projects.
9. In other interactive radio projects, many of the incentives are provided by the school system: the opportunity to acquire a higher level of proficiency in the target subject and thereby be promoted or the chance to demonstrate appropriate abilities before the teacher and before one's peers. In the RETT II project, while incentives may be provided by outside agencies by offering discounted radios, increased job security, certification, or more pay increments, the decision of how faithfully to participate remains primarily with the individual.

Discussion

Engaging the attention of the learner is an essential aspect of any effective learning system. The pedagogical effectiveness of interactive radio has been empirically verified in Nicaragua, Kenya, the Dominican Republic, and Thailand. Although passive-listening radio models have been shown to be effective, their effectiveness in comparison with the interactive radio model has not been demonstrated. I believe the advantage interactive radio offers over passive-listening radio models is its compelling participatory element, requiring repeated exchanges throughout the program. It is this high level of participation that guarantees the engagement of the learner. Increased participation is also a major proven factor leading to achievement differences between interactive radio learners and traditional classroom learners.

The challenges outlined here are those shared by any radio-based instructional system. Two unique qualities of the interactive radio model – repetition and rapid feedback – help to meet those challenges by affording better educational access and higher quality education not only to school children, but to their teachers as well. ■

Philip Sedlak is the radio education specialist on the RETT II Project, and was formerly the linguistics specialist for the Radio Language Arts Project in Kenya.

Briefly Noted

by Robert Vittel and William Amt

• Readers involved in the implementation of rural community development projects will be interested in a new publication from World Neighbors. Written by Jim Rugh, *Self-Evaluation: Ideas for Participatory Evaluation of Rural Community Development Projects* provides helpful ideas about why project evaluations are important, who benefits from them, by whom and when they should be conducted, what aspects of the project should be evaluated, how to undertake an evaluation, and the importance of communicating and acting upon evaluation findings. This booklet also includes two evaluation case studies and sample forms as guidelines for an evaluation team. It is appropriate for both program administrators and local program personnel working in the fields of health, nutrition, agriculture, and community development. Available in English only for US$5 (if at least 25 copies are ordered, cost is US$4 each) from World Neighbors Development Communications, 5116 North Portland Ave., Oklahoma City, Oklahoma 73112, USA.

• The Centre for Development of Instructional Technology (CDIT) in India has published a partial listing of its database of audiovisual materials produced by various Indian and international organizations and agencies. *A Resource Guide to Audiovisual Communication Materials on Development Issues* has 141 entries whose titles cover a wide range of development topics, from "Stall Feeding of Goats" (illustrates how stall feeding is preferable to grazing, which can be environmentally damaging), to "Immunize and Protect Your Child" (explains to mothers the importance of immunizing their children against various diseases), to "The Role of Folk Media in Extension Education" (shows how local traditional media can be effective in teaching new ideas to villagers), to "Yes, I am a Working Woman" (tells of the situation of urban working women in India). The films are designed for training extension workers and educating villagers and urban dwellers. The guide's entries include the name of the film, the formats and languages in which it is available, by whom and in what year it was produced, an abstract of the film, and the distributing organization name and address plus conditions of film availability. Copies of the guide are available for 10 rupees (US$1.00) from the Centre for Development of Instructional Technology, D-1 Soami Nagar, New Delhi 110017, India.

• FAO Forestry Paper No. 66 *Forestry Extension Organization* is an in-depth handbook for those concerned with the organization of community-based forestry projects. It addresses the need for interrelated roles of extension agents and community members in order to successfully carry out a forest management project. The handbook, which is comprehensive enough to be used by people in various climatic and cultural settings, outlines appropriate methods of extension; how to design and implement the project around the needs and resources of a community's socio-economic structure; how formative evaluation with the participation of the community can improve the project; and the characteristics of an effective organization structure. Supplementary reports include FAO:ACFE/86/11 *Forestry Extension Curricula* and the forthcoming *Forestry Extension Methods*. All are available from the Food and Agriculture Organization of the United Nations, Via della Terme di Caracalla, 00100 Rome, Italy.

• The African Council on Communication Education (ACCE) has recently published the first issue of its new scholarly journal. This first issue of *African Media Review* examines the strategies and challenges of communications for rural development in Africa. It includes an excellent selection of articles written by well known African scholars in the areas of communication technology, communication research, comparative journalism, social-marketing communication, and communication policy making. *The Review* is intended to serve as a forum for African communication specialists, challenging them to "develop, promote, and direct appropriate tools to solve Africa's problems, especially in rural areas where communication is a decisive factor." Subscriptions to *African Media Review* are available at US$30 per year for three issues from the ACCE Institute for Communication Development and Research, P.O. Box 47495, Nairobi, Kenya.

• The International Network of Non-Governmental Organizations (INTERDOC) and the *Instituto Latinoamericano de Estudios Transnacionales (ILET)* have recently begun publishing a bimonthly bulletin in Spanish called *CONTACT-O*. This bulletin covers the how-to of regional and international computer networking: joining a network, hardware needed, data base systems, electronic mail, data transmission, etc. It also updates current activities in information and communications technologies applications in non-governmental organizations worldwide with particular emphasis on developing countries. *CONTACT-O* contains a very comprehensive selection of articles on informatics and networking between countries; recent articles have covered topics such as telecommunications costs in Latin America, communication and development, computers in research, and information on numerous microcomputer and information networks around the world. A recent issue (2/86) was also published in English. *CONTACT-O* is available in Spanish by writing to the Instituto Latinoamericano de Estudios Transnacionales (ILET), Casilla 16637, Correo 9, Santiago, Chile.

• Attention francophone readers: *Actualité des Techniques de Communication dans le Monde (ATC)*, a quarterly journal published by *TéléDiffusion de France*, is a good source of the very latest information on communication technology activities around the world. A recent issue (July 1986) is loaded with many news-clip style announcements on current events and happenings in satellites, cable-TV, audiovisuals, videotext, radio, broadcast TV, informatics, and new product developments. Emphasis is placed on reporting activities on the national and international level, including extensive developing-country coverage. There are particularly relevant and interesting sections on the introduction and application of these technologies in and among developing countries. The final pages are devoted to a calendar of current national, regional, and international communications conferences and expositions. *Actualité des Techniques de Communication dans le Monde* is available in French from: Service Etudes et Documentation, Direction des Affaires Spatiales et Internationales, TéléDiffusion de France, 21-27, rue Barbès, 92542 Montrouge Cedex, France. ■

Robert Vittel and William Amt work in the Clearinghouse.

New *Project Profiles*

A second volume of *Project Profiles* is now available from the Clearinghouse on Development Communication. These 49 brief case studies show how communication media are used to support development projects in the fields of agriculture, health, nutrition, population, education, and integrated development. This volume complements the 72 projects summarized in the first volume of *Profiles*.

The two volumes are available at no cost to those from developing countries, and to others for US$10.00 for Volume 1 and US$7.50 for Volume 2 from the: Clearinghouse on Development Communication, 1255 23rd St., N.W., Washington, D.C. 20037, USA.

Communication Training Opportunities

The 1987 Development Training and Communication Planning (DTCP) short training courses being offered by the United Nations Development Program (UNDP) this year include: "Production Techniques for Instructional Audiovisual Aids," "Communication Campaign Planning," "Production Techniques for Extension Audiovisual Aids," "Training Methods," and two new field- and middle-level management courses.

Nominations are now being invited for candidates whom agencies and projects may wish to sponsor for participation in these courses. Three-week courses cost US$1,935.00 and four-week courses run US$2,125 per person. Fluency in English is required. Nomination forms can be obtained from UNDP country offices or by writing to: UNDP/DTCP, P.O. Box 2-147, 19 Phra Atit Road, Bangkok 10200, Thailand. Cable: UNDEVCOM (BANGKOK).

Liberia's New Health Vehicle: Radio

by Florida A. Kweekeh

Liberia, a West African country with a largely rural population, has joined other Third World countries in promoting child survival programs. Using their new rural-based, 10,000-watt, medium-wave radio system, the Rural Communications Network (LRCN), cooperated with government Ministries, international health organizations, and donor agencies to implement two high-priority child survival programs – one in Oral Rehydration Therapy (ORT), the other in immunization.

A health worker judges some color-the-poster contest entries.

Attacking Dehydration

Faced with the alarming fact that nearly every child in the country will experience four to five episodes of diarrhea during its first five years of life, the Ministry of Health and Social Welfare and donor agencies asked LRCN to assist them in publicizing a newly established oral rehydration center in New Kru Town, a suburb of Monrovia, the capital city. Mothers would be encouraged to bring in their children suffering from diarrhea and learn how to prepare the ORT solution at home.

"Network Liberia," a daily 30-minute educational program on LRCN was selected to carry ORT campaign messages. The campaign consisted of four components. First, a short English-language announcement (a spot), featuring a conversation between two mothers, was broadcast daily beginning in July 1986. In the spot, a mother whose child is very ill is given the location of the ORT center and told how to take advantage of its services by another mother whose children have been successfully treated there.

Second, other messages were prepared in the local language, Kru, that similarly informed mothers about the ORT center and how to prepare the solution at home.

Third, informational segments on oral rehydration were incorporated into "Network Liberia" on a regular basis throughout the four-month campaign period. These segments included interviews with medical specialists, Ministry of Health officials, and mothers.

Finally, a poster coloring contest was organized in September 1986 to encourage potential clients to visit the new ORT center. Cash prizes were awarded to winners in two age groups – those over 12 years of age and those under 12. Contestants were required to pick up posters at the ORT center to qualify for the contest, thereby familiarizing area residents with the location of the center.

Over the four-week period of the contest, 368 posters were distributed. A total of 86 colored posters were returned for judging, which was done by Ministry of Health, the U.S. Agency for International Development, and LRCN employees. Males and females participated in equal numbers with nearly one-third of the entries coming from children. Chalk, water colors, oil paints, colored pencils, crayon, and food coloring were among the media used to color the posters.

Campaign Results

Statistical evidence of the educational impact of LRCN's promotional campaign of the ORT center was gathered by Dr. Dean Wilcox, a consultant from the Centers for Disease Control (CDC) in the United States. His assessment showed the number of visitors to the clinic had tripled during the four-month campaign. Between July and mid-October 1986, diarrhea-related cases brought to the clinic increased from 31 to 90. Center workers said mothers frequently attributed awareness of the center to the radio messages.

Further evidence attesting to the success of the ORT awareness campaign was the decreased number of cases of moderate dehydration, dropping from 70 to 17 percent per month during that time period. Another positive sign was the rise in the number of mild cases – which increased from 30 to 83 percent per month.

While both trends coincide with LRCN's radio campaign, it is recognized that the rise in total cases and mild cases of diarrhea, versus the drop in moderate cases over the same period of time may also be attributed, in part, to mothers using the center's services at the onset of their children's diarrhea. Another factor may be the number of mothers who were taught the ORT procedure who brought their children into the center with less severe symptoms. In both cases the mothers did not necessarily learn about the center from the radio.

Communication planners may question the use of radio for such small-scale interventions and for the purpose of promoting the use of a particular clinic. Nevertheless, it is LRCN's policy to focus on specific development activities designed for particular audiences, and to be satisfied with showing smaller increments of success.

That is not to say larger, national-scale campaigns have not been successfully implemented over Liberia's Rural Communication Network. The experience gained from the ORT promotional campaign was put to good use when the Combatting Communicable Childhood Diseases Program (CCCD) assisted in planning a national campaign to encourage the immunization of children under five and women of child-bearing age. The entire LRCN network cooperated with the Ministry of Health and Social Welfare, the CCCD Expanded Program on Immunization, and Unesco, to disseminate the ORT message throughout the country during the months of November and December 1986.

A series of eight spot announcements were prepared in English and nine local languages for broadcast ten times daily on the three LRCN stations on a rotating basis. Another element of the campaign, a 15-minute drama, was recorded by a popular dramatic group, Our People – One People, known for its insightful and amusing fables of contemporary life in Liberia. Recorded in English and five vernacular languages, the drama was broadcast twice weekly on all LRCN stations, with other Monrovia radio stations running the LRCN spots for broader coverage.

(*Continued on Page 7*)

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files are concerned with the use of computers in education in developing countries; mass media and educational development, agricultural development and social change; and the patron-client network in African media. All six of these documents are available in microfiche, and four are also available in paper copy, from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs can be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of copy per pound.

- Lai, Kwok-Wing. *The Applications of Computers in Education in Developing Countries – with Specific Reference to the Cost-Effectiveness of Computer Assisted Instruction.* 1983, 140pp. (ED 268 978)

Designed to examine the application and cost-effectiveness of computer-assisted instruction (CAI) for secondary education in developing countries, this master's thesis from Queen's University in Canada begins by defining the research problem, describing the research methodology, and providing definitions of the key terms used throughout the thesis in the first chapter. The seven remaining chapters provide: (1) a discussion of the nature of CAI with emphasis on its instructional capabilities and cost-effectiveness; (2) a review of the literature on the effectiveness and costs of a CAI system in developed countries; (3) a general description of some educational problems in the Third World with specific reference to educational poverty; (4) a discussion of the applications of computers in developing countries; (5) cost estimates for a CAI system as used in a Mexican secondary school; (6) a discussion of the appropriateness of CAI in developing countries; and (7) a summary of the research project together with nine conclusions and five recommendations. Selected references, a sample questionnaire and cover letter, a list of computer manufacturers, and a categorization of selected developing countries by level of computer activity are attached. Available from EDRS is microfiche for $.75 or in paper copy for $10.80.

- *Computers in Education. Final Report of the Asian Seminar on Educational Technology* (Third, Tokyo, Japan, September 26-October 2, 1984). 1984, 102pp. (ED 272 149)

The third in a series, this seminar was organized to study the various uses of computer science in education and to analyze the main trends in that field, as well as to discuss problems encountered in the implementation of computer education by the national education systems of the ten participating countries: Australia, China, India, Japan, the Republic of Korea, Malaysia, the Philippines, Singapore, Sri Lanka, and Thailand. The report from that seminar provides: (1) descriptions of the purpose and organization of the Asian Programme of Educational Innovation for Development (APEID) and its participation in advanced technology activities; (2) information from a survey of current computer education and future trends in countries participating in the seminar; (3) discussions of such issues as trends in computer use, training for business and industry, teacher training and retraining, curriculum materials for teacher training, quality and availability of software, determining priorities in purchasing microcomputers, equality of access, ergonomic considerations, copyright policy development, and identification of learners; (4) guidelines for curriculum evaluation and development in computer education; and (5) 13 recommendations for curriculum organization, teacher training, regional cooperation, and Unesco/APEID responsibilities. Attachments include a copy of the opening address, the seminar schedule and agenda; lists of participants and members of the organizing committee; and a curriculum guide for microcomputer training for educators from the Japanese Ministry of Education, Science and Culture. Available from EDRS in microfiche for $.75 or in paper copy for $9.00.

- Romero, Patricia and Sanchez, James Joseph, compilers. *Mass Media Systems (Television, Radio and Satellite) for LDC Regional Educational Development: The Case of Latin America.* Bibliography 23. 1985, 16pp. (Ed 271 260)

Designed to serve as an introduction to the use of educational media in the less developed countries (LDCs), this bibliography provides an overview of materials available in government documents collections. The 49 documents listed are derived primarily from the U.S. Agency for International Development (AID), with two documents having been included from ERIC. Entries indicate the source from which the document can be obtained, and most entries include annotations. Dates of publication for the references range from 1967 to 1981, with most falling in the early to mid 1970s. Abbreviations used in document titles and annotations are defined, and an index provides an alphabetical listing of topics and areas of concern. Available from EDRS in microfiche only for $.75.

- Abbott, Eric A. and de Leon, Cesar Amado Martinez. *Interrelationships between Mass Media Use and Interpersonal Source Use in Agricultural Development: The Case of the Dominican Republic.* 1986, 25pp. (Ed 270 800)

This study examines: (1) how the use of interpersonal information sources, print media, and radio sources are interrelated for agricultural decisions; and (2) which patterns of media use or interpersonal source use are most closely associated with knowledge of recommendations made by agricultural extension services and with adoption of these recommendations. Twenty farmers from small- to medium-sized farms from each of 12 randomly selected areas in the Dominican Republic were selected for interviews. Data were collected on the farmers' use of mass media, interpersonal contacts with extension agents, activities in local organizations, main crops of the farms, and demographic information on the farmers interviewed. Results of data analysis suggest that for these farmers, the use of print, radio, and interpersonal sources of information are closely interrelated, with a particularly close relationship between print and interpersonal source use. It was also concluded that the elements of the information system work together and that adoption behavior is closely linked to interpersonal source use. Available from EDRS in microfiche for $.75 or in paper copy for $1.80.

- Kunczik, Michael. *Communications and Social Change: A Summary of Theories, Policies and Experiences for Media Practitioners in the Third World. Communication Manual.* 1984, 294pp. (ED 267 469)

Intended for media practitioners in developing countries, this manual from the Friedrich Ebert Foundation in Bonn (West Germany) summarizes theories, policies, and experiences pertaining to the role of communication in Third World societies. The nine major headings of the manual are as follows: (1) Explanation of Terms: Theoretical Considerations; (2) Developing-Country Research: From Cultural Arrogance to Ignorance; (3) Individualistic Modernization Theories; (4) Mass Communication and Interpersonal Communication; (5) Structure-Functionalistic Theories; (6) Change of Paradigms in Developing-Country Research; Dependency Theory and World-Systems Theory; (7) The Discussion of Cultural and Communications Imperialism; (8) The Position of Developing Countries in the International Flow of News; and (9) Conclusion: Consequences of Media Policy; the Outlook for the International Flow of Data. Available from EDRS in microfiche only for $.75.

- Fair, Jo Ellen. *The Role of the African Media in Patron-Client Relations: A Preliminary Look.* 1986, 33pp. (Ed 270 769)

Noting the many difficulties in conceptualizing and analyzing development communication, this paper enriches the concept by linking it with a particular form of political, economic, and social organization common to many developing nations – the patron-client network. A brief review of the literature concerned with definitions of development, development communication, and patron-client networks introduces an examination of the interrelationships between patron-client ties and development communication as social forces in a developing nation. The findings of a small content analysis of newspapers from Nigeria and the Ivory Coast are reported to provide an idea of the amount and type of development communication news items available to African readers, as well as the potential impact of the media's participation in the patron-client structure on the type of information disseminated. Available from EDRS in microfiche for $.75 and in paper copy for $3.60. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York, U.S.A.

Agriculture Courses Available

The U.S. Department of Agriculture, in cooperation with the U.S. Agency for International Development (AID) and universities throughout the United States, has announced its 1987 schedule of courses in agriculture and rural development. The four- to nine-week courses, conducted in Washington, D.C. or at universities in over 20 states, are in the disciplines of animal science and natural resources, economics and policy, management, education and human resource development, and production and technology. They are designed to provide developing-country participants with good technical knowledge and the opportunity to test and practice new skills. In the past, sponsorship has been through AID, FAO, international development banks, developing-country governments, foundations, and private organizations.

Among the courses offered is a seminar on Agricultural Communications and Media Strategies to be held at Iowa State University, Ames, Iowa, from June 22 to July 31, 1987. Media areas to be covered include radio, TV and videotape, print media, small media such as posters and flipcharts, and slide/tape/photography.

To enroll participants or to request additional information cable or write to: Dr. Val Mezainis, Director, International Training Divison, Office of International Cooperation and Development, U.S. Department of Agriculture, Washington, D.C. 20250-4300. Telex ARIG/WASH 64334, Mezainis OICD.

(**Kweekeh** *continued from page 5*)

Preliminary data show a significant rise in the number of people receiving vaccinations – in some cases a 300 percent increase was recorded. At Phebe Hospital in Monrovia, classes for nurse trainees were cancelled in order to handle the influx of people coming to be vaccinated. Fifty percent of the people questioned at Monrovian sites identified radio as their primary source of information about the vaccination campaign, and even more, 57 percent, cited radio in the Gbarnga area where a LRCN station is located.

These preliminary results suggest the importance of using local languages to inform targeted audiences by radio. By offering specific information – such as where to go, when, and why – and packaging it in the form of frequent spots and 15-minute dramas, an educational message has proven both popular and effective in Liberia. Likewise, the judicious use of posters and radio contests has helped to create excitement among the listening audience; people are wondering what type of programming LRCN will be offering next. ■

Mrs. Kweekeh is Director of the Liberian Rural Communications Network, which is jointly sponsored by the Government of Liberia and the U.S. Agency for International Development.

Managing Telephone Systems

by Robert Schware

Telecommunications organizations – both public and private – in many developing countries are rapidly expanding to meet an increasing demand and to improve the quality, particularly of their telephone service. Rapid and cost-effective expansion is often restricted by inadequate information gathering and processing, and by people who have insufficient management skills. A management information system (MIS) can be developed to provide the type of information that is needed to support these growing management functions. However, problems may appear when a sophisticated MIS, containing the latest technologies, is brought into an organization and receives all the attention, while other less technical issues are overlooked.

Dr. Robert Schware recently addressed these issues in a report for the World Bank's Division of Telecommunications, Electronics, and New Technology. Some important points made in this paper have been summarized below for readers who are interested in or responsible for establishing or updating telecommunication information systems in developing countries.

1. The ultimate goal of an information system for a telecommunications service is to acquire or produce, and then use the data and information it needs for better management. The behavior and motivation of managers must shift from adopting the newest available technologies to learning to value information *itself* and then using it in decision making.
2. Building an effective MIS requires a thorough understanding and analysis of: the information flow among the departments; the information requirements of various managers; and the performance indicators that are consistent with the overall objectives of the telecommunications service. In many organizations a hasty and haphazard planning job precedes a premature plunge into the implementation of an MIS.
3. Knowing what the basic information needs are, and how to best organize that information are particularly important. Too often, manual data gathering merely assembles vast quantities of useless information, for it is often easier to continue collecting data than it is to critically evaluate the actual data requirements needed for effective decision making.
4. Standards of accuracy need to be determined, and upper level management must periodically review these performance indicators for accuracy and consistency. This activity is seldom considered to be very important by managers.
5. The role and influence of upper-level management is a crucial factor in determining the success of MIS development. Information systems are too important to leave to technicians alone. Managers must be catalysts, ensuring that careful planning occurs regularly. It is their responsibility to be sure that all levels of management agree on the nature and the extent of their final information requirements; that all managers prepare a long term plan for providing the information required and arrange for new interim procedures and training, and that regular progress reviews occur to meet newly identified needs.

With a well-designed management information system in place, a telecommunication organization can quickly identify problems and opportunities to better plan for future expansion, estimate ongoing capital and revenue requirements to maintain a financially sound telephone system, and produce accurate financial accounts and performance reports for their government or other funding agencies at the end of each financial period. ■

Robert Schware is a management information systems specialist and has consulted on the design and implementation of these systems for the World Bank, the UN Industrial Development Organization, and USAID.

Management Training Seminars

The Management Training and Development Institute, Washington, D.C., which offers skill-building seminars for international participants, has recently released its 1987 schedule. These seminars provide short-term training (5-12 days) in practical management and communication skills, focusing on the needs of developing country practitioners.

Seminars listed include Management Communication for Development; Project Planning, Implementation, and Evaluation; Entrepreneurship Training for Development; Managing Development with Microcomputers; Accessing Technical Information for Development; and Training and its Management.

For further information contact: Dr. Robert C. Morris, Executive Director, Management Training and Development Institute, P.O. Box 23975, Washington, D.C. 20026, U.S.A. Telephone (202) 863-0212.

A Communicator's Checklist

1 Publishing in the Third World: Knowledge and Development, P.G. Altbach et al., editors, (Portsmouth, New Hampshire: Heinemann, 1985) 226pp.

This book provides a basic overview to the problems faced by Third World publishers, and presents some compelling arguments for the importance of publishing in the development of any country. The three editors have compiled an interesting set of provocative essays, each written by an expert in the field of international publishing. While the chapters vary somewhat in quality, the result is still effective, and most readers will find the background information to be quite useful.

The introductory chapter discusses the state-of-the-art of Third World publishing in general and gives brief explanations of some of the problems facing these publishers: international dependency, copyright, publishing balance, emerging technologies, distribution, and the economics of publishing. The principal theme of this chapter is that publishing is an integral part of a country's knowledge system and, as such, is crucial to educators, scholarship, intellectual life, and research. Publishing, which is, after all, both a business venture and a cultural resource is an important element in any society that outweighs its economic costs. The ability of a country to establish a viable, indigenous publishing capacity contributes to the economic and social development of that country.

In most Third World countries, the libraries and education system represent the principal market for books, and the second chapter of this overview discusses the challenges facing textbook publishers. Textbooks can improve the quality of education, but as the author of this chapter states, textbook publishing is dominated by developed countries. Indeed, an interesting phenomenon is the effect that philanthropic and aid programs can have; by providing low-cost or free educational materials, these programs work against the development of indigenous publishing concerns.

One of the chief issues in international publishing today is copyright, and the third chapter provides a detailed account of copyright principles and practices. The crucial question explored by this author is the appropriate definition of copyright: What can and should be included under copyright protection? The success of copyright depends on a compromise between public and private interests, between the rights of the author and those of the user. Policies in the field of intellectual property rights have to be defined in relation to policies for education, culture, and information and communications generally. The biggest challenge to copyright is the conflict between protection and access: the protection and encouragement of national culture, versus the need to have access to protected works as a tool for the development of education, science, and technology.

While this is a very interesting and thorough discussion of copyright issues and policies, it is disappointing to find that 1978 is the most recent reference used by the author. This, unfortunately, reduces the chapter to one which is historically important, but not one that readers can use to learn the current status of copyright.

Also discussed are the difficulties associated with book distribution in the Third World. Many of these problems have to do with the nature of the book industry itself: a book is not a standardized product, but a unique creation. The sale of one book does not guarantee a steady customer, and most Third World publishers are not well versed in the intricacies of consumer demand. In many countries, the necessary infrastructure is missing, and no publisher can begin to serve a nation's needs without the support of a sound and efficient network of competent wholesalers and retailers. Added to these general problems are other basic difficulties: a rural, widespread population that is hard to reach; poor transportation and postal systems; a market that must place basic needs before books; the preference for imported books; and a shortage of libraries and bookstores.

The premise of this author is that book reading has economic, cultural, social, and educational implications that must be recognized at a national level, and until this is done distribution problems will take on the proportions of a crisis. Through statistics and regional case studies, the author proceeds to support this pessimistic conclusion, and to exhort Third World publishers to turn their attention from the editorial, design, and production aspects of book publishing to improving distribution.

The remaining chapters of this overview are dedicated to case studies of particular regions or countries: Ghana, Kenya, Egypt, India, China, Philippines, and Brazil. These chapters are of varying quality and interest but, on the whole, provide insights into historical and regional causes for the current crisis in book publishing.

This book is recommended for those who need an overview of publishing in developing countries. Intended as a broad review of the current situation, the book has little new to offer to the expert in the field, but instead serves as a useful summary for the novice, or for those who have a general interest in the broader field of information systems and services for developing countries. ■

Available in the U.S. from Heinemann Educational Books, Inc., 70 Court Street, Portsmouth, New Hampshire 03801, USA, for US$35.00 and from Nansell Publishing Ltd., 6 All Saints Street, London N1 9RL, England for £28.50.

Reviewed by Wendy D. White, Information Services Manager for the Board on Science and Technology for International Development (BOSTID), National Academy of Sciences, Washington, D.C.

2 El Impacto Educativo de la Televisión en los Estudiantes del Sistema Nacional de Telesecundaria, (The Impact of Television on Students in the National Telesecundaria System) by Alberto Montoya M. del C. and Maria Antonieta Rebeil C. (Mexico City: Cuadernos del TICOM, 1983) 123 pp.

Even the casual observer in Mexico cannot help but notice the growing number of private satellite dishes on the roofs of houses and apartment buildings. Not only in Mexico City, but in smaller provincial cities as well, these dishes stand out – incongruous, startling, but indicative of the growing phenomenon that is satellite television. Even for people without a dish, cable services are available. This phenomenon is not exclusive to Mexico; it extends throughout the Caribbean and northern Latin America. The proliferation of satellite dishes and cable TV is a clear sign that Mexicans and other Hispanics want what these devices bring to them – American television.

Even without this equipment, there is a plethora of television *a la americana* on Mexican networks, as well as advertising replete with American products and imagery. Indeed, authors Montoya and Rebeil present some intriguing figures indicative of the major role played in Mexico by television networks and advertising firms, including foreign advertisers.

- In Mexico, 86 percent of advertising fees come from TV, while in Europe – where broadcast structures differ – only 14 percent come from TV.
- In 1979, nearly one-fifth of all TV ad fees came from the Mexican government, a significant boon to commercial TV.
- Two of the three top advertisers on TV are large multinational companies, mainly American.

With these statistics in mind, the authors have studied the effects of television watching on Mexican adolescents, in particular how it affects their beliefs and attitudes about Mexico and the United States. Studied were 12- to 16-year-old students in the *Telesecundaria* system (Mexico's in-school TV program system), and whom the authors dubiously define as having greater sensitivity to TV since they are exposed to it in school as well as at home. Better simply to say that the subjects are adolescent students, not unlike other Mexican teenage students. The hypothesis is that the contents of commercial TV influence students' knowledge and attitudes, and the extent of this influence is directly related to the amount of time spent watching TV.

The hypothesis is essentially proven, although the figures are not individually overwhelming and the method seems to be less than rigorous. For example, it is possible that high identification with fantasy or with the American way of life motivates students to

watch TV, rather than TV being the instigator of that identification. Perhaps many of the variables in the study are not related as clearly as is assumed. In any case, the authors do find some associations. The more their subjects watch TV, the more likely they are to believe what commercials say, to distinguish between social classes on TV, to take soap-opera plots as reflective of and applicable to real life, and to believe in personal sacrifice as the road to riches. In addition, heavy TV viewers are being "decultured" by the substantial quantity of American programming, especially on *Televisa* (the largest and most pervasive television network in Mexico). The figures indicate that these viewers show more admiration for foreign actors, would rather live in the United States than in Mexico, and are about evenly divided in their agreement or disagreement with the proposition that "the American way of life should be established everywhere." This "deculturation" increases among older students.

In terms of news and world affairs, TV is the most credible source among these students. However, they do not know much about current events – at least not those events the study asks about. The students had little understanding of the role the U.S. was playing in El Salvador or that of the Ayatollah Khomeini in Iran. Can we expect this kind of knowledge from this age group? Interestingly, they did know that oil was Mexico's strongest income generator.

The conclusions are neither new nor startling, simply corroborative of the growing recognition that TV is the agent of social culture and consensus, replacing to a certain degree the family, the church, and the political party. TV is a dominant, perhaps *the* dominant, cultural institution among these Mexican students. And, in Mexico, American programming is the dominant viewing fare.

It is common among Latin academics to decry this phenomenon, and the strong role of American TV within this now-dominant institution. The phenomenon is widespread; if you choose to study it you are likely to find it. If you choose to condemn it as a propagator of deculturation, you can do that as well, and justly so. What you cannot do is deny that it is happening or deny that this form of deculturation is being chosen by an impressive number of Latin Americans – and, in many cases, is being paid for by them through cable fees and the purchase of satellite dishes. Should this flight be stopped? Some would say yes. Can this stampede be stopped? Most would say no. ■

For information on how to obtain this and other communications-related Spanish-language publications write to: Cuadernos del Ticom, Universidad Autónoma Metropolitana-Xochimilco, División de Ciencias Sociales y Humanidades, Departamento de Educación y Communicación, Calzada del Hueso 1100, Colonia Villa Quietud, C.P. 04960, Delegación de Coyoacán, México D.F., Mexico.

Reviewed by Peter Spain, who currently is a Program Officer at the Academy for Educational Development with the PRITECH health interventions project.

3 Between Struggle and Hope: The Nicaraguan Literacy Crusade,

by Valerie Miller (Westview Press, 1986), 258pp.

As historian and critic, Valerie Miller reviews the Nicaraguan literacy crusade, a five-month campaign that took place in 1980 soon after the end of the revolution. It involved 500 thousand people, or about one-fifth of the population of Nicaragua, at a cost of US$12 million. She presents the country situation at the time of the crusade, discusses the multiple political and pedagogical purposes of the crusade, its planning, administration, and implementation, and appraises the effort as "an important and successful beginning step in the process of social transformation and nation building."

The author's background for the task embraces over 20 years of activity in Central America, that included work as a development specialist during the Somoza regime, a participant-observer in the literacy campaign, and a member of a U.S. Congressional fact-finding mission. Her review of this crusade was undertaken with the support of the Nicaraguan government, but was independent of government supervision. Her research methods included survey of pertinent literature, review of crusade documents and files, personal observations during the campaign, and interviews with key crusade members.

According to Miller, the Nicaraguan campaign was based on the belief that illiteracy and inequity are inextricably linked. The challenge of overcoming illiteracy becomes part of the larger challenge of overcoming inequity and creating more egalitarian social structures through which the poorer members of a society can participate in the exercise of both economic power and political decision making. As such, the campaign was a political effort to help people become more effective, productive, involved members of their nation while in the process of acquiring the skills of reading, writing, mathematics, and critical analysis.

In July 1979, just two weeks after the revolution ended, the new leaders began planning the literacy campaign. The entire country was surveyed to identify illiterates. Over 200,000 primary, secondary, and university students, as well as their teachers, were trained as literacy volunteers. In March 1980, the volunteers fanned out across the country and began their teaching assignments. The teaching strategy was to engage students in discussions based on photographs found in primers, followed by practice reading of politically-oriented sentences and then concentrating on key words and groups of syllables within those sentences. Mathematics instruction was based on relevant economic themes.

By the end of the campaign, August 1980, over 400,000 Nicaraguans were declared literate based on tests comprised of writing their own name; reading a short passage aloud; answering three questions based on the readings; writing a sentence from dictation; and writing a short composition. According to the official government figures, illiteracy was reduced from 40 percent to 13 percent as a result of this single campaign.

Based on this incredible statistic and on personal interviews, the author declares the campaign a success, claiming that "it provided the poorest and most abandoned members of society with concrete literacy skills, and a special awareness of their own potential and an ability to express themselves."

The book, unfortunately, does not succeed quite as well in all that it sets out to do – record the history of the campaign and give a critique of the campaign. It does provide a good historical account of the literacy crusade, discussing a great deal of detailed information and sharing revealing anecdotes – something so often lost in other campaigns of this type.

On the other hand, Miller does not present an impartial critique of this ambitious campaign. She discusses acknowledged problems, such as the need for linguistic sequencing and the need for more university students as teachers in the campaign. But she does not approach the basic premise upon which the proclaimed success of this campaign was based – providing those most in need with concrete literacy skills. Follow-up literacy campaigns are needed to build upon these basic skills; have they been implemented? Have new literates continued to practice their new skills, and have they been encouraged to do so? Adult literacy programs throughout the world have long been recognized as being very difficult to sustain; has this one been successfully sustained. If so, how?

Questions such as these lingered in this reviewer's mind; how literate are these people now? Perhaps Ms. Miller should write another book. ■

Available for US$35 in hardback and US$17.50 in paper from: Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, USA.

Reviewed by Nadine Dutcher, currently an educator at the World Bank. As a Peace Corps volunteer in the 1960s, she supported literacy activities with an artisan cooperative in Peru.

Learn to Manage Health Audiovisuals

If you would like to learn the techniques of managing a collection of audiovisuals from selection, evaluation, cataloging, classification, storage, and retrieval, to maintenance of materials and equipment, and the role the audiovisual resource person can play within educational or medical institutions, a course is being offered from August 3-14, 1987 by the British Life Assurance Trust for Health and Medical Education (BLAT).

The course is intended for people without formal library training who are responsible for running libraries or resource centers, particularly in developing countries, and for librarians wishing to extend their professional skills to help them manage audiovisual materials.

For further information contact: Bernadette Carney, Information Officer, BLAT Centre for Health and Medical Education, BMA House, Tavistock Square, London WC1H 9JP. Telephone 01-388-7976.

Supporting Development Communication

by Iain McLellan

There is a growing awareness in many developing countries that the mass media is not doing as good a job as it might in informing their people about development issues, providing vital information, and inspiring change. Before improvements can be made in existing media structures, there are some important questions that must first be asked.

What follows is a list of five questions prepared by two Food and Agriculture Organization consultants at the request of the Ministry of Agriculture in Cameroon to help them identify possible stumbling blocks in their effective use of the media to support development. They were presented at a conference in 1985 in Yaoundé, Cameroon.

QUESTION ONE:

- *Is there support for a participatory approach to development communication that would encourage citizens to express their ideas and needs?*

Traditionally, development communications have used the "mass media" – radio, television, newspapers – to funnel information from the government to the general population. More and more, however, development planners are realizing the severe limitations of this one-way information flow and are enlarging the possibilities for message exchanges by involving smaller media such as audio cassettes, regional radio, closed-circuit video, slide shows, flannelgraphs, and flipcharts, and decentralizing the communication process as much as possible.

The goal of the participatory approach is to stimulate and promote self-help and active participation of rural people. By giving them a voice they become more directly involved and interested in their own development.

QUESTION TWO:

- *Is it possible to disburse development communication resources throughout the country, and allow planning, testing, production, and use of the media on the local level, while guidance, technical assistance, national-level initiatives originate from a central location?*

Many developing countries are quite culturally and ecologically diverse. The tendency in the past has been to centralize the mass media and to communicate the same development messages to the entire country. However, decentralized communication usually enables governments to respond to regional needs better and to coordinate the distribution and activities of field workers.

While there is a need for a certain degree of centralization of the media to inform a country of major initiatives or programs, if the goal is to solve specific problems in specific locations, it is better to prepare those messages at the local level.

QUESTION THREE:

- *Is there political support for identifying and then using the most effective languages or dialects for development communication messages?*

If a government's goal is to effectively communicate development information through the mass media to its rural population and to the urban poor, the most likely way to reach them is through the use of vernacular languages or pidgin dialects which greatly increase the interest level and the depth of understanding of target audiences.

It is unfortunate that much development communication material is still being broadcast in languages that the intended audiences cannot understand very well, if at all. Although it may be easier to discuss development topics with experts in languages that have large technical vocabularies, the potential impact of the message will be lost because of the small size of the audience that can understand what is being said.

QUESTION FOUR:

Is the government willing to embark on a systematic development communication program, carefully choosing the most appropriate media that reflects the cost-benefit ratio, the development of appropriate institutional infrastructures, and the need for extensive training for staff to operate and maintain modern communication technologies?

Perhaps one of the most imposing challenges for development communication project planners is to determine the type of equipment that will be needed and to prepare for the efficient use of it once it is in place. The most successful projects have been those that have created an institutional niche for it by attracting and training local personnel in how to meet the daily needs of such a project.

Television is perhaps the most obvious recent example of an expensive medium that has tended to sometimes overshadow other media which have proven to be more cost-effective as educational tools. For example, the producers of *Radio Rurale* in Senegal complain that while their programs reach 80 percent of the population, television reaches only 15 percent of the population but receives 80 percent of the communication budget.

QUESTION FIVE:

Should pilot projects always be run before large-scale development communication campaigns are launched? If pilot projects are undertaken, at what pace and scale should they be conducted?

It has been shown time and again that by conducting several small-scale pilot projects, and by working in stages toward long-term goals, the chances for having a successful development communication campaign are substantially increased. Once the use of a particular medium proves successful in one region, that methodology and experience can be built upon, shared, and used in other regions.

Arguing against large-scale communication projects is the fact that while it may be easier to purchase communication technology and to place it throughout a country, it is another matter to train people adequately and quickly enough to implement such large endeavors. The larger the project, the wider the impact of errors. No amount of electronic hardware can replace the knowledge acquired through guided, on-the-job experience.

While the above questions were directed to the Cameroonian Ministry of Agriculture, their applicability can be extended to other Third World countries because of the general nature of development communication needs. Vast pools of information already exist to assist people who are trying to adjust to rapidly changing environments. If the right questions are asked at the right time, that information is much more likely to reach those who need it the most.

Iain McLellan is a Canadian freelance journalist who has worked with various international organizations designing and assessing development communication strategies and campaigns.

Send Your Ideas

Dr. Weade Wureh of the Department of Mass Communications, the University of Liberia, met with the Clearinghouse staff in October 1986 to gather information in preparation for a communication workshop her department has planned in order to design a curriculum that will more effectively train its students in development communication.

It occurred to us that many of you might have some helpful suggestions about the type of training you believe students need to develop effective communication strategies for audiences in their own countries. Why not share your ideas with us? The University of Liberia will benefit from your contributions as will other training institutions that may be preparing to launch similar communication programs.

Send your ideas to: Training for Development Communication, Clearinghouse on Development Communication, 1255 23rd St., NW, Washington, D.C., 20037, USA. Once we have sorted through your suggestions, we will prepare an article summarizing what we have received, and will of course, pass them on to Dr. Wureh at the University of Liberia.

Mahaweli Community Radio: A Promising Experiment in Sri Lanka

by Nandana Karunanayake

Ensuring a better quality of life for the poor has become an overriding objective in the developing world. Since 1981, in its effort to combat rural poverty and increase food production, Sri Lanka has been experimenting with a novel approach to help rural people help themselves through community broadcasting.

Sri Lanka is a country composed of numerous ethnic, linguistic, and religious populations, most of whom are involved in one way or another with agriculture. Although its literacy rate is high – about 89 percent – and an impressive health care delivery system has been put in place, Sri Lanka continues to lag behind in its agricultural output and must import the bulk of its essential food requirements.

To right this critical imbalance, the government has undertaken a massive irrigation development program called the Mahaweli Development Project to open more land for rice paddies and for the production of other essential food items. To support the farmers settling this land, the Sri Lankan government is making use of the existing mass media by establishing community radio stations throughout the Mahaweli Accelerated Development Project area that are administered by the Sri Lanka Broadcasting Corporation (SLBC), with assistance from Unesco and the Danish International Development Agency (DANIDA).

The Mahaweli Community Radio (MCR) approach is a unique departure from traditional program development in Sri Lanka. Usually, programs destined for rural audiences are the result of a few short visits to villages where interviews are quickly recorded, but the conception and final editing processes are done in the isolation of an urban setting, far from the source of the program interviews. MCR has been striving since its inception to deviate from that traditional pattern by involving the target audience in program identification, design, and production.

One of the initial tasks of the senior staff was to introduce program producers to a new role with new responsibilities; not an easy assignment – particularly when it came to sharing decision making with an audience. SLBC producers needed an orientation to the concept of participatory broadcasting. A series of training programs was introduced in 1981 as a prerequisite to implementing the new approach. As a result of this training, MCR producers no longer come to villages as experts to teach or preach, but to listen, learn, and work directly with the people.

The Production Process

MCR has formed three mobile production teams that operate on an alternating schedule. Each week one team will be in a village to do research and recordings, another team will be in the office preparing their program, and the third team will be completing a new set of recordings in a different village.

In consultation with their colleagues and the project management, producers select a village for a future broadcast. Initially, one of the producers will pay a short visit to the village and hold preliminary discussions with the residents to solicit ideas. Topics considered may range from development issues to local cultural concerns.

When the production team arrives, MCR producers make a point to involve the villagers in the entire production process. Once the villagers become familiar with the production team, it is easier to break down the social and communication barriers and both groups work together more naturally. The production crew mixes freely with residents, speaks the local dialect, and tries to live as typical villagers. They go to the Buddhist temples, community centers, or the tea parlors so they can talk with villagers about their concerns and interests. This approach results in the villager being the focal point and the producer being the facilitator throughout the production process.

Focusing on the exchange of experience among villagers is an integral element of the MCR approach. Research has shown that villagers prefer to listen to their successful peers: an innovative farmer giving an account of his experience with a new agricultural method is "one of them" and someone who lends credibility to a program.

The villagers decide which problems need prompt attention and consider possible solutions. At this point, the production team joins in the discussion that results in final identification of topics to be focused upon during the radio broadcast.

Before the actual taping, topics are further refined, village "actors" are identified, and format and program duration are all determined. Most programs are recorded in the village and the editing is done on the spot. A final edited version is left with the villagers so they can be assured the tape that is broadcast is the one they finally approved before the producers left their village.

The programs are broadcast from 7:00 to 8:00 p.m. 3 nights weekly over regional transmitters covering the settlement areas of the Accelerated Mahaweli Development Project.

Unexpected Benefits

The relationship between MCR and the villages has developed into one of mutual respect. For example, two MCR producers visited a village in May 1986 to discuss program possibilities with the village Buddhist priest. It was learned that a large number of the villagers were not legally registered as married and had had many children from these consensual unions.

The two producers discussed this matter with the Resident Project Manager of the Mahaweli Development Authority. The outcome was the organization of a mass marriage registration camp in the village. Those who had been living together as husband and wife without legally registering the marriage arrived at the camp and registered. A program based on this marriage ceremony was broadcast in June 1986.

Dealing with Bureaucracy

Helping to solve development problems calls for coordination and/or commitment

(*Continued on page 12*)

Villagers listen to a program they helped to produce in their own community.

(**Karunanayake** *continued from page 11*)

from a number of government institutions and officials. How does MCR become involved in solving community-wide problems? Although MCR cannot help with complex issues like water management or adequate health care, they can help with specific technical matters regarding crop production or livestock management at the village level. In these situations, the MCR can serve as the link between the village and the specialists who are trained to help them.

Types of Programming

Along with its focus on rural development, from the start, the MCR has had tremendous success with its cultural programming. A cultural format that includes folk songs and tales or poems helps to attract listeners and participants through entertainment. The Cultural Show has been produced once a week in one of the Mahaweli settlements for the past five years. It typifies the participatory approach, attracting local talent and wide attention wherever it is produced.

"...farmers applied knowledge gained from the program to their daily lives."

Other types of productions made with the help of villagers include: dramas depicting a special agricultural topic, interviews with innovative farmers, a news feature in the form of a drama, and comedy sketches with development messages.

Program Evaluation

In 1984, an evaluation was performed by the Audience Research Division of the SLBC after 352 half-hour programs were broadcast. A stratified sample of 1,000 listeners was interviewed by a trained team of surveyors. The results were very encouraging. Thirty percent of the respondents said they listened to MCR broadcasts every day it was aired, and 56 percent listened frequently. Of the 1,000 respondents, 85 percent indicated they listened to the program from start to finish, and 34 percent were able to recall contents from past programs. The most common reason given for listening was that it provided "very useful information."

The most important finding was testimony that farmers had applied knowledge gained from the programs to their daily lives. For instance, they have used information about fertilizer, high-quality seed, and other related information in their farming activities. A significant number of listeners attributed their bumper harvests to the application of scientific techniques of farming learned from the broadcasts. Encouraged by these results, the SLBC opened another community radio station in Girandurukotte in June 1985.

Epilogue

There is widespread interest in expanding the MCR concept throughout the country. The Audience Research Division of the SLBC is normally called upon to conduct a mass media feasibility study before launching a community radio station. Recently another media feasibility survey was undertaken in a community falling within the Mahaweli Accelerated Development Project area. Of 6,000 households in this community, about 4,800 possessed radio sets, and radio was found to be the most widespread and popular medium of communication. Based on the spectrum and nature of the development problems needing special attention, the study determined that there was a clear need for a community station in the area.

As a part of the proposed expansion of the MCR approach, a new scheme of training has now been initiated. A new group of 13 producers was recently recruited and given three months intensive training. Each trainee was assigned to a rural village in the MCR to become familiar with that village's environment. Each then had to design a development project that used the MCR to help disseminate the development message.

The Mahaweli Community Radio Project has learned much and come a long way since its inception in 1981. Its hope is that the plans for the future will further consolidate the credibility it has achieved thus far in communicating ideas about development to the rural population of Sri Lanka.

For further information about the Mahaweli System, please contact: The Coordinator, Mahaweli Community Radio, Sri Lanka Broadcasting Corporation, Independence Square, Colombo 7, Sri Lanka. ■

Nandana Karunanayake is Director of Audience Research at the Sri Lanka Broadcasting Corporation.

Agricultural Communication Courses

The International Program for Agricultural Knowledge Systems (INTERPAKS) is expanding its short course program for 1987, which runs from May through September. INTERPAKS focuses on how to make agricultural and rural development programs in developing countries more effective.

Three courses will be held at the University of Illinois Urbana and tailor-made courses can be designed to meet the specific needs of a project which can be conducted either on campus or at overseas locations upon request. On-campus courses include "Training of Trainers for Agricultural and Rural Development," "Organization and Management of Agricultural Extension Systems: A New Look at Knowledge Transfer," and "Retrieval and Dissemination of Technical Agricultural Information."

For brochures describing course content, cost, and sponsorship information, contact John Woods, Director, INTERPAKS, University of Illinois, 113 Mumford Hall, 1301 W. Gregory Drive, Urbana, Illinois 61801, USA.

The following piece recently arrived at the Clearinghouse from one of our Chinese readers. It is the first such piece the DCR has received from China, and we are pleased to include it in this issue. We hope Wang Baoming's colleagues will submit other articles for our consideration.

A Glimpse of the Chinese Health Audiovisual Education Program

by Wang Baoming

A bright spot that shines in China's Health Audiovisual Education Program is the Film and Video Department of the *Health Daily*. Since 1982, this department has produced about 30 films and videos. They have also released about 800 other Chinese health, science and education films, as well as a foreign science film translated into Chinese by the Film and Video staff.

Subjects covered by the films include family planning, maternal and child hygiene, nutrition, water sanitation in rural Chinese communities, and traditional Chinese medicine practices. Other recently produced films are entitled: "Music Psychotherapy," "Health Charge," "Family Nutrition," "Scorpion," "Head Acupuncture Treatment," and "Mother and Baby Together." Prizes were awarded these films at a Chinese Health Science film competition. ■

Signo y Pensamiento: A Spanish-Language Journal

Signo y Pensamiento (Themes and Problems in the Field of Communication) is a biannual, Spanish-language journal published by the faculty of Social Communications of the Universidad Javeriana in Bogotá, Colombia. It examines the socio-cultural implications of communication, both in theory and in practice. Each issue contains essays, commentaries, reports, interviews, research studies, and regular contributions from professors and students in the Communications department.

Available for US$20.00 per year or US$35.00 for two years. Make checks payable to the Universidad Javeriana and send to: *Signo y Pensamiento*, Facultad de Comunicación Social, Pontificia Universidad Javeriana, Carrera 7a. No. 43-82, Piso 7o - Edificio Angel Valtierra, Bogotá, Colombia.

TUNING IN

How Large the Gap?

by Julianne Gilmore

"Serendipity" is making fortunate discoveries by accident. The word covers the entire range of human endeavor, even disciplines as esoteric as data analysis. Every researcher has toyed with data already collected for other purposes, turning it this way and that, just to see what other relationships might be held within. Sometimes serendipitous discoveries are made.

One such discovery came about when I examined the evaluation data gathered by the Agency for International Development's (AID) Radio Language Arts Project in Kenya. The project used radio to teach rural elementary school students English as a second language. The learning gains of the radio students were quite impressive; yet even with these impressive gains and the advantages offered to the rural students by radio instruction, the rural radio students were outperformed by urban students who received only traditional instruction.

Measuring the Gap

The extent of the "rural/urban gap" was demonstrated in an informal comparison test that the project carried out in Nairobi. At the very end of the project, a small sample of Standard 1, 2, and 3 students who had not had radio instruction was given the same English language achievement tests that the project's radio and control students had taken earlier. The results of that test could be analyzed to yield an informative, albeit crude, measure of this "rural/urban gap." Table One displays the differences in the student performance averages between the rural control group and the urban group. The rural control group provided performance scores with none of the effects of the radio intervention. Since the urban group had not received any radio instruction, the groups were comparable because neither received any special interventions and because both groups represented the output of the educational system "as is."

Table 1

Average Differences Between Urban and Rural Control Groups

Standard I	
Listening	16.7
Reading	18.3
Standard II	
Listening	15.7
Reading	12.8
Writing	3.6
Standard III	
Listening	19.3
Reading	19.5
Writing	3.8

The disparity is evident, even with this preliminary measure. Given the scores of the rural students, the differences in the urban and rural averages appear sizable; urban averages were nearly double rural averages. But the term "sizable" offers little perspective in understanding its magnitude. With full appreciation for the maxim, "Figures don't lie, but liars figure," I propose a measure for the "rural/urban gap."

A Proposed Measure

To quantify the magnitude of difference between the rural and urban student performance, I suggest expanding the use of effect sizes (effect sizes provide a rough, though standardized, calculation of how successful an intervention has been) to measure performance differences between urban and rural cohorts, and to quantify targets of performance improvement for rural students, thus providing a measure of "the effect size gap" – how much rural students must gain to perform comparably to their urban brothers and sisters.

A look at the mathematics involved in the calculation of effect size and effect size gap may make its potential usefulness clearer. The substantive difference between the two can be seen by replacing the mathematical formulas with descriptive terms. Effect sizes are calculated by using the difference in the averages of the control and treatment groups, the effect size gap is calculated by using the differences in the averages of the rural and urban groups.

In essence, the urban average becomes a target for what a planner would have rural students achieve. For the purpose of measuring the rural/urban gap, using the urban average is appropriate. In fact, any relevant number can be used as a target score, for example, a desired performance score on an achievement test, although ceiling effects may have to be taken into account.

The formula for determining effect size is:

$$\text{effect size} = \frac{\left[\begin{array}{c}\text{radio instruction}\\ \text{group average}\end{array}\right] - \left[\begin{array}{c}\text{no radio}\\ \text{instruction control}\\ \text{group average}\end{array}\right]}{\text{standard deviation (control)}}$$

Similarly, the formula for determining "effect size gap" is:

$$\text{effect size gap} = \frac{\left[\begin{array}{c}\text{average urban}\\ \text{performance}\\ \text{scores}\end{array}\right] - \left[\begin{array}{c}\text{average rural}\\ \text{performance}\\ \text{scores}\end{array}\right]}{\text{standard deviation (rural)}}$$

Potential Applications

From this vantage point, one can see the potential applications. Since effect size gap is measured by the same standard as effect size, both offer insights not only into how wide the rural/urban gap is, but in what needs to be done to bridge it. An *effect size gap* tells educational planners how much rural students must gain to perform comparably with urban students; an *effect size* tells planners how much rural students could be expected to gain using a particular intervention. Planners can benefit from both pieces of information – how far the rural students have to go and how far any one intervention can take them.

In Table 2, the first column shows the differences in the averages of the urban and rural students. The second column contains the standard deviations of the rural control group. Finally, the "rural/urban gap" is measured in terms of effect sizes.

Table 2

Effect Size Measurement of the Rural/Urban Gap

	Average Differences (Urban-Rural)	Standard Deviation (Rural)	Effect Size Gap
Standard I			
Listening	16.7	8.7	1.9
Reading	18.3	8.7	2.1
Standard II			
Listening	15.7	4.6	3.4
Reading	12.8	5.5	2.3
Writing	3.6	2.4	1.5
Standard III			
Listening	19.3	7.7	2.5
Reading	19.5	9.3	2.1
Writing	3.8	2.1	1.8

The differences in terms of effect what achievements have to be made by rural students in order to compete with urban students, are substantial. An effect size of two is tantamount to moving an average rural student from the 50th percentile to the 98th percentile group.

No planner would attribute the effect size gap entirely to the quantity and quality of instruction; the social, economic, and cultural advantages of urban living have a profound effect on educational opportunity. Targets for educational interventions would, therefore, have to be adjusted downward to allow for these advantages.

Moreover, any measure of the rural/urban gap is likely to be quite wide in English compared to other subjects. In terms of learning English, urban students not only benefit from the general advantages of urban living, but also from more out-of-school opportunities to learn English. In Kenya, for example, much television programming is done in English, and urban students are more likely to have access to TV. Furthermore, English is in common use in Nairobi.

Nevertheless, considerable improvements must be made in education in rural areas.

The figures used in this illustration were a by-product of testing the effects of interactive

(*Continued on page 14*)

(**Gilmore** *continued from page 13*)

radio instruction in Kenya. With this tool in hand, educational planners in developing countries could begin to determine the effect size gap for each subject area at all grade levels. Test results, such as school-leaving exams (readily available in any country), could be used to determine the rural/urban effect size gap.

The next step would be to determine which intervention(s) to select in order to reduce the rural/urban gap. A combination of interventions will probably be the best immediate solution. Coordinating the use of radio and tape recorders, for instance, would be a very effective combination, allowing students to do exercises on their own or to make up missed lesson.

Conclusion

By using the effect size gap measure, educational planners can look beyond the basic issues of intervention costs and numbers of students reached, and can ask valuable questions such as: How much more will the students learn (the predicted effect size gain)? and, How much will the rural/urban gap shrink?

Equity and quality issues take on renewed importance with the ability to determine the cost-effectiveness of interventions designed to bring about comparable performance gains. Are limited budgets better spent raising the performance of all rural students marginally, or of just a few measurably? Though never easy, the choices become starker because decision makers have more predictive information.

My discussion has been a preliminary one. No doubt, having a standard measure that could help to determine achievement targets will be controversial. The implications of the mathematical, statistical, and educational assumptions have not been examined here. My purpose was to propose a way of measuring the rural/urban gap, and to offer that measuring device along with verified performance gains as useful pieces of information for educational planners. ■

Julianne Gilmore is a Project Officer with the Education Office in the Bureau for Science and Technology, at the U.S. *Agency for International Devlopment.*

AIBD Broadcast Training

The Asia-Pacific Institute for Broadcasting Development has released its proposed schedule of courses for 1987. Courses range from technical skills development in writing and production to improving management techniques. For further information about courses, starting dates, and locations, write to The Director, Asia-Pacific Institute for Broadcasting Development, P.O. Box 1137, Pantai, 59700 Kuala Lumpur, Malaysia. Cable: UNESBROAD, Kuala Lumpur; Telex: MA 30083 APBRO.

(**Killmayer** *continued from page 15*)

economique.

Afin que l'information parvienne jusqu'au niveau le plus bas, un "package de brousse" reprenant les images et les commentaires du vidéodisque a été réalisé.

Le conseiller agricole qui a manipulé le programme peut donc, à l'aide de ces images, expliquer au paysan, dans sa langue, ce qu'il a compris au centre de formation.

De même que le programme interactif, le package est de forme modulaire et chaque conseiller peut l'aménager comme il le désire, selon l'argumentation qu'il veut avancer.

Conclusion

Le vidéodisque interactif "Ecole des moniteurs" est un produit expérimental destiné à une évaluation psycho-pédagogique et technique.

Le mariage entre informatique et audiovisuel, le vaste contenu agronomique et technico-économique en font un outil particulièrement nouveau qu'il est nécessaire de tester auprès d'un public assez large.

Les premiers résultats de l'expérimentation réalisée en France sur le produit "Gestion" semblent montrer que le vidéodisque peut servir de référence (sorte de grand livre à partir duquel on peut calquer un raisonnement ou effectuer des comparaisons). C'est pour cette raison qu'il peut être la source de formations en cascade par l'intermédiare de supports image plus transportables.

Les résultats de la validation sur le terrain sont attendus dès la mi 1987. ■

Alain Killmayer est ingénieur en agriculture et Chef de projet "Vidéodisques Interactifs Agricoles" de l'Ecole Supérieur d'Agriculture de Purpan (anciennement projet CMI), à Toulouse, France.

The following is an English abstract of the above article.

Interactive Videodisc in the Ivory Coast

by Alain Killmayer

The World Center for Informatics and Human Resources (*Centre Mondial Informatique et Ressource Humaine – CMI)* located in Paris, France, has recently been collaborating with the Training Division of the African Institute of Economic and Social Development (INADES-Formation), the Ivory Coast Textile Development Company (CIDT), and the Secretary General for Informatics (SGI) in a pilot project aimed at introducing videodisc technology for training agricultural extension agents in the Ivory Coast.

The purpose of this project is to provide agriculture extension agents with up-to-date information in the four basic agronomic subjects of climatology, soil science, botany, and cultivation techniques, while demonstrating to them the links between these areas in order to promote a greater technical and economic awareness in their field and to make them more effective field agents.

In 1984, CMI began applying interactive videodisc technology to training in a rural setting. With assistance from INADES-Formation and CIDT, a multidisciplinary team of agronomists, filmmakers, graphic artists, and information specialists selected a training site in the Ivory Coast and produced a film of a model farmer in the northern region of the country to be used as part of the training program.

In 1985, more materials were produced including nearly 1000 slides, 100 animated cartoons, 30 minutes of taped commentary, 200 illustrations, and 200 technical information notes, all of which were then mounted and mixed, resulting in the production of 50 training videodiscs.

Participants are shown a film at the beginning of the videodisc training session, that depicts the experiences and challenges of an agricultural agent in a rural village. The film also shows trainees what to expect during the training program and raises questions that are addressed later. This is followed by an interactive session that shows participants how to use the cursor-pointing device or "mouse." With this "mouse," the trainee can examine in detail, skip, or exit any section of the videodisc program through a bar menu at the bottom of the screen. Technical information notes can also be accessed at any time through the main menu or within one of the subject areas.

The information contained in the interactive portion is divided into short sequences that can be organized according to the user's needs, resulting in a tailor-made audiovisual program. Also, another function allows the user to visualize the entire learning process that has transpired during the interactive session, or any one of many intermediate steps within it. In all, more than six hours of the training program can be viewed without seeing the same information twice.

Agriculture agents are also provided with a "field package" containing visuals and printed materials adapted from the videodisc training program. Those who have been trained on the interactive program can, with the help of this field package, transfer newly acquired knowledge to small farmers using local dialects.

The interactive videodisc training program is an experimental project that combines informatics and audiovisuals in an innovative and flexible package using the best features of these technologies in support of agricultural training. Pedagogical and technical evaluations are underway in order to test its effectiveness on a large target audience. Evaluation results are expected in mid-1987. **(Editor's note: DCR will attempt to follow this activity and report in a future issue any evaluation results as they become available.)** ■

Alain Killmayer is an Agricultural Engineer and Project Manager of the "Interactive Videodisc Project," which is now sponsored by the College of Agriculture of Purpan in Toulouse, France.

Translated and abstracted by Robert Vittel, Information Specialist, Clearinghouse on Development Communication

"L'Ecole des Moniteurs:" Vidéodisque de Formation des Conseillers Agricoles de Côte d'Ivoire

par Alain Killmayer

En 1982, le Centre Mondial Informatique et Ressource Humaine (CMI) mettait au point un nouvel outil multimédia: le vidéodisque interactif.

Il s'agissait là d'un mariage entre un lecteur de vidéodisque optique (pouvant supporter tout type d'images: cinéma, diapositives, dessins...), un micro ordinateur (capable de piloter le disque et d'ordonner les images en scénarii multiples) et une carte d'incrustation vidéo (capable de gérer un écran TV tactile et de mélanger des textes et des graphiques venant du micro ordinateur à l'image vidéo).

Après la réalization d'un premier produit expérimental d'enseignement des langues, le groupe agriculture, résidant à Toulouse, a décidé d'appliquer cette méthode à la formation de masse en milieu rural.

Deux projets ont été menés conjointement, l'un destiné aux agriculteurs français et qui traite de la gestion, l'autre destiné aux conseillers agricoles de Côte d'Ivoire.

En 1984, un VSNA (Volontaire du Service National Actif) est parti en poste à l'Institut Africain pour le Développement Economique et Social (INADES Formation) pour déterminer avec les formateurs de terrain; le public cible, les concepts à traiter, et écrire un premier scénario.

Cette même année, une équipe pluridisciplinaire, composée d'agronomes, de réalisateurs cinéma, de graphistes et d'informaticiens fut mise en place pour établir le scénario interactif, réaliser les premierès images en vue d'une validation sur terrain et enfin tourner un film de 15 minutes chez un agriculteur modèle du nord de la Côte d'Ivoire.

Ces differentes étapes ont été menées à bien grâce à la participation d'INADES Formation et de la Compagnie Ivoirienne pour le Développement des Textiles (CIDT).

L'année 1985 a été consacrée à la constitution d'une banque iconographique de près de 1000 diapositives, à la réalisation d'une centaine de dessins animés sur palette graphique et enfin au montage, mixage son, et à la gravure de 50 vidéodisques.

Cette même année, le vidéodisque devint un des projets pilotes de l'information en Côte d'Ivoire.

Depuis, le programme informatique de pilotage a été écrit, ainsi que les 200 pages écran de fiches techniques, grâce au langage auteur réalisé au sein de l'équipe agricole.

En parallèle, le matériel réalisé pour la validation du produit sur la gestion a subi un test de fiabilité à Abidjan et à Bouaké.

Le Point à l'Heure Actuelle

Après mise au point technique de l'appareil et présentation du produit "Ecole des moniteurs" en Côte d'Ivoire, la phase de validation va débuter.

En effet, avant de "lancer" un produit nouveau issu d'une technologie européenne, il nous a semblé primordial d'en tester l'impact psycho-pédagogique, la portabilité technique et le rapport prix-efficacité.

C'est pour cela que le Secrétariat Général à l'Informatique (SGI) prend en charge l'expérimentation à partir de Septembre 1986 sur des sites test de formation continue ou initiale (CIDT Formation, IAB ...etc). Le CMI, quant à lui, pilotera cette expérimentation par l'intermédiare d'un coopérant VSNA qui sera en poste au SGI.

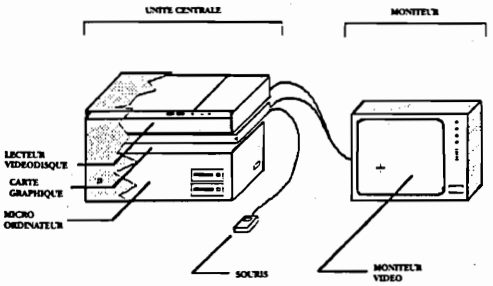
Le Matériel

Le poste de consultation se compose d'un écran de télévision et d'une souris qui est la seule interface avec l'utilisateur (le produit s'adressant au grand public, le clavier et l'écran du micro ordinateur ont été supprimés).

L'unité centrale, de la grosseur d'un gros micro ordinateur, se nomme *VDI graphique Laser 256K*. Elle contient:

- deux lecteurs de disquettes: l'un pour le programme de gestion des images, l'autre pour enregistrer les voies suivies par les utilisateurs (but d'évaluation).
- une unité logique dérivée d'un micro ordinateur compatible PC (Micral 30).
- un lecteur de vidéodisque laser vision
- oune carte graphique d'interface et d'incrustation vidéo du CMI.

Pour fonctionner, le matériel n'a besoin que d'une alimentation électrique de 220 volts.



Le Contenu Quantitatif du Programme

Le programme contient:

15 minutes de film sonore,
1000 diapositives,
30 minutes de commentaires,
100 dessins animés sonores,
200 dessins,
200 fiches techniques de cultures,
100 fiches diverses sur la mécanique et la prophylaxie des animaux

répartis comme suit sur le disque optique et sur disquette.

L'Approche Interactive

Dès l'ouverture du programme, un film de 12 minutes est présenté: il raconte les aventures et mésaventures d'un conseiller agricole dans un village. Ce film brosse un tableau du contenu du disque et joue le rôle de déclencheur de questions qui pourront être résolues dans la partie interactive.

La partie interactive commence, après un apprentissage rapide du maniement de la souris, par un menu qui peut amener l'utilisateur dans 4 matières ou dans les fiches techniques.

L'information contenue dans cette partie interactive a été découpée en petites séquences très brèves qui sont construites pour pouvoir être agencées l'une derrière l'autre dans des ordres differents sans biaiser le sujet. C'est l'utilisateur par ses choix qui construit son ou ses propres montages audiovisuels. En effet, à tout moment, un menu barre présent au bas de l'écran permet de survoler la partie, de l'approfondir ou de la quitter.

C'est pour cela que l'information a été organisée en plans superposés:

- le plan primaire correspond aux remises à niveau par matière (cours général d'agronomie).
- le plan secondaire correspond aux compléments d'information et aux voies de synthèse.
- le plan tertiaire correspond à un supplément d'information sur le sujet traité.
- enfin, la partie fiches techniques, compulsable à partir du menu principal (comme une matière), peut l'^tre aussi de l'interieur d'une matière; c'est la quatrième plan de consultation thématique sur le sujet traité.

De plus, une fonction cachée permet à l'utilisateur de visualiser la démarche qu'il a eue dans le programme et de demander à voir l'une quelconque des parties infinitésimales.

Cette partie interactive est complètement ouverte: il y a ni début ni fin, mais une utilisation systématique permettrait, théoriquement, de visualiser plus de 6 heures de programme sans voir deux fois la même chose.

Le Produit et ses Dérivés pour une Formation en Cascade

Le produit ne peut s'utiliser qu'en salle de formation car il nécessite au minimum une alimentation électrique et une table. Il s'adresse en particulier aux conseillers agricoles. Le programme a pour but de permettre la remise à niveau des utilisateurs dans les quatre matières agronomiques: climatologie, pédologie, phytotechnique, travail du sol, et de leur montrer les voies de synthèse inter-matières et de favoriser un approfondissement technico-

(*Continued on page 14*)

Agricultural Communication for Rural Development in Sri Lanka

by Nimala Amarasuriya

[Sri Lanka has taken the commendable step of acknowledging and then dealing with the problem of agricultural poisoning. Many other countries have not yet diagnosed or reported their own, similarly critical problems as such.]

Poisoning by agricultural chemicals (agrochemicals) is a major health hazard in Sri Lanka today. As its agricultural production has increased in recent years, so has Sri Lanka's dependence on chemicals such as fertilizers, pesticides, and herbicides increased. As with other chemicals, safe and wise use of agrochemicals requires a more sophisticated understanding of science than most farmers in Sri Lanka now have. Complicating matters further is the higher illiteracy rate of the rural population. An ongoing program being conducted throughout the country is challenging this growing threat by teaching farmers how to use agrochemicals.

A WHO survey conducted in November 1983, reported that Sri Lanka had the highest pesticide poisoning death rate in the world with corroborating evidence from a recent national survey indicating that 16,000 people suffer from pesticide poisoning annually. Medical authorities believe the chronic and undetected poisoning caused by regular, unintentional intake of small quantities of pesticides as residues in food are far greater than records show and are an immediate danger to the entire population.

The rural farming population is, of course, the most vulnerable to acute agrochemical poisoning. Illiterate farmers in particular, unaware of the dangers of most chemicals they handle, sometimes test their mixtures by dipping a finger into the solution to taste it for strength. The solution's contaminated vessel may later be used for family bathing. Empty chemical cans and bottles are used to store coconut oil and other consumer liquids or even medicines. Although legislation was passed in 1980 regarding the use of pesticides in Sri Lanka, its enforcement has proved difficult. Agrochemicals are illegally transported in the same vehicles with consumer goods such as rice, flour, and sugar; they may be stacked alongside consumer goods in stores.

Fighting the Problem

Since 1981, the Sri Lanka Association for the Advancement of Science's (SLAAS) Committee for the Popularization of Science (CPS), has conducted a program to combat this misuse of agrochemicals. The Committee is comprised of volunteers from university staff, research scientists, medical specialists, environmentalists, and plant protection officers from the Department of Agriculture. They worked together to develop a unique program to train information agents and eventually farmers, on the correct use and safe handling of chemicals. Some funding is provided by the parent association, and in 1986, the British Council provided money to continue the program for another year.

In the past, extension agents have instructed farmers in the use of pesticides, but these efforts were not getting the message across. Taking a different approach, the Committee selected school children from farming communities as the disseminating agents. There are several good reasons for this selection: students are amenable to training, enthusiastic and idealistic, and enjoy the confidence of their peers and of the community in general since they have received more education than the previous generations.

Outreach Training

Twenty-four senior students (grades 10-12) are selected from each of the farming districts in Sri Lanka. They receive training in how to use agrochemicals safely, and how to motivate farmers and their families to use them correctly. Besides technical training, students learn basic communication principles that will help them to organize seminars in the villages. The program is broken into three stages:

Stage I: The entire training group attends an orientation comprised of lectures, demonstrations, discussions, slide shows, and films on the safe use of agrochemicals. To reinforce this knowledge, trainees are required to conduct a local survey on the use and misuse of agrochemicals they observed in their villages.

Stage II: Groups of 50 to 60 students each next attend a two-day training workshop at an agricultural research institute where they receive further instruction in communication skills and other agriculture-related topics.

Stage III: During this final stage, the trainees organize village-level seminars in their own communities. The trainees are expected to carry out the major portion of the planning and execution of this stage with some guidance from the committee members. These seminars provide a forum for farmers to discuss with resource persons the use and handling of agrochemicals.

The communication strategy for this project was based on recent research indicating that older farmers are coming to respect the newly acquired knowledge and skills of the younger generation as a result of their science-oriented school curricula. It was believed that directing messages through children would have a far greater impact on their elders and their home environment than that of occasional visits by agricultural extension officers.

The materials used for the project were planned and developed with the local population in mind – program instruction is given in Sinhala, one of the national languages, and examples most villagers are familiar with are used.

Media Used

There has been a continual updating of training materials and techniques, based on the feedback from pre- and post-training questionnaires. Over the course of five years, training has evolved into an intensive and practical experience. Throughout training, a wide range of media are used to support the regular lectures. Traditional lectures are generously illustrated with audiovisual aids: color slides, films, posters; field visits and practical demonstrations reinforce classroom training.

The subcommittee members who visited targeted villages during Stage III workshops observed that the communities showed a high degree of confidence in the trained students. Success of this program is measured by the number of activities generated by the information brought into the villages by the students. Farmers regularly participate in the village seminars, and there have been requests from other villages for similar training programs.

Although it is difficult to assess the direct benefits of the program, there is a growing awareness among farmers of the hazards and of the precautions needed when using agrochemicals.This can be attributed at least in part to this information program.

The success of Sri Lanka's program might serve as a prototype to other Third World countries where there are similar problems with agrochemical poisoning. This low-cost approach stands in clear contrast to other more expensive mass media campaigns that, while covering more territory may be less effective. Making this information available, particularly to farm populations, could mean the difference between life and death. ■

Nimala R. Amarasuriya is the Project Coordinator for the Programme on the Safe Use of Agrochemicals. She is Assistant Director of Publications at the Natural Resources, Energy, and Science Authority of Sri Lanka.

Development Communication Report
Clearinghouse On Development Communication
1987 /2
No.57

Note to Uplink Readers

Since 1981, the Academy for Educational Development has periodically published the *Uplink* newsletter to keep interested observers informed of the AID Rural Satellite Program, and other activities related to telecommunications for rural development.

As described in this issue of *Development Communication Report (DCR)*, the Rural Satellite Program has completed its task of exploring and evaluating the applications of satellite technologies in the developing world. With the close of its Research and Development activities, so too does the AID Rural Satellite Program conclude the publication of *Uplink*.

In this issue, the AID-supported *DCR* continues reporting on telecommunications and development as part of its coverage of development communication applications, trends, and issues.

Uplink readers who wish to subscribe to *DCR* should contact the: Clearinghouse on Development Communication, 1255 23rd Street, N.W., Washington, D.C. 20037, U.S.A.

This issue of DCR introduces the results of an experimental program that has been carried out in three regions of the developing world over the last several years with the support of the U.S. Agency for International Development (AID).

The Rural Satellite Program (RSP) was established in 1980 to demonstrate that telecommunications are now capable of serving as a powerful new tool for rural development. Our supposition was that developments in satellite technology have made reliable telecommunications a practical possibility for the rural areas of many developing countries. If so, this new capability could be adapted to contribute to the fundamental work of development – in education, health, agriculture, and economic enterprise. We set out to test those assumptions.

One of AID's roles is to help craft, from advancements in science and technology, practical new development options. AID has therefore been assessing the implications of satellite communications from the time of NASA's Applications Technology Satellites (ATS) experiments in the early 1970s. In 1976, AID carried out the AIDSAT demonstration – a program that used transportable earth stations to link rural areas of 27 nations with their capital cities, and with the U.S. for teleconference dialogues on development.

From those experiences, the Rural Satellite Program was begun. RSP concentrated on exploring the practicality of two-way communications via telephone networking to reach rural populations, since satellite-assisted community television broadcasting had already been amply demonstrated.

We faced many questions. What applications make sense within the severe constraints of the rural developing world? Will users incorporate the new communications capability into their basic activities? Can end-user telecommunication technologies be made sufficiently reliable and convenient? Can technical and cost constraints be overcome, for example, through use of smaller satellite earth stations and through use of solar power to meet electrical requirements in the most remote areas? Can users – telecommunications authorities and planning ministries – devise ways to work together to plan and implement significant applications? Can the economics of rural telecommunications invest-

(Continued on page 2)

Forging a New Development Tool: Teleconferencing

by Karen Tietjen

The tremendous growth in worldwide telecommunications services in the last few decades has caused revolutionary changes in the conduct of business, banking, trade, and politics in both the domestic and the international arenas. The dozens of satellites orbiting the earth have created a worldwide communications system that truly makes the world a "global village" for those people with access to this system. The vast majority of the world's real villages, however, are generally cut off from domestic and international systems, not by choice but by circumstance.

Telecommunications services have been slow to reach into most rural areas of the world for several reasons: high costs, technical problems, and lack of a guaranteed return on investment. It is both cheaper and more profitable to develop telecommunications infrastructures for urban rather than rural areas. There is also the feeling among some planners that rural areas do not need or cannot really use telecommunications facilities and that the positive effects of providing such facilities do not justify the expense and effort. Some would say that basic telephone service cannot be provided until the users are able to pay for the costs. However, there is now a growing realization among experts that telecommunications is an essential ingredient that hastens development and is not merely a result of it.

A reliable telecommunications infrastructure can facilitate economic growth and promote national development aims. Telephone services to rural and remote areas can stimulate economic development and bring the rural resident closer to the mainstream of national life. There is also a growing feeling that access to communications facilities should be viewed as a social service to be provided by governments as they provide schools, and not merely looked at in terms of the bottom line of a balance sheet. As these realizations grow, an increasing number of developing nations are investing in satellite-based telecommunications systems. Within the last decade, Indonesia, India, Brazil, Mexico, China, and a coalition of 22 Arab nations have launched their own satellites. Through INTELSAT, 27 other developing countries have established domestic satellite-based communications systems. What was once regarded as the wave of the future is now a present-day reality. How can developing countries benefit from this "telecommunications revolution?"

In 1980 the U.S. Agency for International Development initiated the AID Rural Satellite

(Continued on page 3)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

AID's Support of Telecommunication . . 1
New Development Tool: Teleconferencing 1
Costs of a Teleconferencing Network . . 5
Telephone Service Expands in Peru . . . 6
AIDS: The Global Challenge 7
HIV and AIDS Explained 7
An AIDS Campaign in Brazil 8
AIDS Public Health Communication . . . 9
Knowledge About AIDS in a Central African Town 10
HIV Prevention Education in the U.S . . 11
African Telecommunications Toward the Year 2000 12
Distance Education: The Promise and the Confusion 13
On File at ERIC 14
ARABSAT: A Regional Approach to Telecommunications 15
Briefly Noted 15
Advanced Satellite Technologies: Implications for the Developing World 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel.(202)862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Specialist
William Amt, Program Assistant
ISBN0192-1312

AED
International Division

Academy for Educational Development

(**AID** *continued from page 1*)

ments be made more attractive by combining the benefits to social development programs with the revenues earned from rural telephony?

The guiding strategy has been to find applications where mainline rural telephone service could be adapted to the special needs of important development activities, in education and other sectors. The projects that evolved have all had a special focus on audioconferencing. Rural users everywhere told us that a primary need was to link dispersed groups of people, whether students or extension workers; audioconferencing can do that.

By collaborating with Indonesia, Peru, and six nations in the Caribbean, a great deal of experience has been generated and documented: the result has been a complex, often difficult, but in the end, gratifying undertaking. The systems, initially established as pilot projects, are now functioning as viable national enterprises with no external funding, and all of them are expanding. Data from Peru shows that rural telephones, taking advantage of satellite technology, are bringing in substantial revenues while providing irreplaceable services to rural development workers, businessmen, and families. In the Caribbean and Indonesia, thousands of students and extension workers are upgrading their training via audioconferencing. In a remote Indonesian community, solar power is driving a small satellite earth station, providing telephone service for the first time.

The results of the Rural Satellite Program have policy implications for three groups. For development planners, the results show that telecommunications can now be counted on to contribute to the primary work of rural development. For telecommunication providers, they have shown that by providing for the special needs of developing institutions, the case for national investment in telecommunications growth can be greatly enhanced; they have also confirmed the tremendous demand for and revenue flows from rural telephone services. And for the users themselves, the RSP results have shown how readily and economically they can use telecommunications in their day-to-day work.

These are but small portents of what is now possible. New INTELSAT services have reduced the cost of two-way satellite earth stations to the $50,000 range for rural, thin-route areas. With higher powered satellites, lower costs for earth stations can be anticipated. Such satellites already serve a total rural population in developing countries of well over a billion people. Other systems are being planned in Latin America and Africa. New technologies using microcomputers and "very small aperture" earth stations can provide electronic mail and data for $10,000 per earth station.

The Rural Satellite Program has shown us that its original assumptions were accurate. Satellites and other technologies are rapidly making the growth of rural telecommunications a reality. Rural telephone service is valued and readily paid for by users. With a small additional investment in equipment for audioconferencing, telecommunications systems can be made all the more useful to rural institutions, adding valuable capabilities for administration, education, and training. New technologies, and more important, new applications are rapidly emerging which are generating possibilities for development breakthroughs wherever information and communications are needed. We hope that the solid evidence from the Rural Satellite Program will contribute to a policy dialogue on these new possibilities—a dialogue that is based upon solid experience and upon the realities of the Third World. ■

Dr. Block, Project Manager of the Rural Satellite Program, is Associate Director for Educational Technologies and Communication, Office of Education, Bureau for Science and Technology, U.S. Agency for International Development.

On page 5 of *DCR* 1987/1, No. 56, we mistakenly referred to the person in the picture as a health worker. In fact, Ms. Kankakai is the Research and Evaluation Coordinator for the Liberian Rural Communications Network. We regret this error.

RSP Publications Available

The Rural Satellite Program (RSP) has written twelve monographs describing its activities in Indonesia, Peru, and the West Indies. *Handbook for Planning Telecommunications Support Projects, Institutionalization of Three Telecommunications Development Projects,* and *Telecommunications for Higher Education* are three of the 12 publications available upon request at prices ranging from US$3.50 to $12. A videotape overview of RSP is also available on loan in English, French, and Spanish. For a publications list please write to: RSP-AED, 1255 23rd Street, N.W., Washington, D.C., 20037 USA.

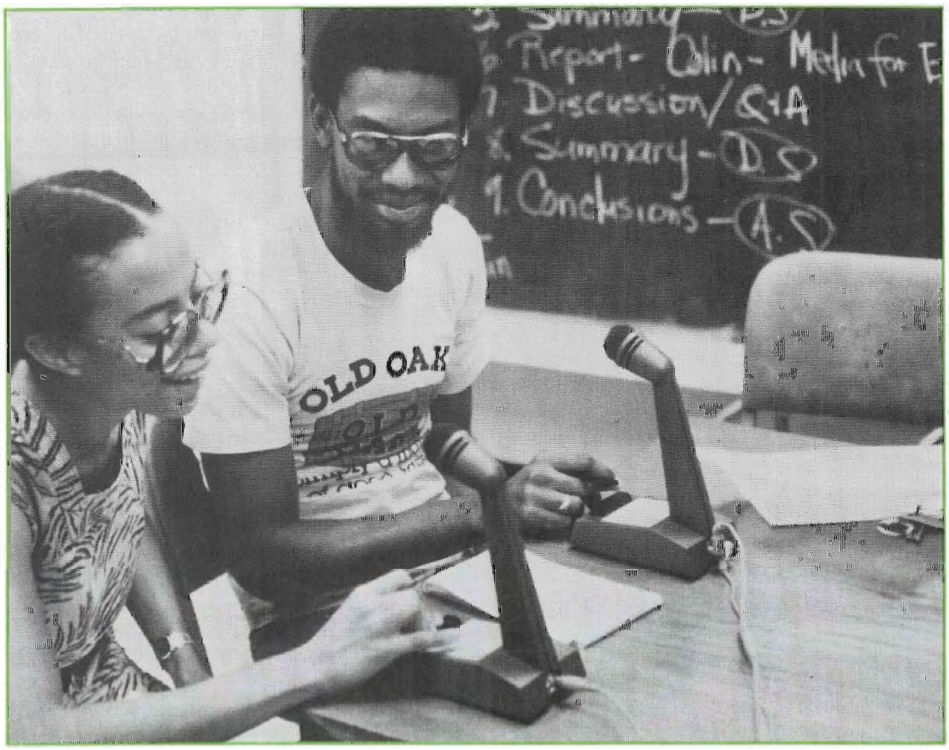
Continuing Education Conference

The American Association for Adult and Continuing Education will hold its annual conference October 19-24, 1987, in Washington, D.C. The conference theme, "Empowering the Adult Learner: A Global Challenge," indicates a focus that should be of particular interest to *DCR* readers. Sessions focusing on media as a tool for empowerment; empowering the agricultural worker; and international adult education are among the topics to be covered.

For more information, contact the American Association for Adult and Continuing Education (AAACE), 1201 16th Street, N.W., Suite 230, Washington, D.C. 20036. U.S.A. Telephone (202) 822-7866.

(**Tietjen** *continued from page 1*)
Program to explore the potential of telecommunications to address basic development problems. Building on simple, interactive, and inexpensive telephone-based technologies, the Program developed teleconferencing systems as a means of extending scarce expert resources and expanding educational opportunities to remote and rural areas. Three pilot projects were implemented to test and demonstrate that teleconferencing could reliably and affordably support development efforts in education, health, and agriculture.

Six years later the three teleconferencing networks are in place and supporting development applications in Indonesia, the West Indies, and Peru. Personnel have been trained in their use, operation, and repair, and the networks are regularly used by their sponsoring institutions. Thousands of university students, teachers, agricultural extension agents, doctors, nurses, and rural health care workers participate each year in the programs delivered by the teleconferencing networks. With improved skills, greater knowledge and up-to-date information afforded by the teleconferences, they, in turn, are better prepared to serve the rural community.



The Technology

One of the goals of the Rural Satellite Program (RSP) is to use telecommunications to support and strengthen established public service systems, institutions, and organizations. Central to the RSP effort was the identification and adaptation of appropriate telecommunications technologies to specific applications and the Third World environment.

Telecommunications is imbued with a "high-tech" aura, which causes most development professionals to question its appropriateness in a development setting. Yet, at the heart of this space-age technology is a simple device which has been in use for over three-quarters of a century—the telephone. Furthermore, telephone systems are proliferating throughout the Third World.

Unlike radio and television, the telephone offers two-way communication. Interaction is central to coordination, information exchange, and instructional and training efforts. With the addition of special equipment, the telephone can be transformed into a teleconferencing network linking many groups of people at one time for multi-site, multi-participant meetings, conferences, and seminars. It facilitates dialogue, questions and answers, and immediate response. Teleconferencing can thus provide an effective means of training, institutional outreach, and administration.

Not unlike an ordinary telephone call, teleconferencing allows for spontaneity, immediacy, and a certain "intimacy." The end equipment—simple microphones and speakers—is easily operated by the participants themselves, and the presenter is not separated from his audience by the time between taping and broadcast. Participants must come to predetermined conference locations; active participation and interaction, teleconferencing's key assets, necessitate that the audience remain small. Thus, it cannot duplicate the sheer numerical outreach of the mass media, radio and television. *Where there is a need for immediate, interactive communication between specialized groups at multiple widespread locations, however, a telephone-based network can be invaluable.* It may actually be the only efficient and cost-effective means of carrying out some activities.

Telecommunications is imbued with a "high-tech" aura, which causes most development professionals to question its appropriateness in a development setting. Yet, at the heart of this space-age technology is a simple device which has been in use for over three-quarters of a century—the telephone. Furthermore, telephone systems are proliferating throughout the Third World.

The same teleconferencing technology was employed by each of the three pilot projects, with some variation necessitated by available transmission systems and user requirements. Basic to each project is a fully interactive, two-way, dedicated communication network linking several sites. Each site can initiate conferences and communicate with all other sites in the network. The networks use one or two telephone channels depending on the equipment comprising the "electronic classroom" at the project sites. The basic electronic classroom consists of audioconferencing equipment—loudspeakers, several microphones with push-to-talk buttons, and a network control terminal that controls signal levels and dialing functions when sites participate in a conference. Depending on the site, facilities and equipment can accommodate 50 to 100 people per site. In the Indonesia and West Indies Projects, additional equipment is included to provide a graphics capability. Telewriters and slow-scan video transmit images and pictures; microcomputers transmit text; and facsimile machines transmit "digitized" hard copy of text or pictures—all over a single telephone circuit.

The Applications

Interactive teleconferencing networks can be used for many purposes in diverse settings. The three RSP projects delivered information, multiplied scarce human resources, and extended institutional outreach in response to different development problems. In Indonesia, teleconferencing was used to meet the growing demand for higher education; in the West Indies, it proved the most effective means of reaching small numbers of people in isolated locations with quality instruction; and in Peru, it provided in-service training to field workers in health, education, and agriculture.

Indonesia

The Indonesian Distance Education Project (SISDIKSAT) was designed to maximize the scarce professional and teaching resources of the Eastern Islands Universities Association, a group of fairly new universities and teacher training colleges on the islands of Kalimantan, Sulawesi, Maluku, and Irian Jaya. Linking eleven distant and remote universities spanning 2,500 miles with a telephone-based electronic classroom, SISDIKSAT is used to provide rarely available academic courses to university students, upgrade faculty knowledge and teaching skills through in-service training programs and seminars, and facilitate administrative and institutional communication. Its effect is to make the expert resources of one university available to the other participating universities, thus multiplying each professional's outreach and effectiveness. Also included in the SISDIKSAT system are the Java-based Bogor Agricultural Institute—Indonesia's premier agricultural university—which serves as a center of excellence, and the Directorate General of Higher Education, which is the bureaucratic headquarters. SISDIKSAT's main activities are course sharing, seminars, audioconferences, training programs, message service, informa-

(*Continued on page 4*)

(**Tietjen** *continued from page 3*)
tion exchange, and demonstrations which often include other user groups outside the university community.

In October 1984, SISDIKSAT initiated a trial semester offering two courses; it is currently completing its fifth semester with a regular schedule of 15 courses, reaching over 3,000 students each semester. To date, it has delivered 75 undergraduate courses, such as statistics, research methods, poultry production, and forestry. Use extends beyond normal course delivery to other activities. The Directorate General of Primary and Secondary Education is now launching in-service training for its teachers. A recent tribute to SISDIKSAT's importance to the professional community was a voluntary seminar program held over the semester break which attracted over 1,800 participants from both the university and the community at large.

West Indies

UWIDITE, the University of the West Indies Distance Teaching Experiment, links three campuses and three extramural centers in six different countries (Jamaica, Barbados, Trinidad, St. Lucia, Antigua, and Grenada) in a distance teaching program similar to SISDIKSAT. The first of the RSP projects to start operations, UWIDITE offered its inaugural teleconference in March 1983.

UWIDITE is characterized by a diversity of programs; while it is not used primarily for undergraduate instruction, its "Challenge Exam" program allows undergraduates in the non-campus territories to complete the first part of a Bachelor of Science degree without leaving their home island. In the 1984/85 academic year, nearly two hundred students sat for the Challenge exams.

UWIDITE places strong emphasis on its outreach and in-service training programs. The Certificate of Education program for primary and secondary school teachers provides opportunities for professional upgrading and, importantly, job advancement. This program has enabled the University to double its annual number of certificate awards. UWIDITE's health program is extensive: over 500 doctors and nurses are reached each year with in-service training in reproductive health and family planning. The Caribbean Food and Nutrition Institute presents a series of courses that cut across sectors: community workers in agriculture, education, health, and community development are trained to promote good nutrition practices in the community.

The UWIDITE network supports monthly consultations and case presentations and is used for special course series. For example, the PanAmerican Health Organization presented twelve sessions on emergency health management and the Caribbean Cardiology Conference, with 100 physicians in six countries, was conducted via teleconference.

Significantly, most of the UWIDITE program participants are between 31 and 35 years of age – a period when both family and career pressures would normally make it difficult to pursue additional training.

UWIDITE is particularly appreciated in the non-campus territories that lack the resources to strengthen their education and training systems. The availability of funds is one problem, but there are others: the limited size of certain demands in these small island nations diminish the economic viability of conventional training programs; the relative isolation makes it difficult to recruit and retain qualified staff; and the lack of access to new information serves to degrade the staff's effectiveness. These problems are addressed by UWIDITE, which has become a permanent feature of the University of the West Indies' offerings.

Peru

Can teleconferencing work outside the university classroom? The Peru Rural Communications Services Project (RCSP) works directly with rural field workers in the isolated "high jungle" region of San Martin. Based on the premise that basic telephone service is an effective means of overcoming infrastructure and resource limitations and constitutes an essential component of the development process, telephone service was provided to seven strategic rural communities ranging in size from 800 to 15,000 inhabitants, thus linking them with each other and with the rest of the country through the national telephone network. (See article on expanded Peruvian telephone service elsewhere in this issue.) Building on the basic telephone system, audioconferencing service was provided by ENTEL, the national telephone company, to the health, education, and agriculture ministries. By linking field and extension personnel with regional and central ministry headquarters, audioconferencing improves the operations and outreach of these centralized institutions.

The operations and development efforts of the social service sector in San Martin were severely handicapped by: inadequate access to information required to develop and provide effective services; lengthy delays in handling routine administrative matters; lack of staff supervision; and absence of in-service training programs for field workers.

The audioconferencing component was developed to support and strengthen these rural services. Audioconferencing (voice only) facilities were established at each site, either in the ENTEL office itself or in a central municipal building. Targeted users were the field staff of the health, agriculture, and education ministries, such as teachers, doctors, nurses, other health care workers, extension agents, etc. At each site, a representative from each sector was designated "local coordinator" to work with ENTEL in identifying sector needs and organizing appropriate programs.

Over a two-year period (1984-1985), 658 audioconferences were conducted – 266 in 1984 and 392 in 1985. Over 80 percent of the approximately 900 sector personnel in San Martin participated in the audioconferences. By 1985, average attendance had grown in every sector except agriculture; total enrollment including repeat users, was 10,000 person sessions. ENTEL itself discovered the utility of the audioconferencing network for training and management – it now accounts for a third of the network's use.

The audioconferencing network was primarily used for in-service training, with most programs originating from Lima, based on the participants strong preference for and belief in the superiority of Lima-based specialists.

The health sector was the most competent and innovative in its use of the audioconferencing network, reflecting perhaps greater congruence of its communication and information needs with the service provided by the RCSP.

To gain access to Lima-based specialists, an ongoing training program was developed with the *Colegio Médico* in four areas: internal medicine, pediatrics, gynecology and obstetrics, and primary health care. These conferences were well received by the participating doctors, nurses, nurses aides, and community health workers. Over a 10-month period, total attendance reached over 1,100. The RCSP network was also used to support the National Vaccination Campaign – for coordinating logistics, training workers, monitoring progress, and evaluating results.

The education sector conducted the greatest number of audioconferences. The network became the means of delivery for 32 workshops conducted by PROMULCAD, an innovative teacher training program. Special education was also a sector focus. A series of audioconferences were developed on learning disabilities. So successful were the programs that local parents asked to attend, and eventually, in an innovative mixed media event, audioconferences were broadcast live over the local radio station and questions were entertained through a "call-in" arrangement.

Because of strikes and poor leadership in the agricultural sector, it was least able to establish a viable audioconference program in San Martin. Only 88 audioconferences were completed in 1984 and 1985. Furthermore, the farm-visit strategy promoted by the ministry prevented extension workers from regularly attending audioconferences. However, in 1985 the new training orientation of the telecommunication project and revised scheduling for the agricultural telecommunication conferences helped to increase the number of successful audioconferences by 57 percent.

The Results

After four years of field experimentation, what has been learned? Although a proven technology and means of communication in the United States, teleconferencing was untried in the Third World. The RSP projects introduced teleconferencing to rural and remote environments, where the telephone had arrived only recently. In 1982 the questions were: Could the technology withstand the rigors of the environment, the deficit of resources, and the paucity of skilled telecommunications technicians? Could the technology be adequately transferred to ensure long-term operation and efficient use of the teleconferencing networks? Would it be an effective development tool? What were the most appropriate applications?

Teleconferencing technology can be made to work reliably in the developing world. In Indonesia, the 15-site audioconferencing network performs at 98 percent technical reliability; in the West Indies, the network successfully delivers all but 10 percent of its programs; in Peru, less than four percent of scheduled

(*Continued on page 5*)

(**Tietjen** *continued from page 4*)

transmissions were cancelled because of technical problems. This high rate of reliability was accomplished by selecting simple and sturdy equipment, making certain equipment adaptations such as using noncorrosive metals, and creating innovative solutions – e.g. a noise "gating" system – when problems arise.

Training of local technicians in equipment maintenance, repair, and management is also a key factor in achieving a reliable teleconferencing network. Each technician received hands-on training, operations and maintenance manuals, and repeated refresher courses – taught over the networks, of course!

Yet, not everything was successful. The telewriters used for both the SISDIKSAT and UWIDITE Projects proved disappointing in their performance. And we learned that the human system was more liable to break down than the technical one. Both training and practice were needed before there was any certainty that participants and presenters would regularly attend the teleconferences, that materials would be prepared and presented on schedule, and that the telecommunications authority would not inexplicably turn off the earth station in the middle of a class.

Teleconferencing can answer development needs. It can support a variety of distance education programs, facilitate management practices, and fulfill essential information needs. As evidenced by the RSP pilot projects, teleconferencing is versatile: it is equally appropriate for delivering university courses, in-service training, health campaign coordination, medical consultation, and management conferences. It cuts across sector boundaries: university students and field workers, physicians and rural health care workers, teachers and agricultural extension agents can all benefit from teleconferencing. Training is by far the most demanded service of a teleconferencing network and will attract the most users. And training probably will have the most profound development impact of any of the teleconferencing programs.

Teleconferencing is an effective and popular means of instruction. Each project added sites and expanded classroom facilities to accommodate high attendance and demand. In Indonesia, it was not unusual for a site to have 100-200 students attend a single class. Special UWIDITE and RCSP programs often attracted large segments of the community, as well as the usual targeted participants. In the West Indies, over 500 doctors and nurses have participated in a single course series. In Peru, 80 percent of the field workers received training via the teleconferencing network.

Satisfaction with the communications medium – essentially two-way voice communications – was expressed by the users. In Indonesia, for example, 74 percent of the students indicated that they learned especially well from the interactive question and answer sessions, which were a regular feature of the SISDIKSAT courses. While 67 percent of the students felt they learned as much or more from the SISDIKSAT courses as from their face-to-face classes, 95 percent of their local tutors believed the students learned as much or more from the distance courses.

The Costs of a Teleconferencing Network

Three cost elements must be considered:

- capital costs: teleconferencing equipment, associated hardware and facilities;
- transmission costs: satellite "air time" and telephone lines;
- management and maintenance costs: operating the systems and developing programs for delivery.

CAPITAL AND RECURRING COSTS

COSTS ITEMS	SISDIKSAT	UWIDITE	RCSP
Audio equipment	$ 9,941/site	$ 4,985/site	$ 4,549/site
Annual transmission	237,500/year	104,000/year	no charge
Annual management	82,313/year	139,702/year	33,300/year
Hourly charge (transmission and management)	94/hour	140/hour	68/hour

COST EFFECTIVENESS: COMPARISON WITH FACE-TO-FACE DELIVERY METHODS

ACTIVITY	Face-to-Face	SISDIKSAT	UWIDITE	RCSP	SAVINGS
Course	$ 2,281/site	$542/site			58%
Seminar (1 day, 84 people)	11,250		$1,000		90%
Workshop (6 days, 20 people)	9,325	$3,384			64%
Training (31 sessions)	4,000			$2,600	35%
Teaching Certificate	8,172 student		$3,836		54%
Visiting Professor	64/course/ student	11/course/ student			83%

(Figures derived from Rural Satellite Project data in US$.)

Participants from all three projects found the teleconferencing programs relevant to their professional needs. The SISDIKSAT local tutors believed the distance courses and training sessions improved their ability to teach similar courses themselves.

In Peru, 92 percent of the participants stated the teleconferencing programs helped them do their jobs better. In fact, in 1985 over 300 teleconferences were organized at field workers' requests.

This demand is likewise evidenced when 99 percent of the SISDIKSAT seminar participants requested additional seminars. And in the West Indies, the University has decided that the UWIDITE "Challenge Exam" program is so successful that it will no longer offer face-to-face tutorials on the campuses.

Conclusion

Two-way, telephone-based communications networks can benefit rural institutions and users by providing access to expert resources, quality training, new technologies and methodologies, and scientific research, among other uses. They provide a means of communication with policymakers, a chance to ask questions and discuss problems, and an opportunity to participate in the decision-making process.

The ultimate outcome of the Rural Satellite Program is that the experience and knowledge now exist to provide a sound foundation for others interested in establishing innovative uses of telecommunications. It signals the beginning of a global effort to bring education, training, and information to more and more people at lower costs. It is hoped that, based on the experience of the Rural Satellite Program, others might benefit from its triumphs and pitfalls to more effectively design and implement similar projects in the future. ■

Karen Tietjen is Project Director of the Rural Satellite Project, which is operated by the Academy for Educational Development.

Telephone Service Expands in Peru

by Gary Heald, Steven Klees, and John Mayo

In 1984, the Independent Commission for World-wide Telecommunications Development (popularly known as the Maitland Commission after its chairman, Sir Donald Maitland) summarized the importance of telephony to rural development. It concluded that "telecommunications should be regarded as a complement to other investments . . . an essential component in the development process which can raise productivity and efficiency in other sectors, and enhance the quality of life in the developing world." Evidence from a variety of two-way systems in Alaska, Canada, India, Thailand, and Indonesia confirm this observation.

There are still many unknowns, however, concerning the use, costs, financing, and impact of rural telephone systems. While national planners and their colleagues in international agencies are familiar with the economic and social benefits associated with investments in transportation, education, health, and agriculture, they still lack the information, familiarity, and confidence to judge the benefits derived from telecommunications. To address such issues, a number of important pilot projects have been undertaken in recent years. One such initiative was the Peruvian Rural Communication Service Project (RCSP).

"...there was an immediate demand and a sizable market for public telephone services."

System Operations

The RCSP was developed by the Peruvian government and the U.S. Agency for International Development to determine among other things, whether a satellite-based telephone communication system, linking a variety of agencies and technologies, could provide a useful, reliable, and cost-effective service to a remote region of eastern Peru. The project incorporated numerous technical, programmatic, and administrative innovations. The relatively small 6.1 meter antennas received and transmitted signals using the hemispheric beams provided through INTELSAT satellites. These earth stations were linked to radiotelephones to extend rural telephone coverage to the smaller villages in the project.

The pilot project was concentrated in seven rural communities in the Department of San Martin, a high jungle area east of the Andes. The three largest communities, with average populations of 12,000, were connected via satellite to Peru's national telephone system. The remaining four towns, with average populations of 3,400, were linked by means of VHF radiotelephones to one of the earth stations and then to the national network.

All RCSP sites, designed to provide commercial telephone service at public call offices, were staffed by ENTEL *(National Telecomunications)* personnel or by local *concessionaires*. After a lengthy network design and installation process, public telephone service was inaugurated at the seven sites between July 1983 and June 1984. In addition to standard two-way telephone communication, the RCSP incorporated a message delivery system which allows users to pre-arrange both outgoing and incoming calls at public call offices. When a telephone message arrives in a community, ENTEL delivers it to the recipient's home or office – an important service, as most Peruvians do not have private telephones.

During the first two and one-half years of commercial RCSP service, 87 to 95 percent of the calls were made from the participating rural communities. Telephone traffic increased from 22,170 calls in 1983 to 102,895 in 1985. Unquestionably, there was an immediate demand and a sizable market for public telephone services. In 1985, 87 percent of annual operating costs were covered by RCSP revenues.

In-depth personal interviews with public telephone system users revealed that the frequent system user (4 to 5 calls per month) was typically male, 33-35 years of age, born outside of the project zone, and was well educated by regional standards. Approximately 24 percent of the system users held professional or technical positions. Use among business owners and managers grew appreciably during this period – from 14 percent in 1983 to 34 percent by the end of 1985.

System Reliability

The novelty of the system, the challenges from adding new network sites, and the skyrocketing use of telephone services, did not compromise the system's reliability; during the first six months, fully 81 percent of all initiated public calls were successfully completed. This completion rate declined slightly over time, and held steady at about 75 percent during the next two years. Calls lasted an average of approximately six minutes, and overall, the average waiting time for a call to go through was 51 minutes. Following its inauguration in mid-1983, all or part of the RCSP system operated 174 out of 184 possible days; and in 1984 and 1985, the earth station was operational every day.

It is difficult to identify many of the benefits derived from having nearby telephone service. Nevertheless, several key facts demonstrate the value rural Peruvian users place on improved telecommunication services and how their lives have changed as a result. First, surveys showed that among families using the system at least once, average monthly incomes ranged from $68 to $150. A single long distance call averaged $1.15, representing about 0.6 percent of families' monthly incomes among regular users, and between 0.8 and 1.7 percent of average family incomes. That rural families chose to allocate their limited discretionary income to telephone use is one measure of the value of telephone communications to individual users.

Secondly, despite the additional expense that would be incurred, there was a strong demand for private telephones as well, and a number were installed in homes and offices in the three sites served by satellite earth stations. In 1984, 28,790 calls were initiated from these private phones, and 50,767 were made in 1985.

(Continued on page 12)

HIV and AIDS Explained

AIDS (Acquired Immunodeficiency Deficiency Syndrome) is the most serious – but not the only – illness caused by the Human Immunodeficiency Virus (HIV). AIDS is a fatal virus-caused disease, characterized by a weakening of the immune system which permits infection by opportunistic diseases. In fact, like most viruses, HIV appears to cause a spectrum of illness, ranging from infection with no symptoms to malaise to chronically swollen lymph nodes and other conditions known as AIDS-Related Complex (ARC), to diagnosed AIDS itself. What is being transmitted between people is not a single disease, then, but a virus that causes various degrees of disease.

It is important to understand that a minority of those infected with HIV may never become ill; that infection alone does not automatically mean disease; and that there is no necessarily direct progression from infection to ARC to AIDS. Perhaps as many as 80 percent of those infected will, however, suffer *some* HIV-related illness such as AIDS, ARC, brain and nerve damage, or various cancers. The longer a person is infected, the greater the chances appear to be of developing illness, particularly AIDS.

On the other hand, *infected individuals are at all times infectious*, presumably for life, whether or not they become ill. In this respect, HIV is unlike other viral infections and raises issues of profound importance regarding prevention, treatment, and control.

Moreover, HIV infection and its various disease manifestations vary considerably in different parts of the world. What is happening in Western Europe or the United States cannot necessarily be explained by what is happening at the same time in central Africa, or vice versa. Perhaps more than one virus is at work, or sociomedical conditions encourage certain kinds of infections but not others, or some other unknown factor is at work that makes this infection so markedly dissimilar from country to country. For some time to come, what is known about HIV infection will be hostage to what we have yet to discover about it.

For the time being, however, the numbers alone are staggering. Perhaps as many as ten million people are HIV-infected worldwide, and that total in creases as this is written. Even if no further viral transmission occurs anywhere in the world, the community of nations will be coping well into the next century with as many as five million of those already infected as they develop some HIV-related illness. ■

SIDAIDSIDA HIV

This article considers the medical and social implications of HIV and AIDS rather than addressing our usual topic – communication. Due to the increasing need to understand HIV, and the widespread misunderstandings about this virus, we feel it is both appropriate and important to include Dr. Mann's piece along with those that describe communication strategies and lessons learned from HIV and AIDS education efforts in the U.S. and in the developing world.

AIDS: The Global Challenge

by Dr. Jonathan Mann

The worldwide epidemic of Human Immunodeficiency Virus (HIV) infection, including the Acquired Immunodeficiency Syndrome (AIDS – SIDA in French and Spanish) represents an unprecedented and urgent challenge to international public health. AIDS is not "somebody else's" problem – it is an international health problem of extraordinary scope affecting both industrialized and developing countries, and will require a long-term effort and commitment on the part of the entire world.

AIDS emerged quickly and many wish it would disappear just as quickly. But it is unlikely that a vaccine or a widely effective therapy will become available for at least several years. Even if a vaccine were distributed tomorrow, AIDS cases would continue to appear for generations, coming from the pool of people already infected. The only deterrent we have at the present time is *education*.

The pandemic was a silent one at the beginning, from the early 1970s until the mid 1980s. Then, when it was positively identified and the lethal nature of the virus become well known, its presence "exploded" onto the international scene. Now, we are witnessing an astonishingly diverse range of impacts and reactions to the HIV phenomenon – psychological, social, cultural, economic, and political.

With the establishment of the Special Programme on AIDS (SPA), the World Health Organization (WHO) recognized the immense dimensions of this threat to global health. WHO acknowledges its responsibility to rapidly mobilize national and international energies, creativity, and resources for global AIDS prevention and control.

Transmission Modes

The transmission modes of HIV have become clearer over time and with the growing availability of epidemiological studies throughout the world. HIV appears to be spread in only three ways – sexually, through blood, and from mother to child. Sexual transmission transcends national, racial, geographic, cultural, and social boundaries. HIV can be spread sexually from man to woman, woman to man, woman to woman, or man to man.

Transmission through blood can occur in several ways. The most common is through HIV-contaminated blood transfusions. Fortunately, this can be prevented by screening the blood for the virus. A second route is through certain blood products, such as those used for hemophilia patients, that were contaminated with HIV. This problem also can be controlled through screening and with special treatment of the blood product. Finally, intravenous drug users who use blood-contaminated needles, syringes, or other equipment also risk contracting HIV. Similarly, any needle or other instrument contaminated with blood and then used on another person, could transmit HIV. Transmission can be controlled if instruments are cleaned and sterilized between each use.

Transmission of HIV from an infected mother to her child (perinatally), reflecting a special biological relationship, can occur before, during, or shortly after birth. The efficiency of this type of transmission is approximately 50 percent. Studies are in progress to better define this risk.

There is no evidence to support casual transmission, i.e. the spread of HIV by insects of any kind, through food, water, air, or via swimming pools or toilets. Transmission requires specific human acts or special relationships, such as that between a mother and her child.

The Numbers

The numbers of reported cases of AIDS and of countries identifying AIDS cases have increased dramatically. As of May 6, 1987, 105 countries have reported 49,132 AIDS cases to WHO. This number, however, represents only a portion of the estimated total, believed to exceed 100,000. Between 5 and 10 million persons may currently be infected with HIV, and by 1991, at least one million AIDS cases will have occurred worldwide according to WHO estimates.

(*Continued on page 8*)

(**Mann** *continued from page 7*)

Furthermore, AIDS is threatening projected health gains for the developing world. For example, in areas where 10 percent of the pregnant women are HIV infected, the infant mortality rate due to AIDS alone may be 10 to 20 per 1000 births. This HIV-related increase in infant mortality may cancel out projected improvements in infant survival rates attributable to child survival initiatives.

In North and South America, Europe, and Australia, most AIDS cases occur among 20- to 49-year-old homosexual or bisexual men and among intravenous drug users. However, an estimate of the proportion of cases of AIDS acquired through heterosexual contact in these regions has increased from one percent to approximately four percent. The United States Public Health Service has estimated that by 1991, 270,000 cases of AIDS will have occurred in the USA - more than eight times the approximately 35,000 cases of AIDS identified since the beginning of the epidemic.

The number of African countries reporting cases of AIDS to WHO has increased substantially in the past year. HIV is transmitted in Africa as it is elsewhere in the world. While an accurate accounting of HIV-infected persons or AIDS cases in Africa is not available, it is likely that Africa has at least one million infected people.

Relatively few AIDS cases have been reported in Asia, and most of those have been associated with exposure to contaminated blood products or to persons from Western countries. Though there is evidence of local HIV transmission, studies suggest that it has not yet penetrated the general population.

Earlier estimates of the rates of progression of HIV infection to AIDS and other AIDS-related syndromes have recently been revised upward. On the basis of current information, it appears that 10 to 30 percent of HIV-infected persons will develop AIDS and that 25 to 50 percent more will develop AIDS-related illnesses during a five-year period. Current data suggest that the majority of HIV-infected persons may develop AIDS during the first ten years after HIV infection and that the remainder may have AIDS-related illnesses.

The Costs

In industrialized countries, the economic impact of AIDS will be substantial: consider the estimated per patient cost of $50,000 to $150,000 for direct medical care. In comparison, the cost of preventing AIDS is quite small. For example, several health educators could be employed for a year for the cost of treating a single AIDS patient. Indeed, the entire 1987 WHO budget for AIDS does not exceed the medical care costs incurred by less than one percent of reported AIDS cases.

The social impact of HIV-related diseases is occuring at all levels – personal, family, and community. HIV-infected persons, including AIDS victims, are being expelled from their families or their social milieu at the very time they most need support and care.

HIV infections and AIDS strike most often at the 20- to 49-year-old population, in contrast to many health problems that affect either the very young or the older segments of society. Thus it robs societies of people who are in their most productive years, creating a serious threat to countrys' social and economic development

The Challenge

The HIV and AIDS epidemics are truly global problems, affecting industrialized and developing nations alike. A "business as usual" approach will not suffice. The WHO strategy for AIDS control is to stop the spread of HIV worldwide by attacking *every* mode of transmission in *every* country, using *every* educational technique available. This daunting task will require an unprecendented level of commitment from all governments as well as from medical and public health professionals.

Education is our only tool so we *must* make it work. That will require all the clarity, all the hard work and all the creativity we can muster to make certain that it does work. ■

Dr. Jonathan Mann is Director of the Special Programme on AIDS at the World Health Organization in Geneva, Switzerland.

An AIDS Campaign in Brazil

by Douglas Janoff

Most people like to get away from problems and concerns when they go on vacation. It is probably safe to say that a majority of vacationers would not want to be reminded about the growing problem of AIDS as they travel to long-planned getaways. But tourists arriving in Rio de Janeiro and other cities in Brazil for the annual Carnival celebration last February were in for a surprise when they passed through customs and uniformed policemen handed them the following brochure in Portugese, Spanish, English, and French:

"Dear Tourist, Welcome to Brazil

We hope that your stay in our country will be the most pleasant possible and that you will enjoy it. One of the most popular events, the Carnival, is taking place now and is a period of great fraternization.

Brazil has one of the largest number of registered cases of AIDS in the world. This situation must be faced even during such a pleasant occasion as the Carnival. Therefore, for your health and safety, try to avoid casual or multiple sexual contacts. With any kind of sexual activity, use condoms, which can easily be found in drugstores.

If you need to use syringes, use only one-way models, and make sure they are disposed of after use.

Collaborate with the health authorities to preserve your health and that of the Brazilian people."

The AIDS brochure distribution program was spearheaded by the National Division of Sanitary Surveillance in Ports, Airports, and Borders. According to Dr. William Waissman, Assistant Director of the Sanitary Control Service for Immigrants, 500,000 brochures were handed to in-coming visitors during Carnival week – half in Rio de Janeiro and half in other popular destinations such as Recife and Porto Alegre.

At the time of the 1987 Carnival, there were already 1,263 confirmed cases of AIDS in the country. A year earlier, AIDS was rarely discussed; but awareness and concern about the virus has changed considerably in the past year. At first, other government agencies resisted becoming involved in disseminating information about AIDS. For instance, in 1986, when Waissman's service prepared and began to distribute a questionnaire to passengers arriving in Brazil, they had to stop because of protests from airline companies and the press. But in November of that same year, the government announced plans for a massive education campaign to prevent the transmission of HIV/Aids in Brazil. And, by February 1987, the climate was favorable enough to run a coordinated information campaign during the Carnival celebration.

Beyond reaching the tourist populations, it is particularly important to reach large portions of the Brazilian population. Planners of the national AIDS campaign intend to use television, radio, and all major newspapers in their effort to cover the country. Initial TV coverage is comprised of short informational messages directed at high-risk groups. Although a coordinated mass media campaign has not yet been launched, there are plans to use radio and the print media as well to reach a wider audience.

A Matter of Funds

Dr. Alvaro Matida, director of the Infectious Diseases Department for the State of Rio de Janeiro, estimates that US$6 million will be needed to adequately meet the costs of AIDS prevention and medical care. However, because of extreme budget constraints, only $45,000 has been earmarked for ongoing AIDS activities at this time.

While articles reporting on the AIDS problem appear regularly in newspapers, advertisements that would better educate readers about the virus have not been published.

Brazilians are slowly becoming more aware of this latest threat to their health, and the Brazilian government has shown a willingness to inform its citizens about its dangers, but until more funds are designated to implement educational programs, progress will be slow in developing strategies against the spread of the virus. ■

Douglas Janoff is a Canadian journalist who is currently in Brazil on a grant from the International Development Research Centre in Ottawa, Canada.

AIDS Public Health Communication: A New Challenge for Communicators

by Anthony Meyer

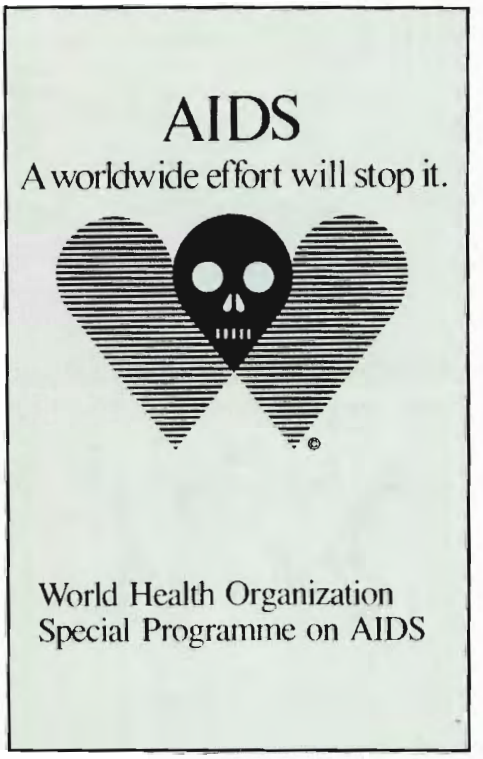
Over the past several decades, communicators have gained valuable experience which can contribute to the control of AIDS. Health education and communication programs have become increasingly effective, particularly in promoting family planning, immunizations, oral rehydration therapy, improved nutrition, and a variety of child survival practices. Programs are better today because increasingly:

- multiple channels of communication, including institutions, are mobilized to reinforce messages and activities from a single program perspective;
- information about specific behavior and its cultural and social context guides the communication strategy and message development process;
- formative evaluation and on-going monitoring improve program performance; and
- the power of face-to-face communication and traditional networks of training and communication are combined with the coverage, convenience, and reinforcement of mass media.

AIDS prevention and control must go beyond everything that has been achieved in the best of programs. The subject matter is sensitive; AIDS is itself often a political issue; and the behavior to be changed is deeply rooted. AIDS is also a global problem, requiring appropriate knowledge and targeted behavior change throughout the entire adult population of the world. Fear, denial, and blame must be replaced by constructive personal and communal action – worldwide. Combating AIDS requires that every lesson of the past be adapted, every channel of communication be appropriately employed and every strategic insight be integrated into public health communication efforts to combat AIDS. Education and communication are our only vaccine against AIDS.

"The global need to stop AIDS represents a call to action for every professional communicator."

There is cause to hope that communication-related disciplines have evolved in both depth and perspective to a point where communicators can collectively assist in meeting this challenge. Audiovisual specialists, at one time, were expected to produce a poster, flyer, or newsletter with little regard for program context or planned, cumulative impact over time. Targeted behavior change was not typically an expected outcome. Communicators now play a more significant role from the beginning of projects in overall planning. They share in the responsibility for program impact.



Health educators were often expected to generate widespread public health impact while having the capacity to infrequently contact only a fraction of the target audience. Contact was often restricted to those visiting clinics for treatment, and outreach for prevention was typically limited to small groups of participants. Communicators now have learned to use electronic media and national newspapers to help set a public agenda for change. Increasingly, their efforts are coordinated into system-wide outreach efforts which attempt to mobilize adequate resources for specific health care objectives.

In the past, health promoters used advertising and campaign approaches to change practices, but often failed to promote social maintenance of the changes that were introduced. More recently, social marketing has attempted to apply marketing methods to promote change. Needs assessment and target audience analysis have improved as well, bringing communicators closer than ever to community perspectives and to traditional networks to support change.

All communicators, regardless of initial professional orientation, have been influenced increasingly by the social sciences. Social psychology, communication research, and marketing have enhanced research in audience definition, channel characteristics, and the use of field data to test assumptions underlying strategy, message, and materials development.

Anthropology has provided tools for developing more creative concepts and culturally appropriate content. Behavioral psychology has added precision in facilitating behavior change through examining the antecedents and consequences (costs and benefits) of specific behavior.

In summary, the community of communicators working in the health sector has evolved beyond a simple paradigm. The term public health communication has been introduced to capture something of this evolution. Public health communication is broadly defined as the systematic attempt to influence specific health practices of large populations positively, using principles and methods of mass communication, instructional design, health education, social marketing, behavioral analysis, anthropology, and related public health and social sciences. The term implies reliance on multiple channels, coordinated to introduce sustained change in specific practices crucial to achieving a public health impact. It is a term that seems to be appropriate in describing what is required to stop AIDS.

The global need to stop AIDS represents a call to action for every professional communicator. The range of possible action is wide. The World Health Organization (WHO) is coordinating worldwide action and is facilitating the formation of national AIDS prevention and control committees and plans of action in countries which request their assistance. Major international organizations – AID, UNDP, UNICEF, Unesco, UNFPA, The World Bank, The Red Cross, major foundations – and thousands of local institutions are developing their own complementary action plans. Each will have a significant public health communication component. Each will require services that you as communicators are best suited to offer. ■

Dr. Meyer is Development Communication Specialist in the Office of Education, Bureau for Science and Technology, U.S. Agency for International Development (AID), and plans to join the WHO Special Programme on AIDS in Geneva, Switzerland, on loan from AID.

(The opinions expressed in this article do not represent the policy or position of AID.)

Knowledge About AIDS in a Central African Town

by M. Carael, J. Nkurunziza, and C. Almedal

In Africa, the impact of AIDS is already wide and deep and is leading to extensive changes in sexual behavior. With education as the only effective antidote to the spread of this disease, African nations are beginning to plan and implement information campaigns targeting high risk groups. One such effort is currently underway in Rwanda where, in 1986, the first national radio information campaign and follow-up survey on AIDS knowledge levels was authorized by the government.

In July 1986, the Rwandan Red Cross was asked by the country's Ministry of Health to develop and conduct a two-year AIDS education program. Funds for this effort were provided by the Norwegian Red Cross.

A Radio Campaign

The short daily radio spots and six one-hour programs were produced and broadcast for six months on Rwandan national radio. This campaign had a major impact on the level of knowledge of AIDS among urban adults. Post-broadcast research showed an increased understanding of the HIV modes of transmission among those with higher levels of education. At least 25% of these adults reported they have changed their sexual behavior in the past year. Sexual abstinence was the most common preventive measure adopted by this group.

What People Learned

In order to develop an effective information strategy, the Red Cross conducted a survey in Kigali, the capital of Rwanda, a city of approximately 400,000. During a two-week period, 1192 men and women between the ages of 18 and 50 were interviewed using a standardized questionnaire. The great majority of respondents (98%) knew that AIDS is a disease and 76% knew that it is caused by a microbe. A majority of them (73%) learned about AIDS by listening to radio, 14% learned of it from friends, and smaller percentages from newspapers, health workers, and from others. While 57% of those questioned were able to report one symptom of AIDS, and 23% could identify two symptoms, 14% knew none of the correct signs or symptoms of the disease.

Fully 73% knew that somebody could be infected with the virus without showing any signs of the disease. Awareness of how HIV is transmitted is of particular interest in terms of health behavior. Ninety-seven percent of adults in urban areas knew that AIDS is spread by sexual contact, and 92% by transfusion of blood. However, 65% of the respondents believed that AIDS is spread by mosquito bites and public toilets. Forty-seven percent also believed that they can catch AIDS by drinking from the same glass or breathing the same air as an AIDS victim. Not surprisingly, 41% of the respondents believed that AIDS cannot be prevented – women more so than men (56% versus 36%.)

Among those believing that AIDS infection could be avoided, 57% reported they have changed their behavior in the past year. Among this population, nearly 67% of the men said they avoided prostitutes and occasional sexual partners, and 71% of the women said they reduced their number of male partners or abstained from sex. Unfortunately, none of these respondents reported using condoms during sexual intercourse.

Following the radio program and assessment of the survey data, a 30-page information booklet was prepared using a question and answer format. (See illustration) Copies were prepared in Kinyarwanda, the national language and in French. During this on-going two-year public education campaign, the Rwandan Red Cross will distribute 25,000 booklets to opinion leaders throughout the country. Three thousand copies of a more scientific document were prepared for paramedical personnel. Leaflets will also be produced targeting identified high risk groups such as prostitutes, chauffeurs, soldiers, and students.

The Rwandan Red Cross will be a primary distributor of the booklets, given their local committee structure in communities throughout the country. To them falls the responsibility of transferring accurate information via interpersonal communication. This will not be an easy task as sexual behavior and practices are seldom discussed in public; prostitution is tolerated in urban areas; and the use of condoms is resisted.

In Rwanda, as in the rest of Africa, profound alterations will have to occur in social relationships if the spread of the virus is to be controlled. The role of education in provoking this change in awareness and behavior cannot be overemphasized given the magnitude of the HIV epidemic. ■

Michel Carael works for the Institute for Sociology in Brussels, Belgium and assisted in gathering data for the Rwandan Red Cross for their AIDS campaign; Dr. J. Nkurunziza is associated with the Rwandan Red Cross; and Calle Almedal is with the Norwegian Red Cross in Oslo, Norway.

(MacDonald continued from page 11)

true risk, and wants basic information. 4) Acceptance: in which the public acknowledges, however grudgingly, a deadly threat in its midst and wants to do something about it.

3. Finally, effective programs do not simply convey information. They also enable people to change behavior and maintain those changes over time.

People may be persuaded eventually that HIV infection can happen to them under certain circumstances. They may even be convinced that there are things they can do to prevent infection. As difficult as these objectives are to achieve, they are only the beginning. It is essential to follow-up these first steps with programs and services designed to help people change their behavior, and to maintain those changes over time. Only if knowledge can be translated effectively into action will HIV infection be stopped. Ultimately, what people will probably need is a "reward" in the form of social affirmation for the changes they must sustain for the rest of their lives.

U.S. experience with HIV prevention to date suggests that effective programs are a process that is best carried out with consensus support at the community level in ways that are sensitive to varying degrees of awareness; acknowledge the need for accurate, clear, and consistent prevention messages; and enable people to make and sustain beneficial behavior changes over time. ■

Gary MacDonald is a Senior Technical Advisor on AIDS to the Academy for Educational Development.

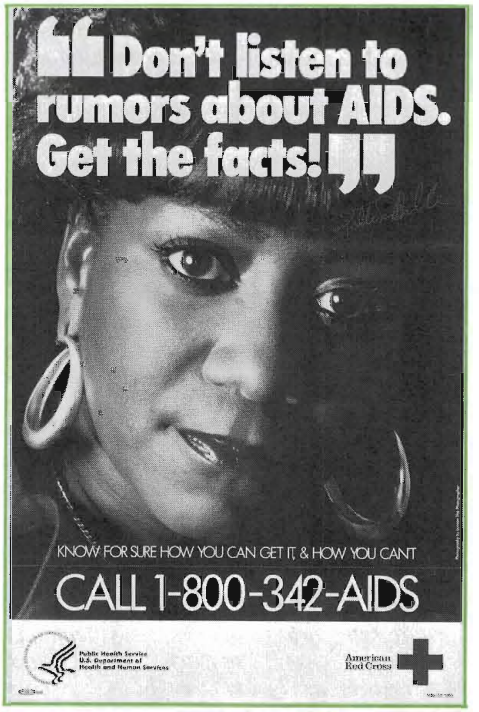
HIV Prevention Education in the United States

(While the DCR usually focuses upon communication issues related to developing countries, on occasion we find it appropriate to turn to developed countries for applications that may help practitioners who are looking for guidance but are finding few appropriate examples. In this case, we look to the United States where there are a growing number of campaigns devoted to informing target populations about AIDS and the HIV virus.)

by Gary MacDonald

Because infection with Human Immunodeficiency Virus (HIV) is lifelong, the behavior changes that protect against its spread must also be maintained for life. That necessity alone places HIV infection well outside the disease status quo, and suggests to many U.S. experts that HIV prevention programs must be as unusual – and as clever – as the deadly new microbe they are designed to contain.

In the U.S., the decentralization of the official public health system has had the unwitting but beneficial effect of encouraging innovation in HIV prevention programs. Though the lack of a central official source for program development has forced private organizations throughout the country to finance and implement prevention programs on their own, the same groups have nevertheless taken advantage of their freedom from official constraints to experiment with new, and in many cases extraordinary, means of preventing HIV transmission.



FAMOUS ROLE MODEL: singer Patti LaBelle cautions Blacks to ignore false information about AIDS. Note national hotline phone number on all posters, with blank space at bottom to add local names and numbers for more information.

Experience to date strongly suggests that these programs work best when they are designed and carried out by and within the actual communities for which they are intended. What works in New York does not necessarily work in Los Angeles; and what is useful for major coastal cities may not be applicable at all in small Midwestern towns. For example, messages that speak effectively to urban black homosexual males will probably have no impact on suburban white heterosexual females.

All of this argues for a coordinated national education program that is defined by highly individual, grassroots approaches to HIV prevention. Different kinds of programs based on different messages are essential to reach different audiences at different times in different locations. Such specificity requires considerable planning, pretesting, and evaluation. HIV prevention programs are nothing if not labor-intensive.

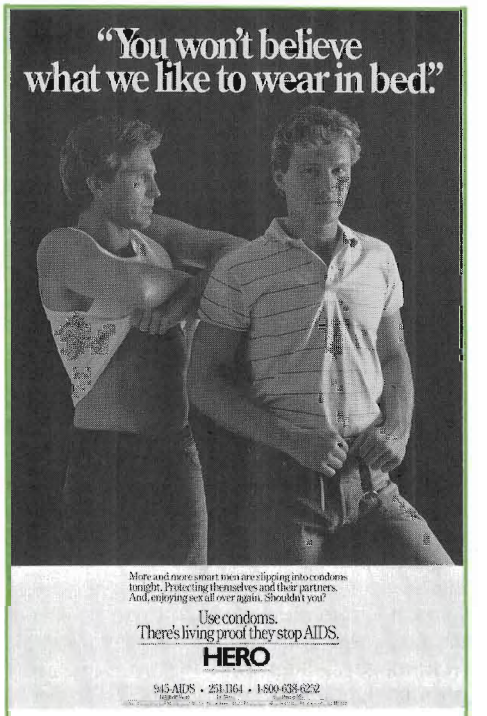
Whatever their differences, effective HIV prevention programs do appear to share certain attributes. The successful ones have worked at least in part because they have 1) involved members of target audiences, 2) developed broad-based local support, and 3) secured a working consensus among local decision makers regarding what needs to be done as well as how best to accomplish it.

Since 1982, when most programs began, other unifying "principles" of HIV prevention education have emerged that appear to cut across and at the same time integrate vastly different types of experiences. Briefly summarized below, these principles are still largely anecdotal in nature; research is in progress to determine their exact relevance and importance.

1. Effective HIV prevention programs do not perpetuate myths and stereotypes. They are based *only* on factual information that is stated clearly and consistently.

What is being said about HIV infection is as important as **how** it is said. This is particularly true when HIV transmission modes must be described accurately. For example, see the difference between advising people to "avoid sexual contact with infected individuals – a common HIV prevention message that manages to inform no more than it offends – and advising them to "avoid unprotected (without a condom) sexual intercourse, either vaginal, anal, or oral, with an individual, either male or female, who is infected with HIV."

Most importantly, educators must seek to change the many stereotypes that already define people's reaction to HIV infection. A case in point is the notion that **who you are** (risk groups) is more important than **what you do** (risk behaviors) in determining your chances of being infected with HIV. By this logic, AIDS in the U.S. was initially a "homosexual disease" because it is so frequently diagnosed in homosexual men. Heterosexuals, by the same token, were not considered at risk because in the early years of the epidemic in the U.S. they were rarely diagnosed, etc. This tendency to focus on groups rather than behaviors has, however, caused serious harm to prevention efforts



PROMOTING "SAFER SEX" FOR GAY MEN: By using attractive male models, this poster's aim is to convince consumers that using condoms is smart and enjoyable.

For example, all men who have sex with men (the behavior) do not necessarily identify themselves as homosexual or bisexual (the group). Those who practice the behavior but do not perceive themselves as part of the group will not be reached by prevention messages that address only the group. This has been proven in several U.S. cities when changes in public advertising copy – from "homosexual and bisexual men are at risk of infection" to "men who have sex with men are at risk" – have provoked huge increases in calls to HIV hotlines from people who never previously acknowledged their own risk.

In the world of HIV, unlike that of other diseases, nothing can be taken for granted.

2. Effective programs reflect the varying degrees of public awareness about HIV and the public's ability and willingness to act.

Individuals as well as whole communities go through a similar process of grasping the seriousness of this epidemic. At each stage, people are willing – or unwilling – to do only so much. Prevention programs must be sensitive to this continuum while at the same time refusing to let public resistance stymie prevention initiatives.

Normal stages in the awareness continuum are: 1) Denial: in which people deny their own risk of infection by choosing to believe that only "they," not "us," get it. 2) Anger: in which reality sets in and people strike out, usually irrationally and usually at those already infected rather than at the virus. 3) Panic: in which everyone is suddenly afraid, whatever their

(Continued on page 10)

African Telecommunications Toward the Year 2000

by Lantiri Riverson

Can Africa ever hope to participate in the worldwide information network? Perhaps a more pressing question is, "Can Africa hope to develop her industries, educational systems, agriculture, transportation network, and public health system without first developing a good telecommunications infrastructure?"

Developed nations have come to recognize that good telecommunications services help support economic and social progress in numerous ways. In Africa, development of this technology has been, until very recently, a low priority. But there is growing interest in developing telecommunications capability in Africa and some notable activities toward achieving that goal.

INTELSAT Carries Africa's Messages

INTELSAT (International Telecommunications Satellite Organization) is currently assisting African countries with their telecommunication needs. Thirty-four of the African nations participate in this global consortium. INTELSAT provides a wide variety of satellite services to African customers, including international telephone linkages, telex and facsimile capability, domestic lease transponder services, international television transmission, and rural and remote telecommunications services. More than sixty INTELSAT earth stations are in place throughout Africa to provide these services. INTELSAT also offers assistance in coordinating radio frequencies for the continent, planning earth station sites, carrying out domestic lease feasibility studies, and training Africans to operate earth stations.

The Pan-African Telecommunications Network (PANAFTEL), initiated in 1962, serves as the African regional telecommunications network. Using an INTELSAT satellite, the PANAFTEL network serves all 49 African countries. Each country operates at least one earth station that links its population through telephone service, television broadcasts, and other communication activities.

ARABSAT Satellite Services

The Arab Satellite Communications Organization (ARABSAT) placed two of its own satellites in orbit in 1985. These are the first generation of telecommunications satellites developed for regional and domestic use for the 22-member Arab League of Nations. Currently, 14 of the 22 member states use ARABSAT services, but there is considerable room for increased use among Arab League nations.

Growth and Challenge

The great diversity of African cultures makes it difficult to design an efficient, effective telecommunications system for the entire continent. A host of monetary systems, languages, geographical and climatic conditions further hampers progress in establishing this technology in Africa. In time, these challenges will be met and decreasing start-up costs for satellite communications will encourage African countries to take more definitive steps toward developing an integrated telecommunications infrastructure.

One step in this direction began with a pre-feasibility study that was undertaken in 1980-81 by the International Telecommunication Union (ITU) to determine an appropriate modern telecommunications technology for the integrated development of Africa. The study concluded that the use of a satellite delivery system would be viable. In 1986, an all-African Conference of Ministers of Transport, Communications, and Planning commissioned a feasibility study for a regional African satellite communication system (RASCOM). The ITU is responsible for carrying out the feasibility study, which will include national and regional surveys of existing communication systems and needs. The study, expected to begin in 1987, will take two years. It will examine all elements critical to a successful telecommunication system —local terrestrial networks, management, maintenance, and training, in addition to the satellite technology.

Another promising activity is the proposal by the African Union of Posts and Telecommunications to launch an African satellite (AFROSAT) sometime in the 1990s. A pre-feasibility study was done, and, in 1986, the European Development Fund commissioned a full-scale feasibility study; Zimbabwe and Nigeria have applied to implement this study.

Conclusion

While feasibility studies continue, the nations of Africa must take advantage of existing facilities such as those offered by INTELSAT and work to develop national infrastructures that can assume telecommunications responsibilities once African-controlled satellites are in place. Continued support and a strong commitment will be needed from national and international sources in order for Africa to meet the goal of becoming self-sufficient in telecommunications by the year 2000. ■

Lantiri Riverson is a Research Associate with the Africa Telecommunications Report. *He is currently working on a doctoral degree in communications at Howard University in Washington, D.C.*

(**Heald et al,** *continued from page 6*)

A third indicator of the value of the telephone was the amount of time saved by using the service. All of the system users reported it would have taken at least a day to complete a two-way communication by commercial transport service, letter, telegram, or by travel; whereas by telephone, similar messages were completed in less than one hour. Fully 39 percent of business users surveyed in 1985 reported it would have taken two to five days to complete the communications that were completed in less than one hour by telephone.

Conclusions

Anthropologist Clifford Geertz observed that in many developing regions "information is poor, scarce, mal-distributed, inefficiently communicated, and intensely valued." Economists have argued that an inadequate flow of information seriously hampers efficiency and growth in the production of goods and services. Sociologists have similarly noted the value individuals place on contact with distant friends and family members. Such concerns have recently led policy makers and researchers to focus more attention on rural telecommunication.

The results of the RCSP project combined with a growing number of studies in other rural telecommunication initiatives, strengthen the argument for greater future attention and investment in this sector. Clearly, telephone communication and related services are desired by rural residents. The rapid growth in system utilization, the fees that individuals are willing to pay for single calls as well as private telephone installations, the time and travel saved, and the fact that many residents claimed that the telephone system was irreplaceable are all powerful indicators of the benefits and levels of impact that the system produced in the pilot project communities.

Currently, the debate over the expansion of rural telephone systems centers on their ability to sustain recurring costs and cover initial capital investment. Within the first two and one-half years of operation, the RCSP revenues defrayed nearly 90 percent of its operations cost, an encouraging return on an infrastructural investment.

Although at present, significant growth in rural telecommunication systems may require subsidies, the future promises continuing decreases in equipment costs and a growing awareness that telephone service is valued by rural users. Telephone service may be an important means of narrowing the economic, educational, health, and social gaps between the urban and rural sectors in developing countries. Telecommunication investments have the potential to yield extraordinary benefits. ■

Gary Heald teaches in the College of Communications at Florida State University, Tallahassee, Florida. Steven Klees teaches in the College of Education at Florida State. Both were consultants on the RCSP project. John Mayo was the Project Director and Principal Investigator for the Peruvian Rural Satellite Project. He is currently the Director of the Center of International Studies at Florida State University.

Distance Education: The Promise and The Confusion

by Allan F. Hershfield

There is much confusion about the role of telecommunications and instructional technology in distance education. Because of this confusion, the same fundamental error is made over and over again. Too often, those planning to use telecommunications systems to serve distant learners focus their attention on developing the technical aspects of the system instead of first studying the clients to be served and determining the nature of the programs to be delivered. When expectations are not met and programs fail, considerable money is wasted, civic and government leaders become disillusioned, and potential clients are disappointed. After such an experience, any mention of "distance education" or "telecommunications" is greeted with derision.

What follows is a portrait of the experience of the Learn Alaska Network. It illustrates the nature of the problems that can arise when a distance education system is poorly planned and implemented and uses inappropriate technology.

Learn Alaska Network

Alaska, separated by some 1,000 miles from the rest of the U.S., is primarily a rural state with about 34 percent of the population located in small, widely scattered communities. It has long been a state policy to send people living in these small communities to urban centers for extended periods of education and training; a policy not particularly effective or popular among the population. Dropout rates are high, alcoholism problems increase, and indigenous cultural values tend to disintegrate with long separations from home communities

In response to this situation, seven years ago, a statewide telecommunications system – primarily using television – was created to deliver elementary, secondary, and university programs and other skill-building courses to Native Alaskans living in rural areas. The rationale for the creation of this system was that Alaskans living in rural areas needed better access to quality educational programs at all levels which could not be provided economically or efficiently by traditional means.

Low-powered television transmitters, each with its own satellite down-link facility, were placed in more than 150 designated communities. A major television production facility and satellite up-link were established in Anchorage, along with electronic hook-ups for audioteleconferencing. The programs and courses were either to be produced in Anchorage or acquired from public broadcasting stations elsewhere in the U.S. and televised to Native Alaskan communities. The audioteleconferencing network would be used both to deliver audio-only courses and to give students taking televised courses an opportunity to ask questions and to discuss the materials.

The State of Alaska spent approximately US$30 million to purchase and install telecommunications equipment and for ancillary facilities for the Learn Alaska Network. The University of Alaska Instructional Telecommunications Consortium (UAITC) was established to operate the television system on behalf of the University and the Department of Education, and UAITC went on the air in 1982. (See Learn Alaska article in *DCR* 48.) In 1986, just four years later, the Network was closed down by a combination of declining state revenues and growing disillusionment with the service. Today, the audioconferencing network continues in use as a delivery vehicle for course work along with very limited use of the television system, but the state government is considering eliminating both systems entirely to save additional funds.

Given the way in which the Network was planned and operated, it was doomed to fail from the beginning. This failure was brought about by several related factors:

- With only 30,000 native Alaskans scattered throughout the state, there were not enough people in the intended audience to justify either the sophisticated, television-based system or the extensive programming that was proposed.
- Only $200,000 was provided annually to develop programs for this $30 million system – an inadequate sum for creating the type of programming envisioned for the network. As a result, most of the material was drawn from existing programming that had been produced by public broadcasting stations in other states, and had little relevance to the needs or interests of Native Alaskans.
- Those in charge of the Learn Alaska Network operated it as a public broadcasting system. They did not think of it or run it as an educational delivery system, one that would help Native Alaskans improve and enrich their lives through acquisition of new knowledge, skills, and attitudes. Two different sets of goals were in conflict: those of educators whose concern is content, and those of broadcasters whose concern is high production value.
- Controversy occurred within the University of Alaska over which departments would control the Learn Alaska Network, and how the annual programming funds would be divided among them.

Who are the Clients?

Had those in charge of planning the Learn Alaska Network asked the question, "Who are the clients: what are their social, economic, and cultural characteristics, how many are there, and where are they located?" they would have seen that the per-recipient start-up costs would come to nearly $1,000 per Native Alaskan. Had the planners considered that a low hourly cost for the production of televised programming was $2500, they would have realized that ten hours of such programming per day for 365 days a year would come to a total of $9,125,000 – an additional recurring sum of $304 per person. With only $200,000 allocated per year to support this system, the original plan of using television to provide distance education in the state was clearly too expensive.

The Learn Alaska Network is, then, a classic example of the negative consequences of focusing on sophisticated telecommunications technology as an end in itself rather than as a means to serve a particular clientele. A preliminary assessment would have clearly shown that the proposed plan was not economically practical, particularly if one added to the initial $30 million capital investment, the large operating budget required to develop and deliver appropriate *television-based* distance education programming to these widely scattered locations.

A more practical and inexpensive approach would have been to install an audioteleconferencing system alone or in combination with a facsimile or microcomputer network for the transmission of print materials.

The Importance of Investing in Software

Based on their own formal education experience, most people assume there is a single model of the educational process that can be applied to all levels of instruction. That is, all teachers plan courses, present their materials, assess students' progress, etc. Another common assumption is that courses are generally developed when the need arises or while courses are being taught.

Given these assumptions, it is not difficult to understand why poorly advised decision makers believe that once a technically sound telecommunications system is in place, all that is needed is to transmit typical classroom content, with little additional preparation, planning, or money required.

The failure to realize the importance of providing funds for the creation of high quality distance education software is, all too often, the key problem faced by those who wish to serve distant learners via telecommunications systems. The knowledge that the state would not provide much more than $200,000 annually to program the system should have doomed the idea of using television as the primary medium in the very beginning.

Instead, the main focus of the Learn Alaska Network was on the installation of the educational television network. The failure to develop appropriate distance education programs before deciding what kind of telecommunications system to use was a crucial mistake that contributed substantially to the demise of the entire network.

While railroads were built on the assumption that they would generate traffic, educational telecommunications systems will not generate use simply because they exist. Policy decisions must be based on the unique needs of an educational and academic program that dictate the type of educational telecommunications system finally put into place. ■

Allan Hershfield is Executive Vice Chancellor of the University College at the University of Maryland, College Park, Maryland.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include a resource directory; reports on the use of television in Samoa and Australia; a report on the use of telecommunications for education in Alaska; and the proceedings of a seminar on information systems for development. All of these documents are available in both microfiche and paper copy from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs can be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

● *Resource Materials Used in Distance Teaching by Higher Education Institutions.* 1984, 49pp. (ED 274 339)

Intended for use by institutions in developing countries as a source of information for locating available resources on which to draw for training and planning activities in distance education, this directory published by the Unesco Regional Office for Education in Asia and the Pacific provides information on the types of instructional materials that are being used by 34 institutions of higher education in Australia, India, Pakistan, New Zealand, Sri Lanka, and Thailand. The information was compiled through the use of proformas sent to a number of institutions in 11 countries. The institutions that responded are listed by country in alphabetical order, and the instructional materials are listed together with the appropriate subject areas or courses of study. Instructional media most commonly used are printed correspondence, audiocassette tapes, and videocassettes, but some of the programs also use telephone tutorials, study guides, filmstrips, computer-managed instruction, or videodisc. Information provided on the instructional materials listed includes the language(s) they are available in; the person to contact for further information; and, in some cases, the prices of materials and suitability of courses for other institutions. The proforma used to collect the information is appended. Available from EDRS in microfiche for 78¢ or in paper copy for $3.70.

● Thomas, R. Murray. *From Talking Chiefs to Videotapes: Education in American Samoa – 1700s to 1980.* 1986, 180pp. (ED 273 544)

The result of a decade of collecting documents, interviews, and observations, this document describes the operation of the modern day Samoan educational system against the historical background of three previous eras that reach back over 200 years to a time when Samoa was virtually unknown to the Western world. The development of Samoan education over this period is compared to the development of a river with a main stream and three successive tributaries. The main stream, described in Chapter 2 (Samoan Chiefs – 1700s-1830), was the original Samoan way of life centered around a chieftain system. Described in Chapter 3 (Missionaries – 1830-1900), the first tributary represents educational growth during the missionary era. The second tributary, described in Chapter 4 (Officers of the Navy – 1900-1961), represents expansion of the school system under United States Navy administration following the period of political turmoil out of which American Samoa emerged. Described in Chapter 5 (Videotapes – 1961-1975), the third tributary represents educational innovation via instructional television. Chapter 6 (In 1980 – Future Prospects) gives a brief overview of the status of the educational system at the close of the 1970s, followed by a description of significant problems faced by the territory's educators at the outset of the 1980s. An extensive bibliography is included. Available from EDRS in microfiche for 78¢ or in paper copy for $14.80.

● Simpson, Daniel D. *AUSSAT – The Australian Satellite System: Applications for Education.* 1985, 18pp. (ED 274 334)

With the introduction of the Australian Satellite System (AUSSAT), a new era of communications will begin for all of Australia that will enhance existing distance education services by bringing more cost effective communications to a broad range of users. The improved capacity, reliability, and quality of communications will make possible the offering of Schools of the Air (SOTA) programs suitable for children or adults at home or at community locations, and will extend services beyond primary to secondary and tertiary levels. The satellite can offer students readily accessed programs that combine correspondence papers, audiotapes, and interactive audio. It can also offer television broadcasting of lessons, delivery of video resources, and television and audio materials for home tutors. Additionally, the satellite provides a communication medium both between and within institutions, video seminars, video conferences, and network link facilities for the collection and distribution of data. The advent of satellite communications has brought an opportunity for educators to conduct trials of the use of this technology and test several models over the next few years. This paper describes one such model, the School of the Air centered at Mt. Isa in Northern Australia, which will conduct a 12-month trial of the use of satellite communications. Diagrams illustrate video and audio data signal transfers and the two-way channeling arrangement. Available from EDRS in microfiche for 78¢ or in paper copy for $1.85.

● *Educational Telecommunications for Alaska.* Volume I: Executive Summary. 1982, 47pp. (ED 217 890)

The first of four volumes, this executive summary briefly discusses the educational situation in Alaska in terms of geography, climate, and ethnic groups; reviews the state's involvement in the National Institute of Education's Education Satellite Communication Demonstration; describes project management and the introduction of innovations; and reports on the three systems developed by the Educational Telecommunications for Alaska Project, which was undertaken in 1977 to provide support for schools throughout the state. The Administrative Communications Network – which provides administrative and instructional support among the state's 52 school districts, Regional Resource Centers, and the State Department of Education – is reviewed in terms of objectives, electronic mail box (EMS) operation, a user evaluation, and its current status. The objectives of the Alaska Knowledge Base System are outlined, and information is provided on its implementation, database content, and access to the database, as well as its current status. A description of the Individualized Study by Telecommunications (IST) system includes the objectives, the IST model, pre-operational evaluation of course effectiveness and student and teacher attitudes, and cost effectiveness. A brief glimpse of the future concludes the report. Available from EDRS in microfiche for 78¢ or in paper copy for $3.70.

● *Scientific and Technological Information for Development. Proceedings of the Ad-hoc Panel of Experts on Information Systems for Science and Technology for Development* (Rome, Italy, January 21-25, 1985). 1985, 213pp. (ED 272 158)

The report of the ad-hoc panel and the 25 papers in these proceedings cover a wide spectrum of issues and perspectives relating to information systems, services, and networks at both the national and international levels. The first part of this six-part volume presents the panel's report, which reviews the history of the panel and its purpose and summarizes its considerations of concepts and issues; the existing situation and needs of national information systems; the impact of trends in information collection, processing, and dissemination; the nature of information requirements; and international linkages and the establishment of a global information network. The second part contains three papers on concepts and issues, terminology definitions, and an overview of issues relating to a United Nations global referral network. The 11 papers in the third section provide a broad view of the status of scientific and technical information activities in developing countries and descriptions of national and regional experiences in Egypt, Jamaica, India, Hungary, Honduras, the Socialist Republic of Romania, Kuwait, Ghana, Mexico, and Africa. Part 4 presents four papers that examine problems and trends, including constraints on the flow of scientific and technological information, availability of U.S. public and private databases and services in developing countries, development of an information infrastructure, and low-cost satellite communications. The fifth part includes two papers, one on priorities in a global network, and the other on problems and prospects of networking in technological information in Asia and the Pacific. The final part provides five descriptions of experiences of the organizations of the United Nations system and other institutions. Lists of panel participants and abbreviations are appended. Available from EDRS in microfiche for 78¢ or in paper copy for $16.65. ■

Barbara B. Minor is the Publications Coordinator at the ERIC Clearinghouse on Information Resources, Syracuse University, Syracuse, New York, U.S.A.

Briefly Noted

by Robert Vittel

• For readers interested in obtaining educational audiovisuals in French, a very helpful directory has recently been compiled by the *Agence de Coopération Culturelle et Technique (ACCT)* (Agency for Cultural and Technical Cooperation) in Paris. *Répertoire des Diffuseurs de Documents Audiovisuels Educatifs dans le Monde Francophone (films et vidéogrammes)* (*Directory of Educational Audiovisual Materials Suppliers in French-Speaking Countries*) is an inventory of nearly 800 organizations in francophone member-countries of the ACCT, and several international organizations, who produce and supply educational and training films and videos. The Directory lists thousands of French-language films and videos. An alphabetical subject list is provided at the end and is helpful in locating materials in specific areas of education and training. *The Directory* is available in French only from ACCT, 13 quai André Citroën, 75015 Paris, France.

• Francophone radio broadcasting trainers will be interested in a Food and Agriculture Organization publication called *Communiquer Grâce à la Radio* (*Communicating Thanks to Radio*), a French-language adaptation of an earlier Asia-Pacific Institute for Broadcasting Development manual entitled *Educational Broadcasting – Radio*. This French version covers the learning process and its application to broadcasting; the use of objectives in educational broadcasting; systematic planning of educational radio programs; writing for radio; interview, magazine and discussion program formats; and the use of drama in educational broadcasting. Each chapter begins with an introduction of the concepts to be covered, followed by more complete definitions of each concept, leading into examples and practical exercises to facilitate learning of the concepts. As was the original manual, this version will be useful to those who conduct radio training courses, but lack experienced training personnel, resources, or training materials. from the Food and Agriculture Organization, Division of Information, via delle Terme di Caracalla, 00100 Rome, Italy.

• For readers interested in current writings on cultural and social communications for development in the Latin America region, the *Centro de Estudios sobre Cultura Transnacional* (Center for the Study of Transnational Culture) has been publishing a quarterly collection of papers called *Materiales para la comunicación popular (Papers on Popular Communication)*. This is a well organized, compact collection of booklets, nicely packaged in a handy folder. Each issue (there are now eight) includes unedited articles, issue papers, interviews, and announcements coming from diverse sources in the region. The main objective of the publication is to more widely disseminate writings on communications in Latin America while promoting exchange and cooperation among institutions and professionals working in the field. *Materiales para la comunicación popular,* in Spanish and Portuguese only, is available by subscription from: *Centro de Estudios sobre Cultura Transnacional,* Apartado 270031, Lima 27, Peru ■

Robert Vittel is Information Specialist in the Clearinghouse on Development Communication.

ARABSAT: A Regional Approach to Telecommunications

by William Amt

The Arab States comprise a vast territory that encompasses the various social, political, and economic climates of 22 nations. In spite of their differences, these countries share a common language (Arabic) and a predominant religion (Islam). Telecommunication technology has recently increased the flow of information not only within these countries, but between them as well, thus contributing to the "Arab identity." Currently, most Arab countries are members of the INTELSAT satellite system, but in response to the need voiced by the Arab States Broadcasting Union (ASBU) for an autonomous, all-Arab satellite system to handle regional and domestic communications, the Arab Satellite Communications Organization (ARABSAT) was formed.

In 1985, two ARABSAT satellites were put into orbit, the second serving as a back-up to the first. They are equipped to provide about 8,000 simultaneous telephone circuits, seven channels for television, data, telex and facsimile, and a channel for transmission to rural communities. Ground control stations are located in Saudi Arabia and Tunisia, and several countries have built earth stations of various sizes to pick up and transmit signals over the system.

The services that can be provided over the system are numerous. Using the media of telephone, television, slow-scan video, radio, telex, and facsimile, such services include: a more effective conduit for Arab news agencies to share information, thereby replacing reliance on Western sources for news about Arab affairs; entertainment programming; an interactive, two-way distance education network (formal and non-formal); emergency communications to disseminate information on disaster, police, and fire matters; telemedicine (better trained urban doctors diagnosing patients located in remote clinics); audio- and video-conferencing; inter- and intra-governmental information exchange; interactive databases; and increased telephone and telex service. These services have the potential to contribute greatly to the overall development of the region, particularly of its poorer nations and rural areas.

Greater Use Promoted

Despite the initial excitement about ARABSAT and the above-mentioned potential uses of the system, it continues to be underutilized. Since 1985, use of the system has been limited mainly to trial transmissions. The most important of these was a news and entertainment program that was initiated in October 1985. Fourteen member organizations of ASBU transmit their programs via either ARABSAT or microwave links to Tunisia, where they are re-transmitted to participants later the same day. Programs include daily news, a weekly educational program, a weekly program pack age prepared by a different member each week, and live coverage of major Arab cultural and sporting events. This important exchange is continuing.

A number of factors have hindered increased use of ARABSAT – the recent decline of oil revenues among member nations resulting in late payment of membership dues; fewer orders for ARABSAT satellite circuits (countries are taking advantage of INTELSAT's less expensive circuits); and limited construction of earth stations. In fact, only seven of the 22 participating countries currently have operational earth stations. Technical, administrative, and political problems have also resulted in delays. Finally, there is a recognized need for improved inter-Arab cooperation which could be better realized if Egypt were a member of ARABSAT. Egypt not only has the largest number of potential users and the most varied and popular programming in the region, but it also is generally recognized as an integral contributor to the "Arab identity."

In order to motivate Arab countries toward the coordinated future use of ARABSAT, the Joint Arab Committee for the Use of the Satellite Network was established. A regional open university system and more educational television programs focusing on the region's different cultures are among the projects currently being considered by the Committee.

To say that it would be easier for the Arab States to use the more affordable INTELSAT system for all their needs is to miss the *raison d'être* of ARABSAT. While ARABSAT has had more than its share of problems, the goal of the project was based on Arabs' legitimate desire to be informationally and technologically self-reliant. Much needs to be accomplished before this dream becomes a reality, but, ultimately, the success of ARABSAT depends on its members' commitment to nurturing the "Arab identity."

Sources of information used to write this article include reports provided by the Arab States Broadcasting Union and articles from *InterMedia* and *Satellite Communications.* ■

William Amt is Program Assistant in the Clearinghouse on Development Communication.

Advanced Satellite Technologies: Implications for the Developing World

Louis Bransford, Suzanne Douglas, and Deborah Gilman

Satellites can penetrate the isolation of remote areas in the developing world. New advances promise lower costs and more appropriate technology that put telecommunication services within reach of rural communities. We have included this article in our review of recent telecommunication activities because, though currently out of reach of many developing countries, the technologies discussed below will eventually have a tremendous impact worldwide.

Research and development sponsored by the U.S. National Aeronautics and Space Administration (NASA), by the European Space Agency (ESA), and by the Japanese National Space Development Agency (NASDA), are producing exciting new technologies destined to revolutionize the communications satellite industry. Next generation satellites will include advanced technologies with significant "high tech" applications geared toward the scientific needs of the developed world. In addition to these somewhat esoteric uses, some of the technological breakthroughs will have beneficial implications for developing world communication services. It is anticipated that these new technologies could make integrated video, voice, and data services more readily available and at reduced cost to underserved people throughout the world.

The Technologies

Three main technologies are now under development as part of NASA's Advanced Communications Technology Satellite (ACTS) Program. The first of these new technologies is the baseband processor, or "switchboard in the sky." With the switching (normally the interface between the public telephone network and the long distance carrier) occurring onboard the satellite, switching points on public terrestrial networks can be avoided or "bypassed." Each time a switching point is bypassed the transmission cost goes down, so that large savings in telecommunications costs can be realized. The decrease in cost promises to lower long-distance phone calls to 10-12 cents per call minute for sparsely populated areas where telephone companies find it too expensive to upgrade services.

The new technology will enable telephone companies to expand and extend rural service inexpensively because one small earth station can serve the needs of an entire community. The implications quickly become evident for the developing world where phone service needs remain unmet. For example, a 1.8-meter very small aperture terminal (VSAT) with three 56 Kbs voice channels could provide up to 25 five-minute phone calls per hour with the probability of 80 percent availability. Judiciously used, this capacity could serve more than 100 families in a village.

The second technological advancement involves hopping and scanning spot beam technology. Most of today's satellites cast a coverage beam or "footprint" over a large area on the ground (think of a satellite beam as a flashlight pointed down from space with the light covering a specific surface). Spot beams, on the other hand, concentrate on smaller areas. The benefit of a hopping spot beam to a consumer is that he will be able to "request" that beam on an "as-needed, pay-as-you-go" basis, or in other words, "you use what you need and pay for what you use."

New spot beam technology will also facilitate more efficient use of the radio spectrum allocated to commercial communications satellites. A combination of hopping spot beams in the same frequency band, for example, can cover the entire continental United States simultaneously. The resulting frequency re-use capitalizes on a finite resource. Current debate over spectrum allocation will essentially become a non-issue. Theoretically, a developing country could lease spot beams from a regional satellite to form communications hubs within the country, primarily in more populated areas. Whether this arrangement is appropriate for developing countries is problematic. A single country beam with VSAT networks might be the more economical solution in the near term.

The third development, the low-power laser for communications, will allow intersatellite linkage. Technically, it will be possible to have an American satellite connected via laser directly to a European or Australian satellite, avoiding the need for a double hop which creates noticeable delays during phone conversations. The economic and political viability, however, remains to be tested. It must be noted that when intracountry communication services are nonexistent or limited, the elimination of a double satellite hop for long distance telephony becomes less meaningful.

The Implications

A mix of next generation satellite technologies will enable universities with multiple campuses, businesses with widespread branch offices, and government departments with regional divisions to establish economically viable private satellite networks. The advanced technologies allow for the integration of video, voice, and data on a scale not possible before on communications satellites. There will be significant flexibility and increases in the amount of data that can be transmitted and received on VSATs. A next generation 1.8-meter earth station could be capable of handling (transmit and receive) 1.5 million bits of information per second as opposed to a comparable earth station capacity of 56 thousand bits per second.

Databases such as the United Nations Environmental Programme's (UNEP) Global Resource Information Database (Project GRID), whose worldwide data collection can provide valuable agricultural and meteorological information to developing countries, will be more accessible with the advent of new satellite technology. In the future, it should be relatively easy technically, and economically feasible to have remote terminals transmit and access information from any central computer collection.

Health networks will be able to expand services to rural areas on a more comprehensive scale. The larger capacity on newer satellites combined with relatively small transportable earth stations will allow, for instance, the transmission of digital radiology pictures from distant areas back to a central hospital. Instructions to the traveling medical team on proper follow-up procedures will include video as well as voice instructions.

Conclusion

It is anticipated that by 1992, the United States, Japan and Europe will all have sophisticated onboard switching, spot beam technologies, and laser packages on communications satellites. But what can Third World countries expect from the next generation of satellites?

- advanced switching technology with the potential for reducing telephone costs;
- frequency re-use capability ensuring developing countries access satellite services;
- prospects of regional satellites offering integrated video, voice, and data services to meet diverse communications needs of many countries.

However, the following questions remain to be answered. How appropriate is the new satellite technology for the needs of the developing world? Can Third World countries afford to wait for technology and can they afford it when it becomes available? A more fundamental question is, will advanced technology make a difference in developing countries? The consensus is that it will. ■

Louis Bransford is President of the Public Service Satellite Consortium, Washington, D.C. Suzanne Douglas is the Director of Information and Research, and Deborah Gilman is Director of ACTS Development Services at PSSC.

Degree Program in Communication and Development

Ohio University offers a specialized master's degree program in communication and development, intended for students from the Third World and the U.S., seeking preparation for careers in government, international, and regional organizations and business.

The program is offered through their School of Telecommunications and the Center for International Studies leading to a Master of Arts degree in International Affairs. For more information write to: Communication and Development Program, Center of International Studies, Ohio University, Athens, Ohio 454701-2987, U.S.A.

dcr
Development Communication Report
On Development Communication
1987/3
No.58

A Study in Decentralization: The Liberian Rural Communications Network

by Michael Laflin

Economic conditions have forced many developing countries to take a hard look at their social services and to ask: "What services can we, the central government, afford to provide in the years to come?" and "If we believe that a level of social services, currently beyond our means, is essential to our well-being and development, who is going to pay for them?" While no one would agree that central governments should abdicate all responsibility for social services and place them in the hands of the private sector or local communities, most developing country government officials would agree there are functions better implemented and controlled by local government agencies or communities, and that the shortage of funds has provided an incentive for them to trade control in return for local participation in funding.

A Definition

Decentralization is the transfer of responsibility for planning, management, resource-raising, and allocation, *from* the central government and its agencies *to* field units of the central government ministries or agencies, or to semi-autonomous corporations, voluntary or nongovernmental organizations.

Key *external* issues in decentralization seem to be how local communities can be persuaded to provide resources to maintain social services (as opposed to providing funds and labor to build schools or clinics); and what share of decision making (about curricula, for example) communities will expect in return for contributing resources.

The *internal* management issues seem to be the extent to which loosely connected elements of a system are coupled (to what extent information channels are held constant or severed); to what extent national policy is translated at the regional and local level into commonly held beliefs and aspirations so that all elements proceed with confidence in each other; and to what extent regional units are capable of ordering their own affairs.

If these conditions can be mastered, then decentralization offers benefits of fluid, relevant, and swift responses to events that may be widely separated in space and time. *Perhaps most important for public sector agencies, it promises an improved quality of work life for the people within the system.*

A Decentralized Radio Network

The Liberian Rural Communications Network (LRCN), the development broadcasting branch of the Liberian Broadcasting Service (LBS), is a decentralized system operating successfully in a country where, for many years, there was limited government investment or interest in regional development. Previously, government operations were centralized in Monrovia, the capital city.

LRCN is comprised of three rural radio stations in Gbarnga, Voinjama, and Zwedru and a production facility in Monrovia. One station is a three-hour drive from Monrovia, but the other two are extremely remote: it can take two or three days to reach them by road in the wet season. Broadcasting in ten local languages, the rural stations provide regionally oriented development information and educational programming to their listeners. Each station has its own production studio, a 10kW medium wave transmitter with a signal strength of about 75 miles, and is equipped with a portable transmitter that fits into the back of a pick-up truck for on-site broadcasts. Programs of national scope are prepared in Monrovia and relayed to the rural stations for broadcast.

According to the decentralization mandate, each rural station must generate some local funds for the network by finding sponsors for its development information and local-language broadcasting services. The Gbarnga station, for example, received US$4500 in local revenues in October 1986 from long-term contracts with development agencies, from commercial sponsorship, and from US$3-personal message fees, and has now sold all of its air time to sponsors.

(*Continued on page 6*)

Communicating With Farmers: Lessons Learned and To Be Learned

by Howard E. Ray

Extension institutions and technology transfer programs exist in almost every developing country. Yet, coverage of farm families is still limited, the quality of developing country extension programs is seriously questioned, and the transfer of potentially beneficial new and underutilized technologies continues to lag.

Incorporating appropriate multichannel communication strategies into extension programs can improve this situation.

Many information units already exist in developing country extension programs; and mass media, audiovisual aids, and printed materials are used extensively. However, the use of communication skills, media, and methodologies is typically ad hoc and fragmented. Too often, they are poorly integrated into the total extension program.

Experience in some health and agriculture projects indicates that use of multimedia strategies integrated into extension-type programs can, indeed, increase their impact.

In agriculture, for example, the Masagana 99 rice-promotion campaign in the Philippines energized the national rice-growing program and helped to transform the Philippines from a rice-importing to a rice-exporting nation. One of the key elements in Masagana 99 was a mass communication campaign using radio and print materials in combination with intensive training of extension agents.

(*Continued on page 2*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue. . . .

A Study in Decentralization 1
Communicating with Farmers 1
An Examination of the Evaluation Process 3
Integrating Video into Agricultural Training 5
Marketing A Dietary Plan for Diarrhea 7
A Communicator's Checklist 8
A Caravan of Videos in Haiti 9
Audiotheques Rurales in Mali 10
Radio Boosts Immunization Campaign in Swaziland 11
Wearing the Message in Niger 12
Alternative Energy for Radio Stations 13
On File at ERIC 14
Mass Media and Communications Technology 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Robert Vittel, Information Specialist
Janice Stallard, Program Assistant
ISBN0192-1312

AED
International Division

Academy for Educational Development

(**Ray** *continued from page 1*)

Social Marketing for Agriculture

It is tempting to use mass-media product advertising techniques to sell new agricultural practices as if they were soft drinks or soap. The situation in agriculture is much different; complex, highly interrelated innovations need to be introduced to many segments of a population. In the pursuit of complex, socially beneficial objectives, as in the case of agriculture, some programs have emerged that add more sophisticated marketing strategies to advertising techniques. These have been described as social marketing techniques – the design and marketing of social ideas that consider product planning, pricing, communications, and marketing research. It has been used in the developing world to promote breastfeeding, health and nutrition, family planning, literacy, and, to a more limited extent, agricultural technology.

Evidence indicates that combining some of the social marketing techniques learned from the health sector with some mass marketing techniques used in previous agricultural projects could help agricultural extension programs to: cover the target audience comprehensively and quickly; be flexible in recommending technology packages; gather information from farmers as a basis for adapting recommendations; and collaborate with researchers, suppliers, and marketing services.

Three Vital Elements

From experiences in health and agriculture extension, three elements appear to be vital for success in communicating with farmers – farmer orientation, targeted change, and an integrated media network. Agricultural communicators must learn when addressing farmers, to use a vocabulary that presents issues and problems from the farmer's orientation. This hastens the process of integrating an innovation into a farmer's view of how to solve a problem. With the help of specialized village-based research techniques, the farmer's perspective will become clearer, and constraints – obvious and hidden – can be identified.

Targeted change means information must reach the farmer when he needs it, and often, in order to reinforce a new behavior so it becomes part of his routine practice. This calls for a comprehensive communication strategy that accounts for the many unpredictable factors farmers confront throughout a production cycle.

The third part of this social marketing package is the media network. Elements of each of the media groups (broadcast, print, interpersonal) must be selected carefully and then integrated in a way that builds upon their unique advantages so that a "multiplier effect" is achieved. This can be accomplished by using channel strategies that are based on preprogram research to determine where and how people get information.

Organized effectively around these three elements, communication can directly increase program participation. It can also provide information to reduce risk and improve efficiency in using services, and lead to the adoption of new practices. These can be accomplished by building on indigenous information systems and on available skills and facilities, and by integrating them into private and public sector efforts in extension.

Important Guidelines

Synthesizing the experiences and approaches discussed, some important guidelines can now be offered for developing projects or project components that use mass communication in support of technology transfer:

- Verify that necessary conditions for change are met, such as available appropriate technology, required inputs, markets, and incentive prices at the farm gate.
- Specify clear behavioral objectives.
- Determine the characteristics of the target population to ensure that messages, channels, and presentations are appropriate and acceptable to the receivers.
- Use mass media to complement staff efforts in the field, to increase staff effectiveness and coverage.
- Obtain frequent, reliable feedback from the target population to guide program changes and the ongoing development of media messages.
- Localize messages and media presentations.
- Provide for continuing job-oriented training and staff development.
- Set priorities. Seldom can the communication system meet all the possible demands that could be placed upon it.
- Think in terms of a comprehensive communication support system in which all channels – media and face to face – are mutually reinforcing.
- Of all the foregoing, perhaps the most important are those that pertain to knowing the farmers and continually adjusting the program to the farmers' needs and constraints.

The above approaches have seldom been applied comprehensively in extension as a single, ongoing communication support system. We must exploit lessons learned from social marketing, behavioral sciences, and distance teaching, and study systematically the networking and feedback functions of communication in extension. Most importantly, we must strive to institutionalize comprehensive systems of communication support – something few extension systems in the developing world have accomplished to date. ■

Howard E. Ray, Vice President and Director of Agricultural Sciences and Technology at the Academy for Educational Development is Project Director for the Communication for Technology Transfer in Agriculture Project.

An Examination of the Evaluation Process

by Shakir Hussein

Evaluation, an integral and crucial component of many agricultural projects, greatly affects both the implementation process and project outcomes; but the methodology used in evaluating agricultural interventions in developing countries is still evolving.

Communication for Technology Transfer in Agriculture (CTTA), an innovative agricultural communication project that considers evaluation to be indispensable for planning, implementation, monitoring, and impact determination, gives a framework for discussing the evaluation process. (See adjacent box for a description of the CTTA Project.)

The CTTA project uses three types of evaluation to assure program success and to objectively determine its achievements: developmental investigation (sometimes called context evaluation), formative evaluation, and summative evaluation.

Developmental Investigation

Developmental investigation is conducted early and quickly as a guide to planning and implementation. Using focus groups, informant surveys, and observation techniques the CTTA investigation seeks to determine:

- available and appropriate agricultural technologies that farmers can adopt successfully, given their constraints and the existing institutional support;
- cultural characteristics of farmers who will be introduced to selected appropriate technologies; their social structure; their attitudes toward technology, knowledge, and use of current technology; and their constraints to adopting new technologies;
- the existing agricultural infrastructure such as markets, roads, and extension services, and policies that could affect the adoption of new technologies.

Formative Evaluation

Formative evaluation identifies strengths and weaknesses of the implementation process and how well CTTA objectives are being met. These studies, conducted regularly throughout the project, provide information at a time when adjustments can be made that will have a significant impact on the outcome.

Summative Evaluation

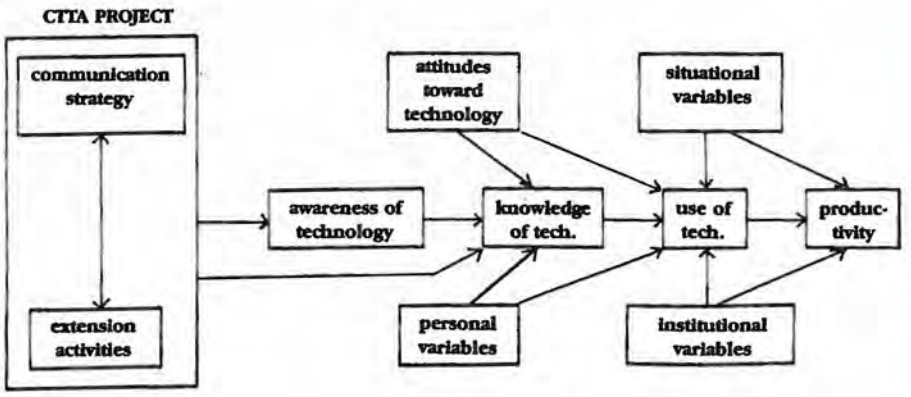
The purpose of a summative evaluation is to measure the results and effects of a project so that informed decisions can be made based on these findings. To support the evaluation process, qualitative, anthropological data are collected, contributing to the overall impact studies carried out using quantitative measurement techniques. These data are not only critical to the future of CTTA and similar projects, but also help project people make major decisions about the ongoing program.

What to Evaluate?

The summative evaluation process will help CTTA answer the questions: "Does the new technology work?" How can it be improved? "Is it making an impact?" and "Is it worth the cost to the farmer?" To answer these questions, it is first necessary to know how the project is *supposed* to work.

The following model shows relationships among the independent, dependent, and control variables designated for CTTA. The independent variables are the communication strategy and extension activities. Dependent variables include awareness, knowledge, and use of the introduced technologies, and productivity changes due to technology adoption. Control variables encompass personal characteristics of the targeted farmers, their attitude toward the technology, such situational factors as farm size, soil type, climate, etc. and institutional factors including among others supplies, services, markets, roads, extension serv-

(*Continued on page 4*)



Evaluation-Variables Model

CTTA: An Innovative Agricultural Communication Project

The Communication for Technology Transfer in Agriculture Project (CTTA) provides an opportunity to apply innovative approaches for effective use of communication, especially mass media, to support agricultural extension programs.

The CTTA objective is to develop, test, and demonstrate integrated, multi-channel communication strategies and methods that increase the impact of extension-type programs at costs affordable for sustained use by developing nations.

Pilot projects will be established in up to nine developing countries to apply a communication methodology to increase farmers' awareness, knowledge, and use of appropriate and affordable agricultural technologies.

Findings from other communication projects in agriculture, health, and education will be applied in CTTA, and behavioral analysis, social marketing, and instructional design will be incorporated into the communication strategy.

The project collaborates with existing public and private sector institutions in developing and testing its strategies, with particular emphasis on strengthening interaction between extension, research, other support services, and farmers.

Pilot projects have been established in Honduras and Peru, and pilot activities are being initiated in Jordan, and soon in Indonesia. Site development activities are under way in Latin America, Asia, and Africa.

CTTA is jointly developed, managed, and funded by the Offices of Education, Agriculture, and Rural Development of the Bureau for Science and Technology of the U.S. Agency for International Development in collaboration with Regional Bureau Technical Staff and the USAID Mission at each collaborating site. It is being implemented by the Academy for Educational Development, 1255 23rd St., N.W., Washington, D.C. 20037, U.S.A.

(**Hussein** *continued from page 3*)

ice, and technology development.

The communication strategy of CTTA feeds information into the summative evaluation process illustrated in the above evaluation-variables model. The strategy uses both mass media and interpersonal contacts to disseminate information, but also incorporates local social organizations and indigenous communication channels such as neighbors talking to neighbors, into its network.

Initially, the strategy is to make farmers aware of useful technologies they could adopt within the constraints of their environment. The selected technology might be a new one that has been developed through research, or it might be an indigenous technology that is not currently being used. It may be for a particular crop which would call for considerations such as soil preparation, seed selection, fertilization, pest control, or storage. Or, it may have a broader application related to improving soil conservation or water management procedures.

The evaluation-variables model assumes that when farmers become aware of the recommended technology, many of them will seek more information from extension workers or from other farmers. The communication strategy will be adjusted to respond to this newly created need for information.

Based on the model, once a farmer learns how, when, and why a particular technology might be useful, he tries it and if satisfied, continues to use it.

The summative evaluation will assess the impact of the CTTA communication intervention by measuring changes in awareness, knowledge, and use of an available appropriate technology, and changes in productivity. In addition, other factors affecting technology use such as markets, roads, and other institutional support systems, the climate, soil type, farm size and other environmental factors will be examined.

Evaluation Questions

The CTTA summative evaluation will focus on the following questions:

1. Can improvements in communication strategy increase use of available appropriate technology?
2. What institutional and situational changes are needed to make the strategy work?
3. Are there factors that are free of socio-economic bias that influence farmers' awareness, knowledge, and use of technology?
4. What are the characteristics of a technology or its components that can be successfully transferred using CTTA's approach?
5. Is awareness of technology related to knowledge of technology, and what factors affect progress from awareness to knowledge?
6. Is an increase in farmers' knowledge of the technology related to its use? What percentage of the increased use is due to increased knowledge? What other factors affect farmers' adoption of technology?
7. Does using the technology increase productivity? What percentage of this increase is due to increased use of the technology? What other factors affect increase in productivity?

Determining Evaluation Design

A major concern in designing a summative evaluation is to isolate the effects of the independent variables while controlling for other variables that may affect the outcome. For CTTA, some of the most important issues related to this concern are: yield fluctuations caused by climatic and institutional factors, need for control groups, defining the sampling frame, and explaining the "why" of changes that occur.

Longitudinal Study

Longitudinal studies help control for seasonal fluctuations occuring during the summative evaluation period. A baseline study is conducted to establish a starting point for CTTA's longitudinal comparisons. At the end of each cropping season, information is gathered on types of production techniques practiced during the year and their results. Data are collected from the same farmers each year of the study, and changes in practices and yields are compared with fluctuations in environmental and institutional factors to see if they might have contributed to the yearly fluctuations.

Control Group

Designation of a control group that does not receive any interventions helps to determine if an intervention has resulted in change. Three types of controls will be used in CTTA: 1) reflexive control, in which farmers serve as their own control; 2) statistical control, in which statistical procedures are used to hold certain variables constant; and 3) phased control where the intervention is initially limited to a small area and gradually expands into the entire project area. In such cases, groups that have not yet received the intervention are used as the control population for those who have.

Sampling Frame

Summative evaluation can either answer the question, "Did anything happen?", or it can estimate the magnitude and direction of change. The CTTA summative evaluation process seeks to identify the latter. This calls for a broadly representative sample which will include all of the sub-populations of farmers the project is trying to reach.

Adequate Explanations

Although the CTTA project uses primarily a quantitative approach in measuring and determining change, the results will not necessarily fully explain *why* some changes did or did not occur. To answer these questions, smaller discrete studies using qualitative research methods will be carried out to complement the quantitative study.

Summary

Although the methodology for evaluating agricultural communication interventions in developing countries is still evolving, the CTTA Project provides a useful model for describing the evaluation process as applied to an agricultural project. By carefully implementing the summative evaluation process and by adhering to the evaluation-variable model, the CTTA project seeks to identify those effects attributable to the communication strategy, and to assist the goal of increasing agricultural productivity. ■

Shakir Hussein is an evaluation specialist at Applied Communication Technology, the summative evaluation subcontractor to the CTTA Project.

1988 Agricultural Communicators Congress

Agricultural communicators in developing countries may be interested in attending or watching for reports that come out of the 1988 U.S. Agricultural Communicators Congress. Every four years U.S. agricultural communicators gather in Washington, D.C. to focus on the agricultural communication profession and to discuss national and international issues that affect the future of agriculture.

The Congress will be held from July 10-13, 1988 in downtown Washington, D.C., bringing together members of the American Agricultural Editors' Association; Agricultural Communicators in Education; Agricultural Relations Council; Cooperative Communicators Association; and the National Association of Farm Broadcasters. For program details and registration information write to: Donald N. Collins, National ACE Headquarters, 655 15th St., N.W., Suite 300, Washington, D.C. 20005, U.S.A.

Study of Rice Primer's Effectiveness Available from IRRI

The International Rice Research Institute (IRRI) has recently issued a Research Paper that details the results of a project that tested the effectiveness of a rice-growing Primer for farmers. The Primer is a picture-text combination of the hows and whys of improved techniques for lowland rice farming. It was published originally in English. Subsequently, IRRI blocked off the English text and made the publication available to copublishers who added their own language texts. The purpose of the research project that resulted in this Research Paper was to determine whether the publication worked well in the Philippine dialects of Tagalog and Hiligaynon, if the publication was appropriate for low-literate farmers, and how it could be improved.

For a copy of IRRI Research Paper #127, *The Effectiveness Among Farmers of* "A Farmer's Primer on Growing Rice" *in Two Philippine Dialects*, by V.L. Cabanilla and T.R. Hargrove, write to IRRI, P.O. Box 933, Manila, Philippines.

Integrating Video into Agricultural Training

by Kathy Alison

The use of video as a training tool in agricultural development projects has sometimes been considered a luxury. Critics claim that the technology is too sophisticated for "uneducated farmers" in many countries. However, video has been and continues to be used to improve the agricultural production skills of farmers and extension agents in such countries as Guatemala, Tanzania, and Portugal. In these countries, the video production component is an integral part of an agricultural production project rather than a luxury.

A Portugese Example

While not a developing country, Portugal experiences similar problems and constraints, particularly in its agricultural sector where outmoded techniques make it difficult for farmers to compete with their European counterparts.

To help farmers overcome these disadvantages, an extension video team has produced over thirty 10- to 15-minute agricultural training videos on subjects ranging from poultry and sheep production and building plastic silos, to grape production and the safe use of pesticides. Written materials accompany the videos to reinforce these messages.

The video team was organized by the Portuguese Ministry of Agriculture and the PROCALFER Project (*Programa de Calagem, Fertilizaçao, e Forragens*—Limestone, Fertilizer, and Forages Program). It is funded by the U.S Agency for International Development (AID) and is being implemented by the U.S. Department of Agriculture (USDA).

The project's main focus is to improve agricultural productivity through the proper use of limestone and fertilizers. Supporting components of the project include transportation economics, sheep and goat production, extension outreach, research, and policy planning.

The video aspect was developed as part of the extension sub-project. The Ministry of Agriculture had already invested in some video production equipment and requested USDA to provide technical support and consultation to develop a production team within the Ministry to work with them on communication strategies, management skills, and production techniques.

The video production capability in Portugal is not limited to the central Ministry of Agriculture team in Lisbon. A second major production team is located in the north of Portugal, in Porto, which is part of the information staff of the Regional Directorate of Agriculture. These two teams coordinate their productions and distribute their materials throughout Portugal. Productions are filmed on 3/4-inch equipment and distributed on 1/2-inch VHS tapes.

Since many of the other agricultural regional offices have 1/2-inch video production capability as well, the central team in Lisbon has worked closely with them to coordinate their production activities. All audiovisual technicians within the Ministry of Agriculture have received training in production techniques.

Two teams, one from Lisbon and another from Porto, sharpened their professional skills with a five-week visit to the U.S. to observe video production facilities in the private sector, at USDA, and at land-grant universities throughout the country. This visit was planned and coordinated by a USDA consultant to assure that continuity and focus were maintained during their U.S. visit and after they returned to Portugal.

In Portugal, intensive training programs have been designed and implemented for extension workers who show the videos to farmers attending regional training centers. Video playback equipment, available in most of the regional training centers, was selected by the video production teams to ensure that all equipment is compatible.

Recent Developments

When Portugal becomes part of the European Economic Community (EEC), farmers will have access to EEC grants and loans to upgrade their agricultural production techniques and practices. The Minister of Agriculture requested the Lisbon broadcasting team to develop television programs to inform farmers how to apply for these loans and grants. Although there are still concerns about program length, content, and the frequency of broadcasts, the team is enthusiastic about using television for this purpose, because many farmers in Portugal have TV sets. For those who do not have their own sets, many of the small restaurants and bars do where farmers can watch the programs in the evenings.

Benefits

Thanks to the video sub-project, a cadre of video production and communication professionals is developing both in Lisbon and in the seven regional districts throughout Portugal. Earlier this year, the first Agricultural Communications meeting was held in Portugal with approximately 40 information directors, graphics, publications, and audiovisual technicians from the central and regional levels participating. Evaluations of the workshop showed a strong desire to continue these meetings as an opportunity to learn new approaches, to share ideas and strategies, and to develop a network of communication professionals.

It is the farmers of Portugal, however, who are the primary beneficiaries of this expanded use of video in agriculture. Videos provide farmers with the opportunity to see how a new technique works and how they can benefit from using it. Trainers can then develop new training programs based on feedback from farmers.

The Portugese experience demonstrates how a motivated production team with the right equipment and facilities; trainers with knowledge of how to use videos; and decision and policy makers who support the use of video, are all helping farmers to benefit from improved agricultural techniques. ■

Kathy Alison is an international training specialist with the International Training Division, Office of International Cooperation and Development, U.S. Department of Agriculture, Washington, D.C. 20250, U.S.A.

Microfiche of International Conference on Education Available

Documents submitted for the 40th session of the International Conference on Education, held December 2-11, 1986, are now available in microfiche form. There are 99 reports updating educational developments which have occurred in participating countries since the previous Conference. The special theme addressed in this session was improvement of secondary education: policies, objectives, structures, content, and methods.

To purchase these microfiches or to obtain a complete list of the documents available, please contact: Documentation and Information Unit, Unesco: IBE, P.O. Box 199, 1211 Geneva 20, Switzerland.

(**Laflin** *continued from page 1*)

All of the LRCN stations are successfully marketing their development information and local-language broadcasting services to relatively fragmented and small audiences, contradicting the long-held notion that radio must reach large audiences to justify its use.

Policy and Structure

Policy is informed by both national and local advisory groups. Ministry representatives from agriculture, health, and education meet with LRCN staff several times a year to discuss policy matters. There are also annual national and regional conferences to help develop a communications agenda for the coming year.

The LRCN Director has a cadre of senior advisers located at the rural sites who are responsible for all activities in the stations. The Chief of Programming and the Chief Engineer, based in Monrovia, are responsible for overall production and engineering functions, but have counterparts at each station. Field assistants at the stations report to the Chief of Development Services in Monrovia when carrying out network-wide research tasks, and to local station managers when dealing with community relations or local program research.

Producers are trained in simple research and evaluation techniques. Program evaluation is a multi-faceted, on-going process, from visits to villages to observe listening groups, to assessing letters from listeners, to visiting development agencies who have purchased LRCN air time to determine their assessment of the programming. A more formal survey may be prepared by the Research Coordinator to assess changes in knowledge or behavior.

Station managers and their Executive Producers are responsible for the daily operation of the regional stations – programming decisions, where and when to travel for on-site broadcasting, and evaluating the performance of program producers. LRCN recruited strong managers, people who were respected in their communities, to fill these crucial positions. They were trained first as managers and second as broadcasters. Reporting mechanisms and information management were regarded as key issues.

Designing a system that provided the quality of information that satisfied the headquarters staff but did not consume all the Managers' time required much ingenuity. A series of performance indicators have been developed, such as the number of new programs broadcast, or the number of health vs. agriculture programs that were aired, the number of hours in a particular language, etc. – to help assess overall station performance. In addition, each station sends sample tapes of a full day of programming to Monrovia for monitoring.

As demonstrated, the structure is not a simple hierarchy, but a matrix of overlapping responsibilities and functions. Network management focuses on the points of overlap, and is based on two factors: the degree of confidence colleagues have in each other, and the regularity and adequacy of communication between the physically dispersed units.

Cultivating Local Support

In broadcasting, the final arbiters are the listeners. They provide direct sponsorship by paying for messages and announcements. LRCN also must demonstrate to the development agencies that the broadcasting services they buy are effectively reaching their rural clients. Client participation and awareness of the network is achieved in numerous ways:

- local steering committees, comprised of influential members of the local community, advise each station;
- listening groups have been organized in towns and villages, up to twenty miles from the stations, in which programs are played to the groups in order to do formative evaluations. During these gatherings, local traditional music is recorded and better personal contact is forged with listeners;
- local volunteers have been trained as translators and announcers;
- community drama and music groups regularly perform in local languages;
- practitioners in the fields of health and agriculture advise LRCN on technical and social issues; and
- 35 professionals from local development agencies received a nine-month training course in broadcasting to increase the available pool of talent, and to keep their agencies apprised of the continuing value of radio.

Early signs of success are evident in the substantial number of letters and messages (60 to 70) that were received daily by the rural stations during the first year of broadcasting. There is also a growing number of requests from development agencies for broadcast training, such that it is becoming a continuous activity for the Network. LRCN also holds joint training programs with the University of Liberia.

Internally, the system is not without its problems. Daily use of a two-way radio between Monrovia and the rural stations has helped to respond quickly to problems that arise. Monrovia management staff frequently travel to the rural stations and spend a week or two working with local staff, monitoring local performance and developing what is still a young system. Concerns about funding cause stress within the entire system, but both regional stations and the central production unit have responded by continuing to aggressively seek sponsors to increase its resource base.

Has Decentralization Worked?

The decision to build a system of rural radio stations propelled LRCN toward decentralization. The immediacy of radio calls for immediate decisions to be made at the local level. The fact that the stations remain on the air – an achievement not to be taken lightly in rural Liberia – is proof, of a kind, that units within a decentralized system can operate efficiently. Further proof at the local level is that regional organizations (agricultural projects, hospitals and small clinics, local merchants) and national initiatives (the Expanded Program of Immunization, the Central Agricultural Research Institute, the National AIDS Committee, the World Health Organization, the Forest Development Authority, the Family Planning Association, and Agency for International Development projects) have bought network services, suggesting that LRCN's identity is as secure locally as it is nationally. Local agencies in particular are financially supporting their regional stations, as are local people who volunteer their time.

While the vigor of LRCN can be attributed to decentralization as well as to novelty, equally notable is the increased control public sector employees have over station operations which has resulted in greater job satisfaction and better job performance.

Conclusion

Localized communication is not a sector-specific function, but a service that should be integrated into all sectors. Radio is a low-cost medium that provides information, education, training, and market services to local communities. Services provided by development agencies are being used increasingly because of radio. LRCN is a model of decentralized local radio that development agencies in Liberia find valuable, and one that may have relevance to other countries as well. ■

Michael Laflin, Home Office Director of the Liberian Rural Communications Network Project, is Director of Communications at the Institute for International Research Inc., 6715 Whittier Ave., McLean, Virginia, 22101, U.S.A.

A New Center for the Development of Communication

The Centre for Telecommunications Development within the International Telecommunication Union (ITU) is expected to become operational soon. Established in July 1985, the Centre is mandated to strengthen and expand the scope of advisory services and technical support to developing countries to help remedy the imbalance in telecommunications distribution in the world.

To achieve this purpose the Centre will collect information on telecommunications policies and experience worldwide and disseminate it to developing countries to help them formulate policies for evolution of their own networks; offer administrative and financial advice on telecommunications developments, and provide specific assistance in such areas as preparation of project plans and specifications, manpower planning and training, management, and research and development.

For more information please contact: Centre for Telecommunications Development, ITU, Palais des Nations, CH-1211 Geneva 20, Switzerland.

Marketing A Dietary Plan for Diarrhea

by Cecilia Cabanero Verzosa

The introduction of new products in the commercial sector is time-consuming, expensive, and difficult. A study by Booz, Allen and Hamilton (an advertising marketing firm) found in 1968 of 58 product concepts that were considered, only one reached the marketing stage. Fourteen years later, they noted that seven new ideas were considered for each product that reached the commercial market.

If product introduction is difficult in the commercial sector, it becomes even more difficult in the public sector which must appeal to low-income markets. These consumers have little to spend on discretionary items, are not well educated, and are geographically less accessible than are other consumers.

Successful social marketing, the marketing of socially beneficial products, concepts, or behaviors, depends on an understanding of and access to this low-income market. The Dietary Management of Diarrhea (DMD) is an ongoing nutrition project that is evaluating the current dietary practices during and after diarrhea episodes in young children in Peru and Nigeria. It also promotes nutritionally optimal dietary regimens among mothers and is using the concept of social marketing to design this communication campaign. The project is funded by the U.S. Agency for International Development and is managed by The Johns Hopkins University.

A Framework

Private sector marketing techniques are used to provide a relevant framework for social marketing efforts. Using the four P's of marketing – product, price, place, and promotion – the marketer defines the product, determines its market price, where to place it in the market, and what promotional efforts to use in order to reach the targeted consumers.

In designing the communications and marketing strategies one needs to find answers to the following questions:

1. *Who is our target?*

Low income groups can be divided into urban and rural segments. Differences exist between these two segments that may affect their ability to comprehend the relationship between nutrition and diarrhea, or their willingness to change dietary practices.

A question commonly asked in public sector health programs is, "Who is in need of better nutrition, potable water, family planning services, and immunizations?" Although the answer seems obvious from an epidemiological point of view, the communicator must ask another question, "Who are most ready to change their health behavior?" Public sector health programs often underestimate the need for sustained targeted communication efforts to effect some measurable health behavior change among a group of people.

The DMD project in the Department of Ancash in the central mountain range of Peru has identified 27,405 households with children under three years of age as its target audience. Fifty-seven percent of these households are urban and forty-three percent are in rural areas. Available foods differ between the urban and rural areas and this is reflected in the different diets of children in these households.

2. *What is the DMD product?*

The term "product" is broadly defined to include a concept, a practice or behavior, or a tangible product.

One of the DMD "products" being considered is a blend of pea and wheat flour – two flours that are not traditionally blended in the same recipe but which together form a nutritious combination. One of the objectives of the project is to encourage mothers to use ingredients commonly available in the home to prepare nutritious food for their children. But teaching mothers new recipes is easier said than done. Mothers in rural areas tend to be more traditional and conservative than mothers in urban areas. They value traditional foods and prepare them in traditional ways. Because the concept of blending the two flours is new to them, it is only after they actually cook and eat a dish containing the combined flours that they acknowledge the two ingredients can be combined successfully A prepackaged product ready to use would be very convenient for mothers, but the low-income sector could not afford such a product even if it were available. The project, therefore, encourages the use of home-available ingredients and the preparation of the food in the home.

The DMD "product" may be defined both in terms of a concept and of the tangible item. The concept to be promoted among mothers is the continued feeding of high-nutrient density foods during and after diarrhea to offset the nutritional losses of diarrhea, especially in poorly nourished children. One must be careful to position the "product" in mothers' minds so it meets a perceived need. Mothers may perceive that their problem is a child who has lost its appetite during diarrhea and she should respond by preparing a light liquid diet. If the product being offered has a thick consistency, mothers may resist using it. On the other hand, the problem as perceived by the nutritionist is the low nutrient density of foods given to the child that can be corrected by introducing foods with thicker consistency! The question to ask is: "Whose problem are we trying to solve?"

The tangible product developed to educate mothers about the need to feed high-nutrient density foods to their child with diarrhea may be a recipe booklet or a recipe calendar that gives information about appropriate foods to buy and how to prepare them.

3. *What price are mothers willing to pay?*

The price factor takes into consideration the cost of the ingredients and cooking fuel; the time needed to procure these items; the time and human energy needed to cook the recipe; and the effort needed to frequently feed the child. A mother must determine whether her investment in time, energy, and money gives her adequate psychological rewards in knowing she is doing something to help her child survive a bout of diarrhea. However, when the price is too high, or the rewards too small, it may be difficult to sustain a new behavior.

(Continued on page 10)

A mother feeds her child a dish prepared with pea and wheat flour during recipe trials in Peru. (Photo provided by the International Development Research Council of Canada.)

A Communicator's Checklist

1 Microcomputers and Their Applications for Developing Countries, Report of an Ad Hoc Panel on the Use of Microcomputers for Developing Countries, BOSTID, Office of International Affairs, and National Research Council, (Boulder, Colorado: Westview Press, 1986) 216 pp.

This book consolidates the findings of the Advisory Committee on Technology Innovation, the Board on Science and Technology for International Development, the Office of International Affairs, and the National Research Council of the U.S. Government on the twin topics of microcomputers and microcomputer applications, both within the context of developing country environments.

Microcomputer technology continues to evolve at an amazing pace. In the December 1982 issue of *Scientific American*, my colleague, Hoo-min D. Toong and I observed, "If the aircraft industry had evolved as spectacularly as the computer industry over the past 25 years, a Boeing 767 would cost US$500 today, and would circle the globe in 20 minutes on five gallons of fuel. . . .Computational speed has increased by a factor of 200 in 25 years. In the same period, the cost, the energy consumption, and the size of computers of comparable power have decreased by a factor of 10,000." This rapid rate of progress has made it possible for today's microcomputers to offer better performance than the mainframe computers of the 1960s and the minicomputers of the 1970s.

By virtue of their high performance, broad applications, and low cost, microcomputers are ideally suited for use in developing country environments, especially in cases where funds are scarce. These microcomputers can be used either for supporting applications for the first time, or as cost-effective replacements for mainframes and minicomputers.

The above points are briefly discussed in several sections of this book. For example, Part I addresses "Microcomputers and Development Needs," and Part III deals with "Major Policy Issues and the Future." Finally, hardware and software issues are covered in the appendix.

Part II, "Examples of Sectoral Applications," is an excellent review of case studies drawn from four areas – agriculture, health, energy, and municipal management. This holds special relevance for top officials in developing countries, especially when read in conjunction with such specialized publications as *Present and Potential Uses of Informatics and Telematics in Health*, World Health Organization, November 1986.

Overall, this book presents an interesting discussion of a growing field. An attempt has been made to address the subject at a less technical level to be more easily understood by a wider readership, rather than covering topics in great technical depth. Generally, most books resulting from a cooperative effort such as this, tend to be somewhat disjointed with multiple islands of information, barely linked together. The coordinators and editors of this book have done a commendable job integrating the individual pieces into a cohesive volume. ■

Available in hardback for US$30 from: Westview Press, 5500 Central Avenue, Boulder, Colorado 80301, U.S.A.

Reviewed by Amar Gupta, Principal Research Associate, Sloan School of Management, Massachusetts Institute of Technology, Cambridge, Massachusetts, U.S.A. Dr. Gupta has worked on technology transfer issues in India, England, Switzerland, and the U.S.

2 Intercultural Communication: A Perceptual Approach, by Marshall R. Singer, (Englewood Cliffs, New Jersey: Prentice Hall, 1987) 258 pp.

For the professional involved in the international field, the occasional story of a wonderfully successful exchange never seems to occur with the same frequency as the horror stories of intercultural disasters, whether in the interpersonal, political, or business sphere. We all have collections of anecdotes of cultural insensitivity and breakdowns in communication.

While the boom in international business and travel has launched a new industry in culture-specific "how-to" books and audiovisual materials prepared to help the business person, tourist, or foreign student to successfully conduct business, tours, or study, highlighted with hundreds of anecdotes and so-called "survival skills," there has been remarkably little written for the serious student or working professional exploring the underlying principles that govern such interchanges.

Marshall Singer, from the University of Pittsburgh, has finally provided such an approach in his new book, *Intercultural Communications: A Perceptual Approach*. Singer proposes a conceptual model that underlies all intercultural communication, whether on the personal, group, national, or international level. He has done a supurb job of creating a framework complete with thought-provoking questions that can be used to explore communication patterns on a variety of levels. He points out that each individual is a member of a unique collection of groups and demonstrates what makes each individual culturally unique. He also shows why every communication is, to some degree, intercultural, and he discusses ways to make those communications more effective.

The author lays out a basic premise of four primary concepts: cultural and perceptual style; sense of identity; power relationships; and communication styles and goals; then he applies each to individuals, groups, and nations to show how using the concepts can improve communications at each level of analysis. Rather than providing answers, Singer suggest the questions that should be asked at each level of interaction to help the reader improve his or her communication effectiveness.

A particularly useful contribution is his exploration of the role of "power" to relationships and the impact that such influence can have on the communication process, intercultural or otherwise.

While designated as a text for college classes in intercultural communications, even the working professional who enjoys exploring process as well as content will find this a fascinating book. The language is clear and flows well. The material is organized effectively and each chapter has a useful summary of key concepts at its conclusion.

I accepted Singer's challenge to apply the questions to an actual situation, and used the framework to explore a recent group exchange in which I had participated. I was pleasantly surprised at the new insights gained and the valuable contribution this conceptual approach made to my own understanding and appreciation of what had transpired, and the opportunity it provided to take a new approach in some areas that had been roadblocks to effective communication. I suspect that this will be one of those unusually practical professional books that I will return to periodically to gain fresh insights into my own communication style and approach.

While the book is unlikely to be stuffed into the flightbag of a foreign-bound tourist, for the serious student of communication, *Intercultural Communication: A Perceptual Approach* makes a major contribution to our understanding of the essential elements of effective communication across as well as within cultures, and as such, is a valuable addition to the field. ■

Available in paperback for US$16.95 from: Prentice-Hall, Inc. Englewood Cliffs, New Jersey 07632, U.S.A.

Reviewed by Katherine Boswell, Program Officer at the Academy for Educational Development, Washington, D.C., U.S.A.

A Caravan of Videos in Haiti

by Andrew Curtin

When President-for-life Jean Claude (Baby Doc) Duvalier fled Haiti on February 7, 1986, the political barriers to the free flow of information left with him. The Ministry of the Interior no longer requires a letter of permission to conduct business in the provinces, and there are no travel restrictions within the country. Despite these new liberties and the growth of news and information services, rural Haitians remain critically isolated from access to timely and important information because of the mountainous terrain, the lack of electric power, and widespread illiteracy. Recently, however, a private enterprise effort that applies video technology to the dissemination of social messages has made significant inroads into rural Haitian isolation.

Even before the fall of the Duvalier regime, Claude Mancuso, a Port-au-Prince television producer, had begun to search for a reliable means of showing audiovisuals in rural communities throughout Haiti. The United States Information Agency had asked him to produce a tape warning rural Haitians of the danger and futility of attempting the illegal passage between Haiti and Florida. It immediately became apparent that there was no way to reach a vast majority of the intended audience.

As early as May 1985, Mancuso's research along with feedback he had received from several Haiti-based assistance organizations and the local private sector indicated that mobile video projection units would be an efficient and cost effective means of disseminating information on social issues such as health, agriculture, family planning, education, and disaster prevention.

Mancuso's first opportunity to test these findings came shortly after the early 1986 departure of the Duvalier family from Haiti. He equipped his own four-wheel drive vehicle with a single-tube video projection system, sound reinforcement equipment, a power generator, a VCR, and a large white sheet. He set out with his first *Video Karavan* (Creole spelling) in July 1986 for the isolated Northwestern province.

Even though the then-outdated "boat people" production was not shown in the villages, reception to his other videos was immediately positive. People were enthusiastic because admission was free and the videos contained information and entertainment that rural residents appreciated; they also appreciated the nonpolitical or nonreligious nature of the videos.

Mancuso's original idea was to provide a shared delivery system for the Haitian government and for non-governmental agencies that would reach the rural population. Since, at that time, there was no financial support from the Haitian government or from international funding organizations, it was necessary to accept commercial sponsors to keep the *Karavan* on the road. This set the stage for a mix of commercially- and socially-oriented videos that continues today.

Sponsors are charged fees ranging from US$150 per month for 60 seconds to US$500 per month for 30 minutes of time to have their videos shown; nonprofit organizations pay somewhat less than commercial sponsors. Each video is played approximately 20 times per month and the sponsor receives copies of the daily log sheets.

Noncommercial Videos

An example of the types of videos sponsored by nonprofit organizations comes from CARE which has been in Haiti for 25 years providing food delivery systems for school nutrition programs. Because of this long-standing affiliation with schools, CARE was identified with the Duvalier government, which resulted in several CARE warehouses being pillaged and their trucks being stoned. CARE needed to inform people in the trouble areas that it was not associated with the old political system and that the food they transport is intended for children.

Mancuso Productions was commissioned to make a Creole-language package of short information pieces about CARE's worldwide services – its reforestation programs, its potable water projects, and its school nutrition programs. This videotape was also integrated into a larger CARE communication strategy that included in-village training and seminars for their community workers. The response to and acceptance of CARE in the communities served by the *Karavan* was far more positive than in villages not reached by them before the arrival of the training staff; considerable time was saved because CARE did not first have to introduce themselves to the community.

Commercial Videos

While some information videos have been sponsored by CARE and the Haitian government, to date, most have been of a commercial nature, sponsored by private companies such as Shell, Colgate, Mitsubishi, and Pepsi Cola. Since most viewers in Haiti have little if any disposable income, sponsors of the commercial videos shown by the *Karavan* do not attempt to differentiate their products from competing brands; instead, they show the importance of the product or show the impact of their corporate presence upon the health and well-being of Haitians. Colgate, for instance, sponsors an animated video on the prevention of tooth decay, mentioning its toothpaste only briefly at the end. Shell Oil Corporation has a longer piece showing the importance of trees and forests to Haiti.

Shown along with the commercially- and socially-oriented videos are short entertainment features such as Haitian music, circus arts, comedy skits, and folk dancing, all of which have been produced by Mancuso Productions. All videos are in Haitian Creole.

A Typical Schedule

Today, with three *Karavans* serving Haiti's nine provinces, it takes about six months to cover the entire country; then the cycle is repeated. A typical visit starts when the two technicians assigned to each vehicle arrive at the designated community, meet with local officials or clergy, and select a suitable viewing location. Once the site is determined, they drive around the area to announce the evening schedule. At sundown the images are projected against a white sheet hung between two trees or against a white wall; the generator is muffled and separated from the viewing area. According to daily log reports from field technicians, the *Video Karavan* has attained audiences of over 2,500 people at one showing, the average being closer to 800 per showing.

Videos are carefully selected for an evening's viewing to prevent the audience from receiving conflicting messages. That is, commercial videos are selected so they do not promote products that in some way discredit information being presented in the noncommercial videos.

The Next Step

While villagers eagerly anticipate the arrival of and attentively watch the videos, their ultimate impact has not yet been considered. Although Haiti's *Video Karavan* is developing into an efficient information delivery system, it does not routinely pretest the audience to measure comprehension or to detect behavioral change as CARE did when it surveyed its field trainees. There are plans, however, to pretest a video that has been sponsored by a health group that promotes breastfeeding and will be carried on the *Karavan* at a later date.

In the future, a forestry technician may accompany a *Video Karavan* to distribute free seedlings to those who view a video on how to plant fast-growing trees. A similar approach could be used for vaccination programs, family planning information, and a variety of agricultural topics.

Other possible applications include a seaworthy *Karavan* to serve the many coastal villages, and *Karavans* dedicated exclusively to science and health information for rural schools. More immediately, however, the goal is to place a *Karavan* in each of Haiti's nine provinces, which would mean every six months nearly one million people would have access to videos that not only expand their knowledge base, but introduce much-needed entertainment and stimulation into their daily lives. ■

For more information contact: Mr. Claude Mancuso, Mancuso Productions, National Shopping Center, Delmas No. 48B Third Floor, Port-au-Prince, Haiti.

Andrew Curtin is a communications consultant working on a civic education project in Haiti.

(**Verzosa** *continued from page 7*)

4. *Will mothers have access to the DMD product?*

Mothers must have access, during and after diarrhea episodes, to the tangible product and cooking fuel; to time in order to gather the ingredients, prepare the recipe, and feed the child; and to information, whether it be from printed matter or remembering having heard the recipe over the radio.

5. *What messages about the DMD product will be acceptable and will result in the desired behavior?*

Positioning the product in the consumer's mind is a key element in a successful promotion campaign. What is the product for and what key consumer benefit will it provide? Does the product provide the solution to the problem as perceived by the consumer?

Once the primary message is defined, the communication team can create materials to disseminate it in different ways. Radio messages can be used to motivate and increase awareness about the problem. Print materials can be designed for nonliterate groups and pretested with mothers to ensure comprehension. Face-to-face communication interventions such as cooking demonstrations can be designed not only as the primary teaching mechanism, but also to generate public interest and awareness of the problem of nutrition and diarrhea in young children.

In summary, the communication and social marketing task is to manage behavior change. To do that task well, there must be a good understanding of the low-income consumer. Focusing product introduction efforts on the consumer is a basic principle that guides successful marketing and promotion efforts. In the final analysis, it is the consumer who decides to accept or to reject a new behavior, concept, or product. ■

For information about the Dietary Management of Diarrhea Project contact: Dr. Kenneth Brown, The Johns Hopkins University, School of Hygiene and Public Health, 615 N. Wolfe Street, Room 2041, Baltimore, Maryland 21205, U.S.A.

Cecilia Verzosa is a senior communication specialist with the HEALTHCOM Project and project director for DMD at the Academy for Educational Development.

PTC '88 Tenth Annual Conference

"Telecommunications and Pacific Development: Alternatives for the Next Decade" is the theme of the tenth annual Pacific Telecommunications Conference scheduled for February 15-18, 1988, to be held in Honolulu, Hawaii.

Spanning two decades of telecommunications development, 1979-1998, PTC'88 will examine past accomplishments and changes, current facilities and services, and future trends, requirements, and issues.

For further information about the conference, write to: PTC '88, 1110 University Avenue, Suite 308, Honolulu, Hawaii 96826, U.S.A.

Audiotheques Rurales in Mali

by William Amt

The oral tradition is a form of communication that is not often seriously considered when information transfer projects are being planned. In Mali, however, where 80 percent of the adult population is illiterate, it is still commonly used to transfer knowledge from generation to generation. Aware of the importance of the oral tradition to its society, the Malien Ministry of Sports, Arts, and Culture, with assistance from the United Nations Development Program (UNDP), and Unesco, organized a project that capitalizes on the potential of oral transmission as a development medium.

The *Audiotheques Rurales* (Rural Audiocassette Libraries) project has provided two tape players/recorders, educational *audiotheques* and batteries to 56 villages across Mali. Each library contains some 60 tapes in the local language, each tape related to a different theme that is relevant to the everyday lives of the listeners. Subjects covered include: 1) development technologies useful for improving health and agricultural practices; 2) civil obligations, such as the purpose of taxation and the importance of protecting wildlife; 3) traditional know-how, such as herbal remedies and well-digging methods; and 4) traditional stories, history, songs, and poetry which are usually allegorical and discuss such issues as relations between youths and the elderly. The tapes raise questions that stimulate group discussions about issues important to the village and, accordingly, how to improve traditional practices.

Not only is the local heritage preserved in this way, it is also an effective, modified use of traditional oral information channels since villages share ideas through the project network.

Tape Production

Villagers administer the project themselves. Each village elects a man and a woman as facilitators – tape librarians who maintain the collection and organize listening sessions. Sessions are held two to five times per week, with separate sessions for men, women, and children. An oral knowledge committee is established in the village, comprised of local leaders and such technically skilled people as midwives and extension agents. Each field agent trains representatives from five villages and advises them in the selection of appropriate tapes for their particular tape library. In turn, the oral knowledge committee tapes the songs, fables, local history, and other indigenous knowledge of their own community, to add to the project's collection.

Project personnel in the central office in Bamako, the capital, collect the recordings and develop the educational tapes, using these locally produced materials, interspersed with music and information pieces such as new farming techniques or health tips. The tapes are then translated into five local languages and written transcriptions are prepared. Numerous agricultural, health, and other social services provide the project's central office with information to include in the tapes as well. Ideas for new tapes are initiated from the central office which also serves as a documentation center.

The audiocassette libraries are not designed to replace conventional methods of information dissemination such as visits and demonstrations by extension agents or training sessions; rather, they supplement these activities, making them more effective through repetition and allowing people to learn at their own pace.

The cost of the project is modest. The UNDP committed US$594,000 for five and one-half years, covering expenses for such items as cassette players for each village, recording and copying equipment for the central office, and motorbikes and satchels for the project's field agents. Several villages have established communal gardens to pay for batteries for the cassette player/recorders.

Since its inception in 1982, the project has provided villages across Mali with a regular supply of *audiotheques* and they have become an important part of village life. A participatory evaluation revealed that villagers view *audiotheques* as useful "schools," that listening and discussion groups foster social unity, and that the self-managing nature of the project has encouraged villagers to heed messages more than if they were passive recipients of information.

The concept of *Audiotheques Rurales* can be adapted in other countries where the oral tradition serves as an important communication medium. The project extends the villagers' traditional knowledge base instead of overlaying it with unfamiliar ideas. Villagers appreciate the participatory nature of the tapes because ideas can easily be shared with others in a familiar and entertaining way, offering them the opportunity to teach each other what life has taught them. ■

For more information contact the: Resident Representative, United Nations Development Programme, Boite Postale 120, Bamako, Mali.

William Amt, formerly the Program Assistant in the Clearinghouse, is now an Information Assistant with the PRITECH Project in Arlington, Virginia, U.S.A.

TUNING IN

Radio Boosts Immunization Campaign in Swaziland

by Bongani Magongo and Vicki S. Freimuth

Swaziland, like many other developing countries, has experienced difficulties in persuading parents to have their children fully protected with the required five immunizations in the first year of life. To overcome the reluctance of parents to complete the full set of immunizations, the Swaziland Ministry of Health recently undertook a novel experiment using radio to teach children about immunization and to encourage children to teach their parents about the need to have siblings immunized. The positive results of this project supports the growing evidence that interactive radio can be used in many different environments to respond to a wide variety of needs.

The Swaziland Expanded Program of Immunization (EPI) School Health Radio Program is sponsored by the Centre for Childhood Communicable Diseases and HEALTHCOM, an Agency for International Development (AID) project. Assistance was also given by the Swaziland Development Communications Project and the Ohio University Teacher Training Project – all funded by AID.

School Selection

The project was carried out in sixteen schools, involving more than 2,000 pupils in grades five and six. Two rural and two urban schools were selected from each of the four regions of the kingdom. One half of the schools received the radio programs (experimental schools) and the other half did not (control schools).

We made our final selection of schools with the help of a national survey based on the following criteria:

1. Did the school have an operating radio or was it willing to commit to obtaining a working radio in time for the regular broadcasts to schools?
2. Was the school able to receive the English Channel of the Swaziland Broadcasting Service? (Some parts of the country experience considerable difficulty in receiving this channel.)
3. Was the school enthusiastic about participating in an experimental program related to a health subject?
4. Were there two urban and rural schools each available in the region?

While most schools had or were willing to obtain radios, many expressed concern about difficulty in picking up the English broadcasting channel. We decided that where there was considerable difficulty with reception, the project would provide cassettes of the programs.

Radio Lessons

A one-week planning session was held with school nurses and health communicators to determine the purpose and objectives of the series, to plan the content of the messages, and to select a program format. It was agreed that each program would deal with a specific aspect of immunization, but would also reinforce the overall message. Some of the topics were: "The Four Good Health Habits," "Immunization is the Only Protection Against These Diseases Which Can Kill and Cripple Children," "The Names of the Six Killer Diseases," and "The Importance of Telling Your Family About Immunization."

An "immunization song" was composed and then played at the beginning and end of each program to reinforce the message. This song, sung in English at the beginning and in SiSwati (the local language) at the end, covered all the elements that were featured in the eight programs.

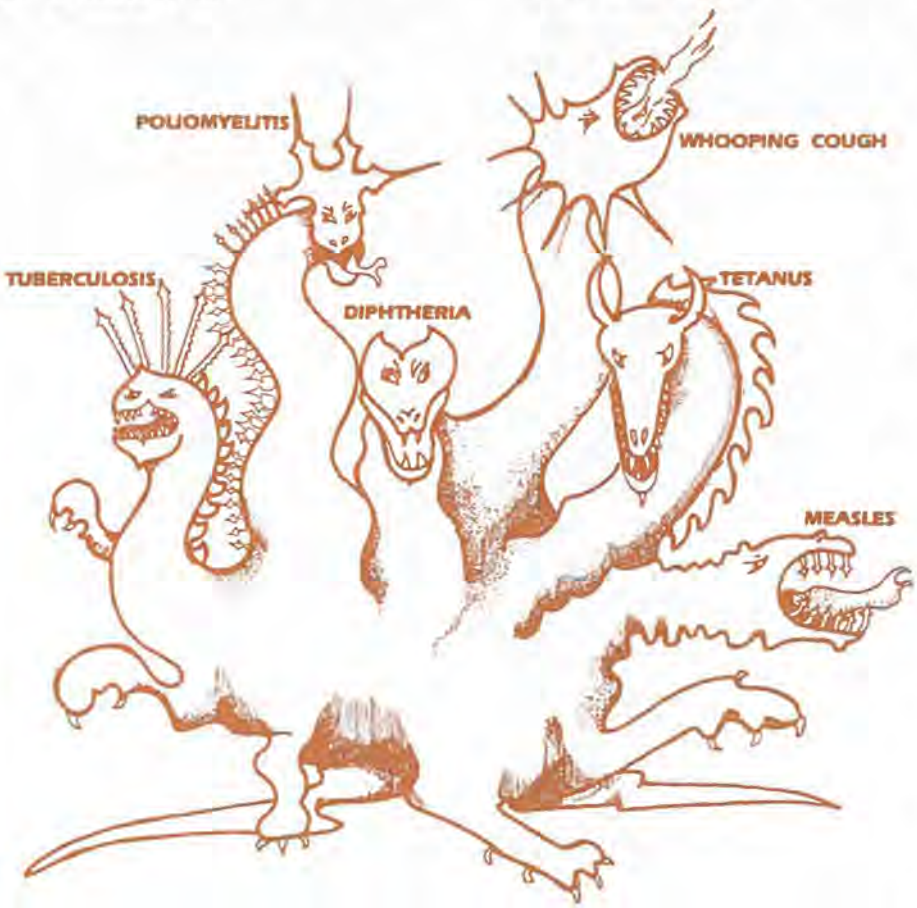
Each 15-minute radio program followed the same format: first came the opening with the immunization song, followed by an introduction of the topic, skill teaching and interactive skill drill, story time, a physical activity (song or game related to the topic), an interactive workbook activity, assignment of homework, a summary, and finally closing with the song.

The children were invited to participate in the singing, the physical activities, and the workbook exercises. Two teachers – a man and a woman – were selected as actors for the radio lessons so that children would come to identify one who instructed and questioned them, and another who provided the answers. For the story segment, a special narrator was introduced – Uncle Elijah, whom the children quickly learned to look forward to.

The advantages of using a regular format have been demonstrated in other interactive radio programs; the main advantage being that children quickly "learn their way around" the program and anticipate each of the segments.

We pretested a program and a workbook sample in a number of schools before proceeding with the final production of the program. Each program was broadcast twice a week to allow for differences in school time tables, and because reception in some areas was better on some days than on others.

(*Continued on page 12*)



This six-headed monster, which appears on the cover of the workbook that children took home to color and share with their families, represents the killer diseases for which inoculations are available – tuberculosis, poliomyelitis, diphtheria, whooping cough, tetanus, and measles. (Prepared by graphic artist, Beatrice Miller)

Wearing the Message in Niger

by Anne Kreutz

For many years, Niger has had a policy of using the mass media to promote national development. Both radio and television are used regularly to promote development initiatives, and the government has provided many villages with community television sets to receive these messages. But, there are other ways to promote national development that take neither the training nor the time, the skill nor the money called for in mass media campaigns. Message-bearing T-shirts, for instance, are used worldwide to convey information.

Carrying this practical medium a step further, Niger, like other African countries, prints development messages on *pagnes* – the colorful pieces of cloth from which Nigerien women fashion traditional skirts. From the smallest village to the capital city of Niamey, women can be seen wearing *pagnes;* even office workers in Niamey wear them. They can be purchased in urban stores as well as in the most remote village marketplaces.

A development project that promotes an improved cooking stove has used the *pagne* for some time to "advertise" its product. This particular *pagne* depicts a woman using the wood-conserving stove accompanied by the message: "With my improved stove, I conserve wood for a green Niger."

More recently, the government printed a *pagne* to coincide with a nationwide campaign to control the mouse population. During the past rainy season, mice dug up recently-sown millet plots throughout the countryside, damaging the crop and greatly reducing yields. This invasion of scavenger mice continued into the dry season as many villagers started their next farming year.

The government designated a day when all farmers were asked to help eliminate as many mice as possible. To advertise the campaign, a *pagne* was printed with a mouse theme on it showing someone with a club holding three dead mice by the tail, accompanied by the words, *A Kashe* or "kill" in Hausa, the local language.

Another *pagne* promotes off-season gardening, a policy the government strongly encourages throughout the country as a post-harvest activity. The outgrowth of this initiative can be seen in marketplaces everywhere: plentiful supplies of tomatoes, lettuce, onions, carrots, peppers, eggplant, and squash. You will find women wearing a *pagne* depicting just that – lots of colorful vegetables.

While there has not been an evaluation survey to determine if the *pagnes* have had a direct impact, they certainly receive attention whenever they are worn and women flock to buy them when a new one appears on the market.

When I wear my "mice campaign" *pagne* to hoe in the local community garden, I can hear children commenting on the "big hand that holds the club," poised to attack mice. While anecdotal in nature, it is apparent that even young children are being reached with this practical, popular, and highly visible means of communication. ■

Anne Kreutz is a Peace Corps Volunteer in Niger, where she works in an agricultural research station.

(**Magongo** *continued from page 11*)

The Workbook

The workbook was a vital element of this project because it was through it that we hoped to reach the parents. Children were encouraged to take the workbook home to do their homework and to share it with their parents.

From the beginning, the artist and designer of the workbook cooperated closely with the scriptwriters, allowing the artist to contribute to the radio programs and enhancing the compatibility of the radio programs with the workbook.

The book is filled with simple black and white illustrations that children are encouraged to color and it was printed on paper that would reproduce well on a simple copying machine. Each radio lesson has a double-page spread and every lesson follows the same format. The cover of the workbook is illustrated with a "six-headed monster" that was featured in the first radio story – each of the heads representing one of the killer diseases. (See illustration) There is also a place for the student to write his or her name, grade, and school.

Evaluating Children's Learning

A 26-point quiz was developed to measure all of the objectives of the radio programs. This pretest was administered in the sixteen participating schools before any of the radio programs were aired. The experimental schools averaged 4.57 correct responses and the control schools 4.21 out of the total, indicating that both groups had comparably low levels of knowledge about immunization before hearing the radio programs.

After the broadcasts, we administered a posttest using the same pretest questions. The experimental schools showed a significant increase in knowledge with an average score of 20.05 out of 26 while the control schools averaged only 5.80 out of 26, indicating the potential of a well-planned, integrated radio/workbook approach directed at and designed for a specific audience.

This phase of the experiment further demonstrates how locally produced radio materials and the interactive radio methodology can be used to successfully teach children in developing countries. In the past, Swaziland relied heavily on imported radio programs where neither the voices nor the content was familiar to Swazi children.

We also learned the value of having the artist and the scriptwriters work together from the start, instead of waiting until the scripts are written to consult the artist.

Evaluating Mothers' Learning

During the second phase of the evaluation, we interviewed mothers to see if the school children were relaying the immunization information to them, and to determine if mothers were acting on that knowledge and immunizing their young children. One hundred thirty-two mothers of rural and urban school children were selected from the four control and experimental schools. The mothers came to the schools where Swazi interviewers conducted the questionnaire.

The results indicated only minor differences between the two groups of mothers. Mothers from the experimental schools appeared to be more knowledgeable about some of the topics discussed in the schools, and, as we expected, were much more likely to have seen the workbook, know where it came from, and what it contained. However, a total of only 20 percent of the experimental mothers reported being aware of the workbook, indicating a low overall impact. Although some children may not have taken the workbook home to show their parents, 44 percent in the experimental group reported they had talked to their mothers about immunization and 22 percent reported they had talked to other family members as well.

During the final evaluation phase, immunization records will be checked at the clinics to see if parents from the experimental groups have immunized their children more frequently than have parents from the control groups.

As project evaluation continues, earlier findings are already affecting program design. For example, because of the poor transfer of knowledge from children to parents, the revised workbook will include some activities that will require mothers' involvement.

A replica of an immunization card will be added to the workbook so that mothers will have to help their children complete it for other family members. The cards can then be checked by the teachers or school nurses who will contact mothers who have not taken their children in for immunizations.

Results from the Swaziland Expanded Program of Immunization School Health Radio Program add to the growing pool of evidence that the interactive radio methodology can be a powerful tool when used in schools to support health education activities. ■

For further information on this campaign write to: HEALTHCOM, Academy for Educational Development, 1255 Twenty-third St., N.W., Washington, D.C. 20037, U.S.A.

Bongani Magongo, a health educator with the Ministry of Health in Swaziland, has worked on several media campaigns for health education.

Dr. Freimuth is director of the Health Communication Program and Associate Professor in the Department of Communication Arts and Theater at the University of Maryland, College Park, Maryland, U.S.A. She was a consultant to this project.

Alternative Energy for Radio Stations

by K. Dean Stephens

Rural community radio projects in developing countries are often presented with technical challenges wholly distinct from broadcast operations in city and developed country environments. By their nature, the rural development projects that are often home to rural radio projects usually are not within easy access to technical assistance, telephones, or power lines. Even where available, the electrical energy necessary for radio station operation is all too often unstable and erratic. Conventional remedies such as substation connection to high voltage transmission lines are inordinately expensive, while the budgets of such stations are usually very limited. These challenges exist to a greater or lesser extent at every Baha'i radio complex in the developing world, with solutions constantly being sought and incorporated. (See *DCR* Nos. 40, 42, 44, and 54 for other Baha'i radio activities.)

Stations in Latin American

In Panama, commercial electricity is available intermittently at the principal Radio Baha'i station in Boca del Monte, and is totally lacking at the remote station site in the Guaymi Indian Cultural Center in Soloy. However, Panama receives more than ample sunlight even during the rainy season, making the stations an ideal candidate for solar power.

At the Boca del Monte 1kW radio station, six 30-watt solar panels are mounted on the roof, constantly charging a bank of heavy-duty six-volt batteries in series during daylight hours. One 12-volt supply is wired to a studio unit which includes turntables, mixer, microphones and cassette players. Other taps from the battery bank power a 25-watt standby transmitter to back the 1kW unit in the event of power failure.

The Soloy studio is located in the heart of the Guaymi reserve, a grueling two-hour jeep drive into the mountains north of Boca del Monte. A diesel generator normally powers the cultural center complex, but the radio studio in the Center is equipped with a solar-charged battery backup system as well. The cost of the entire alternate solar energy package, including seven solar panels, standby transmitter, two studios, fans and lighting, amounted to less than US$3000. Considering that solar panels have an average lifespan of 20 years, the transmitter at least 10, and studio equipment and batteries five years, the investment is readily justified – in the lowered annual costs of electricity, in the many services cheaply and efficiently powered by this system, and in having power available when the main source fails.

In Peru, *Radio Baha'i del Lago Titicaca* is not reached by commercial power, and normally relies on a 7kW diesel generator for electricity. Around the station are five other buildings, including a teaching institute, dormitories, and two staff cottages, all of which receive energy from a bank of 18 batteries charged by a 2kW wind generator which harnesses the morning and evening air currents that blow across Lake Titicaca. In the event of generator failure, the battery bank can power a 100-watt standby transmitter for a six- to eight-hour broadcast day for a week, or indefinitely maintain a reduced schedule using power generated from changes in wind direction.

Another example of appropriate technology in action at the station is a unique, locally built antenna utilizing a grounded, half-size tower design to channel the broadcast signal to communities around the lake basin with minimum loss. The tower's highest guy wires are "hot," being electrically connected to the top of the structure. These run a distance equal to the 40-meter height of the tower before being broken by insulators, effectively doubling the electrical length of the antenna. The tower not only costs a fraction of its conventional 80-meter, base-insulated counterpart, but also performs superbly as well in the lake environment, penetrating communities on the far Bolivian shores of Lake Titicaca with strength and clarity rivaling nearby 5kW stations.

African Example

To date, the most ambitious alternate energy undertaking has been in Africa, at Radio Baha'i Liberia (ELRB) near Monrovia. Commercial power exists in the area, but it is intermittent, and off more than on toward the end of the dry season when the hydroelectric reserve runs short. On the other hand, the dry season is a period of maximum sunshine there, making solar energy a logical choice for standby power. On site, ten solar panels of 36 watts each charge a similar number of heavy duty batteries to provide power for studios, 400-watt emergency transmitter, lighting, and ventilation. At the time of ELRB's first transmissions on December 5, 1986, a Liberian government official remarked that the station would probably serve as a model of alternate energy utilization for all of West Africa.

Energy-Independent "Village Radio"

A prototype solar-charged, battery-powered radio broadcast station for local community service has been developed and is ready for field testing. (See photo) Included in this "Village Radio" package is a three- to five-watt transmitter with a range of five to ten miles, depending on terrain and frequency. The package comes complete with a 12-volt studio. In addition to the standard operating equipment are antenna wire and a tuning unit, battery cables, spare parts, and portable cassette recorders for interviewing and gathering news of community interest, music, and folklore indigenous to the area. "Village Radio's" power source is a single solar panel, rated between 20 and 40 watts, depending on local weather and desired broadcast schedule.

By harnessing solar and wind energy, Baha'i radio stations stay on the air during power shortages and emergencies, providing lighting for institutes and staff housing and in the process becoming showcases of appropriate technology to the population they serve. An ultimate goal of development communication is, thereby, achieved – improving the daily lives of people in Third World countries. ■

For further information contact: K. Dean Stephens, HC 02, Box 14765, Arecibo, Puerto Rico 00612, U.S.A.

Mr. Stephens has served as technical advisor to the Baha'i World Centre since 1974. He has been involved in the planning, engineering and installation of Baha'i radio station throughout the world.

Shown is a village radio kit containing: (l-r) transmitter with antenna tuning units stacked on top, control microphone, two cassette players, five-channel mixer, headphones, DC servo turntable, and studio microphone.

On File at ERIC

By Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include an overview of computer education in Asia and the Pacific; the proceedings of a regional workshop on developing materials for the newly literate; reports on the use of packet-switching networks for distance education, and instructional technology research in Latin America. All of these documents are available in microfiche and four in paper copy as well from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, 22304, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. Shipping costs can be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound.

● Anderson, Jonathan and others. *Developing Computer Use in Education: Guidelines, Trends and Issues*. 1986, 128pp. (ED 278 356)

Designed to provide educational policymakers and decision-makers with a basis for establishing guidelines for developing education programs, this report presents an overview of trends and issues in computer education in the countries of the Asia and Pacific region. The impact of computers on society is described, as well as the more recent impact of the microcomputer on classrooms in the region. Likely future developments in computing are discussed, together with the need for research on the effectiveness of computer instruction and how best to introduce computer use in education. Policy issues considered include the relationship of schools to society, equity of access to information, security and privacy, ergonomic and health factors, and computer awareness in the broader community. Hardware considerations are also discussed, including evaluation and selection, costs, site preparation, maintenance, local requirements, special features, and insurance. Various instructional and management applications of computers and the need for the development of appropriate software are considered, as well as the need for both preservice and inservice education for teachers. Curriculum requirements at the school level, postsecondary or tertiary level, and for nonformal education are also examined. Discussion of key issues to be considered in developing a national policy on computer education and an examination of new demands being made on literacy teaching conclude the report. Twenty-five references and a glossary of computer terms are appended. This Unesco report is based on discussions held at an Experts Planning Meeting on the Use of Computers in Education that was held in Bangkok, Thailand, in December 1985. Available from EDRS in microfiche only for 78¢.

● *Preparation and Field-Testing of Materials for Neo-Literates. Final Report. Proceedings of the Regional Workshop on the Preparation of Literacy Follow-Up Materials in Asia and the Pacific* (Chiangmai, Thailand, October 3-12, 1984). 1985, 116pp. (ED 278 374)

This workshop on the preparation of materials for the newly-literate in Asia and the Pacific was designed to train participants in the development, production (including design and illustration), distribution, and utilization of neo-literacy materials relevant to the needs of rural people. Workshop activities included: 1) discussions on methods of developing follow-up materials, the development of prototype materials, examination of materials prepared under the Asian/Pacific Joint Production Programme (AJP), and the development of a process for adapting these materials to meet local needs; 2) fieldwork in which four working groups of participants studied the needs of different villages, developed prototype materials, and field tested both their own and AJP materials; and 3) the development of draft national follow-up activity programs. Reports from the working groups include descriptions of their activities and the final products, which include a booklet, a poster and a serial poster, a radio program and two slide kits (scripts are provided), and a card game. A guide for the use of 1984 AJP materials and sample materials are included in this report, as well as a national follow-up activity plan for each of the countries represented. Appended materials include general information on the workshop, the agenda, a participant list, summaries of country reports presented by participants, and the texts of seven addresses presented at the inaugural session of the workshop. This Unesco report is available from EDRS in microfiche only for 78¢.

● Castro, Angela and Stirzaker, Lee. *The Use of AUSTPAC at Deakin University for Distance Education. Computer Communications Working Group Report No. 1.* 1986, 29pp. (ED 275 306)

This paper discusses Australia's two packet-switching networks, AUSTPAC and MIDAS, which are used for data transmissions with computers located within Australia or between overseas destinations. Although the facilities of both are similar, a comparison of their services based on traffic volume, connection, registration, and rental charges is made for the benefit of those unacquainted with technical and communication terms. AUSTPAC is the major focus of this paper, which discusses Deakin University's preference for this system to provide low-cost database searches for students, and provides suggestions for the management functions for its implementation. Also discussed are an AUSTPAC link-up between Deakin and the Open University (OU) in the United Kingdom for teaching master courses, use of electronic mail and other administrative functions, use of videotext systems for general information dissemination, and the design of and access to computerized research and bibliographic databases; the AUSTPAC billing software and plans for future computer facilities for staff and student access; general procedures for accessing AUSTPAC; an explanation of basic concepts and technical aspects of AUSTPAC's Packet Assembler/Disassembly (PAD) facility for packet-switching; variables for successful use of AUSTPAC; problems encountered in the 1985 AUSTPAC trials; computer-mediated communications and educational use; and staff and student development in the use of computer technology. Several tables are provided for illustrative purposes. Available from EDRS in microfiche for 78¢ or in paper copy for US$3.70.

● Chadwick, Clifton B. *Instructional Technology Research in Latin America*. 1986, 19pp. (ED 276 421)

The broad fields of educational technology and research activities in the more limited area of instructional technology in Latin America are examined in this paper. Research studies, the current situation, and research needs are reviewed briefly for each of the following areas: distance education; microcomputers; educational radio; learning strategies and study habits; instructional and text design; problem areas; behavioral objectives; democratization; student role; cognitive styles; and the effectiveness of educational technology in terms of its utility for educational systems in Latin America. Transfer and implementation studies are noted as being significant innovations in education improvement in Latin America, as well as the importance of valuing the ideas, beliefs, interests, and role of the recipients of these innovations to incease their participation in critical decisions and respond to their cognitive styles and interests. Most of the 50 references listed are in Spanish. Available from EDRS in microfiche for 78¢ or in paper copy for US$1.85. ■

Barbara Minor is Publications Coordinator at the ERIC Clearinghouse on Information Resources, Syracuse University, Syracuse, New York, USA.

A Directory of Development Journalists

An *International Directory of Development Journalists* has been published by *Development Forum*, a UN publication. The directory contains a composite listing of journalists' names; a subject and region cross-reference grid; professional data of individual journalists; professional journalists' organizations; schools of journalism and mass communication; radio stations that broadcast social and economic programs; development-oriented news and feature services and news agencies; information services of the UN and its specialized agencies; and a list of UN information centers.

The price of the Directory is US$25. No free copies are available. Request from: *Development Forum* DESI/DPI, United Nations, Room DC1-559, New York, NY 10017, U.S.A.

(**Garforth** *continued from page 16*)

Access to the Means of Communication

Research and experience have highlighted the uneven distribution of literacy skills, of radios and televisions, of newspapers and magazines, within and between rural areas. Similar disparities are inevitably emerging with the new developments in telecommunications and computer-based information systems, such as on-farming computing and Viewdata in England and telephones in rural areas of developing countries.

Conscious efforts are needed both to use those technologies that are more widely accessible and to increase people's access to those technologies that extension agencies select. Literacy programs, mobile video units, audiocassette recorders, radio forums, community television sets—these can all increase the access of potential users to media communication. They can also reduce considerably the unit cost, per recipient, of providing information.

Hardware Primacy

There is a tendency for new developments in information and communications technology to become seen as beneficial, even necessary, components of an efficient extension service. As with radio broadcasting and cinema vans in the 1960s, so now with video technology and microcomputers: they are regarded intrinsically as a "good thing," even before any serious thought has been given to how they are to be used or what the implications might be for staffing, training, and organizational structures.

The acquisition of equipment often tends to outstrip the agency's capacity to use it effectively. Capital funds can buy the hardware today: it takes time, commitment, and money from over-stretched recurrent budgets to train staff in the use and maintenance of the equipment. Mobile video units without gasoline, videotapes or trained production staff, printing presses without graphic artists or adequate supplies of paper, and microcomputers with no suitable software, contribute little to rural extension.

Before investing in new communications technology, it is important to define clearly how it will be used to support extension, including the adjustments that will be needed in budget and staff allocations. At the same time, it is clear the *existing* communication facilities are often underused. The potential of radio is poorly exploited in many situations. Print media could be used more imaginatively. Visual aids equipment at training centers and local extension offices is often unused because replacement bulbs are not available or staff have not been trained how to use them effectively.

Pressure off Field Staff

Communications technology can undoubtedly support and enhance the work of field-level extension staff, but it can also put increased demands on them. The success of media-based campaigns in Tanzania, Botswana, and China have depended on the efforts of large numbers of extension workers in organizing, training, and supporting volunteer group leaders. More generally, mass media may raise the expectations of rural people which they will look to extension staff to fulfill, or may prompt technical questions which extension workers will be expected to answer.

The potential of local media may only be realized if extension staff develop production skills and are able to allocate time to such activities. The effective use of media in the field requires that extension staff be able to reinforce, explain, and demonstrate ideas communicated by those media.

This complementarity of media and extension workers demands that investment in communications technology is matched by in-service training, the provision of reference material for extension workers, and adjustment to preservice training curricula.

Return on Investment?

Finally, what return can we expect from investing in communications technology? Research has begun to provide guideline costs of mass media use in extension. But there are serious conceptual and methodological difficulties in trying to assess the benefits in terms of economic returns.

It is less problematic to evaluate impact in terms of changes in knowledge, attitudes, and practices, and here the research evidence is encouraging. But even so, it is difficult to separate the effects of media from other influences on rural people's behavior (such as the availability of resources and the activities of field-level extension staff); and in any case, as we have seen, the effectiveness of media and telecommunications is heavily dependent on the quality of the content which they carry and on the structures and processes within which they are used.

It is more meaningful to ask how communications technology can be used to increase the cost-effectiveness of rural extension. What functions of extension can it help us to carry out more efficiently? How can it enhance the performance of extension workers in their contact with rural people? To what extent can it substitute for relatively scarce and expensive field staff in routine information provision to free them for the more challenging and creative task of working alongside rural people.

We cannot, then, answer questions about returns in investment, or impact on the lives and livelihoods of rural people, by looking at the technology in isolation from the context in which it is used. Whether or not communications technology, including the more familiar range of mass media and extension aids as well as recent developments, will make a significant contribution to rural extension depends ultimately on our ability to adjust our organizational structures and extension approaches to take maximum advantage of the potential it offers. ■

Publishing Opportunity for Communication Researchers

In 1981, the Graduate Program in Communications at McGill University, Quebec, Canada, launched a series of publications entitled *Working Papers in Communications*, for the purpose of giving researchers in the field an outlet for work-in-progress; for its exchange with colleagues in related disciplines, and to provide reasonably priced classroom materials for teachers in communication studies. Recently published papers address a range of issues including the effects of technology on communications, the impact of mass media upon cultural production, the growth of theoretical approaches in the field of communications, and the nature of specific communication practices such as the theater, cinema, and news media.

Submissions are welcome in any facet of the study of social communications. *Contributions are currently being solicited for a publication of four or five essays on the relationship of women to communications in developing countries.*

Please submit three copies of your manuscript (25-60 pages in length) in French or English to: *Working Papers in Communications*, Graduate Program in Communications, McGill University, 3465 Peel Street, Rm. 204, Montreal, Quebec, Canada H3A 1W7. A list of papers currently available can also be obtained from the above address.

★★★

Working Papers in Communications is also seeking to establish a Regional Editor program in order to encourage and facilitate the submission and adjudication of manuscripts. Candidates for these positions should be senior graduate students or junior faculty members in the area of communications. Applicants are asked to submit their *curriculum vitae*, along with samples of recent publications, to the above address.

The complete proceedings of the AERDC's twentieth anniversary conference *Investing in Rural Extension Strategies and Goals* are available from: Elsevier Applied Science Publishers Ltd., Crown House, Linton Road, Barking, Essex IG11 8JU, England.

Dr. Garforth is with the University of Reading's Agricultural Extension and Rural Development Centre (AERDC) in Reading, England.

Mass Media and Communications Technology

NOV 0 9 1987
LIBRARIES

by Dr. Chris Garforth

(This reprint appeared in its entirety in Media in Education and Development (MED)*, December 1985. It was first presented as a discussion paper at the twentieth Agricultural Extension and Rural Development Centre conference in September 1985. We would like to thank George Grimmett,* MED *editor, for granting us permission to print an abridged version of this article.)*

If information is a key resource in rural development, and the communication of information a major function of extension, it is no surprise that extension practitioners are looking with interest at the potential contribution to their work of mass media and communications technology. The speed and efficiency with which information can be transmitted by electronic means from one place to another, and the capacity of computer-based information systems to store data for rapid retrieval, continue to develop apace at a time when extension organizations are looking for more cost-effective ways of making useful, relevant information available to rural people. At the same time, there is a growing recognition of the need to support extension workers in the field, both by contributing to the general information environment within which they work, and, more directly, by providing them with extension aids, and updating their own technical expertise and knowledge.

Three Technological Trends

Mass media and extension aids, ranging in technological complexity from film to flannelgraph, have been used in extension for many years. There are three technological trends, however, which are significantly increasing their potential role. The first is the decreasing cost, increasing reliability, and relative ease of use of much recent communication technology, all of which make the technology increasingly accessible. The development of computers (especially the increasingly powerful, compact, and relatively inexpensive microcomputers) and video are two cases in point.

Second, recent years have seen considerable technical developments in the transmission of information, both globally through a rapidly growing network of communication satellites which has the potential for linking people in virtually any two places in the world in a face-to-face dialogue, and more locally through cable networks and small-scale transmitters which open up opportunities for community-based radio and television services.

The third trend is the integration of the various components of communications technology, especially the bringing together of the data processing and storage capacity of computers with the ability of telecommunication systems to transmit electronically coded data extremely quickly.

A few examples will indicate the range of possibilities opened up by these developments.

1. Field extension workers in remote areas can be linked with expertise and sources of information in central locations. Two-way radio, via satellite, is already well tried in the health field, enabling diagnoses and advice on treatment to be given by a doctor or midwife hundreds of miles away. The expansion of telephone networks into rural areas offers similar opportunities.
2. Research workers can carry out on-line literature searches on bibliographic databases held on another continent.
3. Viewdata systems link domestic television sets, through telephone lines, to information stored on centrally located computers. In England, a public Viewdata system (Prestel) enables a user to call up the information required for display on a television screen, the information itself being regularly updated by various information providers.
4. Video is being used in a number of ways: to make field recordings for incorporation into television programs: to bring technical information to rural families via mobile units or at rural training centers; to motivate people to work in community development programs; to support campaigning or lobbying activities by community groups; and to give instant feedback to extension trainees on their performance in practical exercises.
5. Community television sets can be linked, as in India's SITE experiment and later developments, via satellites and land-based relay stations, to a central transmitter, enabling a mass audience of rural families to see and discuss centrally produced educational broadcasts.

The Institutional Context

The above examples demonstrate that communications technology offers increasing scope for localizing the production and distribution of media, for two-way interactive communication, for communication within and between rural communities, and for a more active role to be played in communication processes by people who have hitherto been regarded (in communication theory and extension practice) as passive recipients of information.

Through public telephones, rural people can initiate contact with extension workers. Low-cost, small-scale printing equipment is used by community groups to produce their own newsletters, bulletins, or campaign material to be broadcast but also give large numbers of local people the opportunity to be seen and heard "on the air," thus helping to break down traditional distinctions between communication professionals and audience. Media, and increasingly telecommunications, can serve as a bridge between groups and communities within rural areas instead of acting simply as a radial link from a central institutions to a mass rural audience, thus facilitating a shift from authoritarian to more participatory models of extension.

On the other hand, the technology also encourages the centralization of media production, data storage, and the distribution of information. This can greatly increase the speed and efficiency of information flows, but also offers greater scope for control over access to and use of the means of communication. For the ability to store and communicate information confers power: power to determine what information is to be made available to whom, power to influence the perceptions and attitudes of large numbers of people.

Current trends in communications technology thus present a wider range of options for media use within rural extension than has previously been possible. Decisions on investment in new communications facilities are often outside the control of rural extension organizations. But within the constraints and opportunities set by available facilities, choices about how communications technology is to be used in extension are seen to be predicated on more fundamental decisions about extension ideology and approach.

Whatever the nature of those decisions, a number of issues must be confronted if the potential contribution of new communications technology to rural extension is to be realized.

(Continued on page 15)

WHO AIDS Health Promotion Unit is Established

WHO's Special Programme on AIDS has recently established an AIDS Health Promotion Unit whose purpose is to disseminate information worldwide about education and communication interventions to reduce HIV transmission. A periodic newsletter, *AIDS Health Promotion Exchange* will be published and distributed free to those interested in receiving this information on a regular basis. For further information contact WHO/Special Programme on AIDS, CH-1211 Geneva 27, Switzerland.

Development Communication Report
Clearinghouse On Development Communication
dcr
1987/4
No. 59

Comics – for Health

by Indi Rana

For some time, there has been controversy in development circles about the use of comic books to disseminate health information to rural populations. Many development communicators believe that comics are not a good medium for disseminating these messages, whether for adults or for children, since understanding the visual message requires a sophistication of perception developed only after a good deal of exposure to reading and pictorial materials.

In 1984, the author was asked by the World Health Organization (WHO) to develop a comic book on immunization for rural school children in India with a possible adaptation kit for use in other languages, cultures, and countries. The idea was to use child-to-child and child-to-parent communication to carry the message that all children under 12 months of age should be immunized. Children between 8-12 years were to read the publication, perhaps in class, perhaps as an extra-curricular give-away, and take the message home to their parents.

Over the past 15 years, a strong comic book culture featuring myths, legends, and adventure stories has developed in urban areas of India. Comics are the only truly successful children's trade books in the country – the "better" books are perceived as being too time-consuming and expensive. It was thought that after this steady outpouring of comic books to urban areas, they must have filtered through to rural school children. Perhaps a comic book, similar to those available in the market but carrying health messages could be prepared.

A Preliminary Survey

To test this hypothesis, a limited field survey was conducted in Madhya Pradesh, one of India's four lesser developed states, to uncover the target audience's: 1) pre-knowledge of immunization to determine how much information should be included; 2) visual literacy to determine the level of sophistication of the visuals; 3) interest in story types to select the most acceptable vehicle for the health messages.

The survey was conducted in eight schools with a total of 329 eight-to-fifteen year old boys and girls in and around the towns of Satna and Nagod. Both towns have outlying villages and farms, and well-stocked market places with bookshops that carry local Indian comics. The institutions ranged from private urban schools to semi-urban government schools to rural government schools.

Results showed:

- the children's pre-knowledge of immunization was higher than expected;
- exposure to comic books in rural and semi-urban schools was nil, while children in private urban schools were reading them voraciously;
- visual literacy among rural and semi-urban school children was poor. When shown standard comic fare, they confused characters from frame to frame, and bubbles (enclosed text that is placed beside the person speaking) and insets often were misunderstood;
- when shown comic pages and straight text side-by-side and asked which they would rather read, rural and semi-urban school children preferred the straight text. They did, however, show interest in the pictures, commenting on details;
- the story types most preferred were myths and legends, cops and robbers, stories about kings and queens, and folk tales.

While the results of the survey meant there was a tremendous challenge ahead, the consensus at WHO/New Delhi was, given the right kind of comic book, rural children –

(*Continued on page 3*)

Avoiding Social Marketing Pitfalls

by Terry Peigh

Perhaps it was to be expected. In a way, it is a good sign of learning and growth. As social marketing becomes more widely used by development practioners throughout the world, their social messages are falling victim to many of the same problems experienced by commercial marketers.

Anxious to apply the valuable lessons gleaned from commercial applications, social marketers are mimicking the harmful practices as well. While there is an adage that says imitation is the most sincere form of flattery, the continued evolution and growth of social marketing and communication will be slowed unless social marketers resist the temptation to indiscriminantly apply some recently adopted commercial marketing techniques.

First Pitfall: Audience Identification

Social marketers should be aware of three common pitfalls when applying commercial communication techniques in developing social messages. The first concerns the target audience. With many consumer goods, be it butter, shoes, or soap, the target audience usually is very large so the product potentially appeals to a majority of households in that population. Not only is the target broad, the story line is probably appropriate to most of the audience. This is not likely to be the case when marketing social ideas and products.

A marketer of family planning products, for example, must define a very special target to maximize the impact of the message. Marketers must decide if the priority target will be young teenage girls who are becoming sexually active. Or perhaps it

(*Continued on page 2*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue...

1988 Calendar (insert)
Comics – for Health 1
Avoiding Social Marketing Pitfalls 1
On File at ERIC 4
Bridging Space for Peace 5
Updating Interactive Radio Instruction Activities 6
A Communicator's Checklist 8
Expanding Telephone Service in Rural Brazil 9
Briefly Noted 11
Information Helps Urban Lesotho Tackle Sanitation Problems 12

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Patricia Simons, Information Specialist
Janice Stallard, Program Assistant
ISBN0192-1312

AED
International Division
Academy for Educational Development

(**Peigh** *continued from page 1.*)
should be uninformed newlyweds. Or maybe people who know about family planning practices but have decided against them for personal reasons.

Each of these alternative targets is unique, differing considerably in its needs, problems, information levels, lifestyles, and motivations. Addressing them with anything less than a specially focused message will only diffuse the potential impact of the message.

Second Pitfall: Audience Interest

The second pitfall in social communications is assuming that the target audience WANTS to hear a particular message. Because they devote so much of their lives to studying a particular product or service, marketers – be they commercial or social – incorrectly assume their target audience is as interested in their product as they are. This assumption often leads to messages that may not be particularly interesting or compelling. As a result, all marketers must work hard to capture the attention of their audience. While this is important for commercial marketers to keep in mind, social marketers must work even harder to perfect their messages to overcome the public's initial resistance to social messages.

When producing a social message, it is particulary important to introduce such elements as words, music, drama, action, sound effects, color – anything that invites the viewer or reader and holds his or her attention throughout the message. *Continually ask: Is this message at least as interesting and as inviting as other messages using the same medium?*

Third Pitfall: Identifying Rewards

Social marketers often fall victim to designing messages that lack a "reward" – a compelling personal benefit. Too often social messages merely inform people what a product or service does or how it works and do not take the critically important next step – telling the target audience what personal benefit they will derive from adopting the recommended social practice.

For example, it is not enough to tell people that by using family planning methods they can control family size – the message must tell people how their personal lives will be improved if they control the size of their family. If market research shows that the benefit most meaningful and important to the target audience is a better husband-and-wife relationship or better health for the wife or better living conditions for the children, the social marketer must directly connect the recommended practice or product to one of these identified and desired benefits.

Social development organizations should be commended for their rapid adoption of commercial marketing techniques; major social programs throughout the world receive greater exposure and use today because of their willingness to try these approaches. By avoiding some of the common marketing pitfalls noted above, social marketers will make even greater strides. ■

Terry Peigh is a vice president at Foote, Cone and Belding Communications, a worldwide commercial advertising firm. He has coauthored two books on mass media for social development.

Distance Teaching Course Offered

The International Extension College and the Department of International and Comparative Education, University of London Institute of Education are holding a four-month course, from April 22 to July 29, 1988, on distance teaching and its relevance for Third World countries.

By the end of the course each participant should be able to: analyze an educational problem in his or her own country and determine whether distance-teaching methods are appropriate to it; make appropriate choices between different methods of distance teaching; assemble an administrative plan for a distance-teaching system; and prepare production materials for a specified audience.

The application deadline is February 12, 1988. For application forms or further information write to: Departmental Secretary, Department of International and Comparative Education, University of London Institute of Education, 20 Bedford Way, London WC1H 0AL, U.K. Telephone 01-636-1500.

Training Modules for Diarrheal Disease Control

The Sahel Regional Field Office of the Technologies for Primary Health Care (PRITECH) Project, in collaboration with the World Health Organization, has recently published a series of French-language training modules on diarrheal disease control. An epidemiological overview of diarrhea is outlined in Module 1; Module 2 describes the treatment of diarrhea; Module 3 discusses how health education techniques can be applied to diarrheal disease control programs at all levels of interaction; and Module 4 provides information on various elements of a diarrheal disease control program. A teacher's guide and workbook are also included.

English translations of these modules are being prepared. The French version is available free-of-charge from: Suzanne Prysor-Jones, PRITECH, B.P. 3746, Dakar, Senegal.

(**Rana** *continued from page 1*)

being children, eager and curious – would quickly adapt to this new and interesting form of reading after a few attempts.

Preparatory Steps

The problem then was to select an appropriate format. Comic books available to children in urban centers usually are large, colorful, and contain long, fairly complex stories. Knowing how cautious rural people are about accepting new things, a small, less glossy format was chosen and the stories were printed on newsprint. In this way, they did not appear to be so valuable or special that parents would lock them away.

There are four separate short stories, each of which is bound with a similarly designed cover, or they can be bound together, and be made into a 32-page publication. The smaller, single-story comics are intended as trade items between children during their play activities, encouraging wider dissemination of the health messages. The larger volume has been prepared for teachers to use in the classroom.

To make the pictures visually comprehensible, the stories appear in two formats:

a) A bubble story with a maximum of two very clearly delineated bubbles, with parallel explanatory text running above it.

b) A picture story without bubbles, with parallel explanatory text running below the picture.

The pictures, very simple and clear, are not expected in and of themselves to carry the story as they do in more sophisticated comic books, where a minimum of text acts as a stimulus for the next picture. All pictures appear in standard-sized frames, each carrying only a few people and objects. The characters remain in the same position from frame to frame unless there is a need to change their position as dictated by the story.

Building in the Message

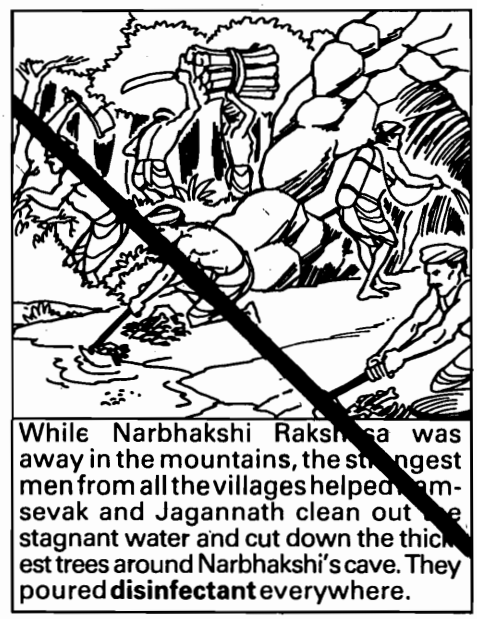
To make the health messages interesting, stories are built around myths, kings and queens, cops and robbers – the preferred story types. One story is built around a natural disaster, a well-known phenomenon in rural India.

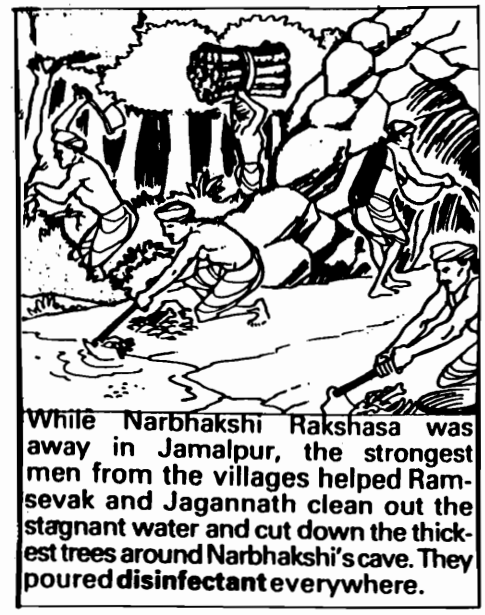
Despite one of the survey findings that rural children are not accustomed to being heroes or to taking their own personal initiative, the storylines in the comic books depict young people who make decisions for themselves and who teach their elders new things. This was done to encourage children to become agents of change and to think for themselves more often.

Creating interesting titles was particularly important; children had to be attracted to these comic books. "Stories of Adventure," for instance, would be much more likely to attract a child than the titles "Stories of Immunization," or "Vaccinations are Good for You."

An extensive field survey was conducted by the Voluntary Health Association of India (VHAI) before final publication. Results would be used to show: a) the target audience's comprehension of the storylines; b) their retention of the data and concepts; and c) their comprehension of the illustrations and text. Children in 30 schools around Delhi and Madhya Pradesh were shown black and white illustrations without the text and asked to repeat the story as they saw it. This helped identify problems related to visual comprehension (see illustrations). The children were then asked to read the entire comic – the text and the illustrations – and to answer questions on a mini-exam sheet. They were visited a week later and interviewed again to test their retention.

The results showed that the comic were comprehensible as far as visuals and text, storylines, and vocabulary were concerned. The major problem was in the children's understanding of complex time frames and flashbacks; both were eliminated as a result.





In a pre-test, children thought the man with the knife in the frame on the left was going to kill the man carrying wood. The frame on the right shows how this was corrected in the final copy.

Adapting for Dissemination

The English version of the comic book is essentially a module from which translations and adaptations can be made by those interested in disseminating the information. The copyright is, therefore, non-restrictive for educational purposes.

The stories are generally Indian in context but all of them can, with careful attention to detail, be adopted to suit a particular region in India, or be used in other countries with similar rural characteristics.

UNICEF/New Delhi is distributing 85,000 copies in Hindi free-of-charge to the Board of Education in New Delhi and agencies associated with UNICEF. The comic book will eventually be translated into all of the Indian languages. WHO offices worldwide have received copies and have shown interest in adapting the book for their regions. Other health agencies in Sri Lanka, Nepal, the Maldives, Bhutan, Burma, and Indonesia are looking into adapting the publication.

With careful research and thoughtful presentation, comic books with health information built into their storylines could become a common sight in rural communities, helping to dispel the belief that this popular format is not suitable for social messages. ■

For more information contact: WHO, SEARO, World Health House, Ring Road, New Delhi-110002, India.

Indi Rana has worked as a private consultant with numerous international organizations to develop cultural, educational, and communication materials, and has trained others in the use of these materials. She also is an author of children's books.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include a description of the use of teleconferencing to link Canadian physicians with Kenyan and Ugandan physicians; an overview of issues involved in planning for microcomputer use in schools in Asia and the Pacific region; proceedings of an international conference on open higher education; and a paper on how to tailor information strategies for public and educational institutions in Latin American countries. All of these documents are available in microfiche and in paper copy as well from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. (VISA and MASTERCARD charges are accepted by EDRS.) Shipping costs can be calculated on the basis of three microfiche per ounce and 75 microfiche or pages of paper copy per pound. **The ERIC Clearinghouse on Information Resources located in Syracuse, New York, cannot supply copies of these documents.**

● House, M. and MacLeod, S. *Into Africa: Telemedicine Links Canada with Nairobi and Kampala.* September 1986, 9pp. (ED 281 518)

During the past decade, teleconferencing systems have gained a substantial role in continuing medical education in Canada through maintenance of contact between physicians in remote and urban areas, medical education, group consultation, and administration. A group of Canadian physicians at Memorial University of Newfoundland and their Kenyan and Ugandan counterparts have undertaken the development of a similar satellite link between Canada and East Africa with ground transmission between Nairobi and Kampala. This program has been accepted for participation in SHARE, a project which makes satellite circuits available to agencies to organize health education programs between developed and developing countries. Since the inauguration of the system in January 1986, there have been formal weekly conferences and informal teaching sessions covering such topics as nutritional status and immune response, hepatitis in pregnancy and the newborn, emergency pediatric medicine, and rickets. The system is also a cost effective means of maintaining communication between North American researchers based in East Africa and their home laboratories. It is hoped that the teleconference system will enable the libraries at the University of Nairobi and Makerere University to make online literature searching available to the medical community. Satellite links such as the one described here are currently the most realistic means of providing contact between the medical faculties in Nairobi and Kampala and a broad spectrum of academic physicians in Canada. Available from EDRS in microfiche for 78¢ or in paper copy for $1.85.

● Lancaster, David. *Management and Planning Issues in the Use of Microcomputers in Schools. Occasional Paper in Educational Planning, Management and Statistics No. 11.* 1985, 61pp. (ED 281 521)

Reasons underlying the growth of interest in Asia and the Pacific region in educational computing and issues raised by such developments are examined in this Unesco paper, which begins by describing three main areas of use of microcomputers in school – for teaching computer studies, for computer assisted learning, and for school administration. Reasons for microcomputer use are considered as well as internal and external influences that affect the decision to incorporate computers in school activities: 1) the need to relate education to the needs of the economy; 2) parental pressures; 3) pupils' expectations; 4) the need to facilitate data processing for reporting to external groups; 5) the need for better information for decision making; 6) demands for increased efficiency; 7) assumptions of increased learning effectiveness; 8) push from technical experts; and 9) marketing policies of manufacturers and suppliers. Also considered is the impact of the introduction of computers in schools on teaching methods, curriculum content, and the organizational structure of schools. Issues that are likely to arise with the use of microcomputers in schools are then discussed, including funding, suitable computer programs, teacher training, equipment requirements, cost effectiveness, responsibility for computer use and management, and contingency plans for equipment breakdowns. The importance of feasibility and cost benefit studies and consideration of the organizational, behavioral, and managerial issues involved in planning for computer based programs in schools is emphasized. Twenty references are provided. Available from EDRS in microfiche only for 78¢.

● *Open Higher Education. Proceedings of an International Conference* (Bangkok, Thailand, August 13-17, 1984). 1984, 391pp. (ED 275 280)

The proceedings of this international conference on open education cover five themes: philosophy and concept, development trends from an international perspective, the dichotomy of equity and quality, graduates' employment, and the management challenge. Four of the 41 papers included in this collection are directly concerned with the use of communications technology in open education: 1) "Impact of Media and Technology on Open Higher Education in India," by Y. B. Mathur; 2) "Radio and Television Universities in China," by the staff of Central Radio and Television University, China; 3) "The Adaptability of the Radio and TV Universities to Society," by Tang Yi; and 4) "Computing in Open Higher Education: Some Lessons," by Christ Sauer. Papers on development trends include: 1) "Open Higher Education Development Trends: An International Perspective," by Robert McCaig; 2) "Strategies for Development of Curriculum, Personnel, and Instructional Materials," by Ali Bin Ahmad; 3) "India's Experiment in Open Higher Education: A Study of Andhra Pradesh Open University," by R. S. Ramachandran and V. S. Prasad; 4) "The Development of Experiential Learning Programs for the Open University," by Frederick Baker; and 5) "Distance Education in Canada: Toward a Typology of Learning Activities for Adults," by John P. Minnis. A conference program and names and addresses of participants are provided. Available from EDRS in microfiche for 78¢ or in paper copy for US$29.60.

● Crowther, Warren. *Tailoring Information Strategies for Developing Countries: Some Latin American Experiences.* 1984, 12pp. (ED 274 375)

This paper addresses the conditions of developing countries that must be taken into account in developing information strategies for their public and educational institutions or projects. Its central argument is that newer information science concepts, although demanding technological and conceptual sophistication, can be useful in the transition from an information-poor society toward information richness; however, these concepts have to compete in practice with a continuing flood of modern and less demanding concepts that lead to a society that has adequate information but not the accompanying power or decision-making effectiveness. As a demonstration, 24 design principles for information strategies resulting from recent experience in the public sector and universities of 20 Latin American countries are enumerated. These principles are proposed as specifications for technical cooperation with Third World countries in general. Available from EDRS in microfiche for 78¢ or in paper copy for US$1.85. ■

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, Syracuse University, Syracuse, New York U.S.A. For information on how to order these documents, please see the first paragraph of this column.

Bridging Space for Peace

by Paul Verhagen

In 1984, *Beyond War*, a California-based, non-profit educational foundation, presented its second annual award to the International Physicians for the Prevention of Nuclear War. The award presentation occurred via one of the first two-way videoconferences to interconnect the United States and the Soviet Union. In the autumn of 1985, recipients of the third annual award were the signatories of the Five Continent Peace Initiative: President Raul Alfonsin of Argentina, Prime Minister Rajiv Gandhi of India, President Miguel de la Madrid of Mexico, former President Julius Nyerere of Tanzania, the late Prime Minister Olof Palme of Sweden, and Prime Minister Andreas Papandreou of Greece. This time, however, the capitals of the countries involved were to be interconnected with the San Francisco headquarters of *Beyond War* for the award presentation in the first-ever, five-continent, two-way videoconference.

Broadcasting authorities from the involved countries were contacted to coordinate videoconference activities, with the exception of Tanzania which did not have an operating television system. To fill this vacuum, representatives from *Beyond War* went to Nairobi, Kenya in mid-November 1985 in search of a production company to go to Dar-es-Salaam, Tanzania and direct the videoconference from that site. They approached Media Productions, Ltd., with which I was associated at the time. The management thought the production feasible and committed the resources of the company to the project.

Overcoming Early Obstacles.

In our early meetings, we quickly discovered we had some formidable obstacles to overcome. For one, while there is a two-way microwave link between Dar-es-Salaam and Nairobi, site of the Intelsat uplink we would be using, the Tanzanian portion of that system had never transmitted audio or video signals. Furthermore, no portable microwave equipment was available in Tanzania that would allow us to transmit signals to and from State House, the office of the President of Tanzania and site of the presentation ceremony from that country. The existing microwave equipment used a special video connector of which there were no spares in Tanzania, a must if we were to receive and transmit our signals. The final obstacle was that the only available trans-Atlantic satellite transponder had already been booked for an unspecified period at the precise time we would need it.

To verify that the Tanzanian system had both audio and video capability, technicians at Tanzania Posts and Telecommunications Corporation in Dar-es-Salaam were asked to conduct transmission and reception tests with Mombasa, the linking site in eastern Kenya. This was done successfully, reassuring us that the Tanzanian connection functioned properly.

To solve our lack of portable microwave equipment, we turned to our associates at Uganda Television, which had televised programs produced by Media Productions in the past. Uganda Television agreed to loan us two microwave systems and a technician in exchange for Ugandan broadcast rights to the ceremony. Meanwhile, the Ugandan Post Office and the training center of Kenya Posts and Telecommunications Corporation both loaned us the necessary connectors. With Uganda in the midst of a civil war at that time, this otherwise simple task – requiring a round trip from Nairobi to Kampala – produced some of the most anxious moments of the entire project.

As to our third dilemma of uncertain satellite transponder time, all we could do was wait and see what would be available at the time of transmission.

Early in December 1985, after many telephone conversations and telex messages between the various organizations and ministries, we dismantled the studio at Media Productions and carefully packed three cameras, a video switcher, ten video monitors, two high-band 3/4 inch videotape recorders, an editor, two audio boards, one public address system, and four portable lighting packages. The equipment was put onto two vehicles, one of which would serve as our on-site control room, and a week before the ceremony three crew members set off on the long road trip from Nairobi to Dar-es-Salaam.

To supplement Media Production's equipment and the microwave hardware from Uganda Television, we ordered two microwave systems from the United States and a large quantity of audio and video cable with plenty of spare connectors and adaptors. Everything was flown into Dar-es-Salaam along with a video projection system so the audience at State House could view the proceedings coming from other award sites. We knew that we were going into a country with little or no video equipment; so we planned carefully for every conceivable contingency and brought along a good supply of spare equipment.

Setting the Stage

After we arrived in Dar-es-Salaam, it was decided the event would be held outside, in front of State House. Our schedule was pushed back a day when one of the vehicles broke down enroute and had to be towed into Dar-es-Salaam.

Setup time was further slowed by the extremely hot, humid weather and by the difficulty of producing a television program in Dar-es-Salaam where television production was still a novelty. For example, our portable microwave link from State House to Tanzania's newly tested fixed microwave system (a two-hop configuration) took two days to construct. The return path from the Intelsat downlink (a simpler one-hop configuration) to be used to receive the awards ceremony from San Francisco and the other cities, took another two days to construct because of minor damage to the microwave transmitter.

Making Progress

One of the most exciting aspects of the project was working with our Tanzanian colleagues. Even though they had little or no experience with television, their enthusiasm and eagerness to make the project a success was contagious. With their help, we passed two major milestones several days before the actual transmission. Two days before the ceremony we successfully transmitted audio and video test signals from State House to Nairobi. The previous night, however, it had rained heavily and caused the ceremony tents to collapse. Fearing the same thing might happen again, a decision was made to move the ceremony indoors.

One day before the ceremony, we successfully received audio and video transmissions from an Intelsat satellite over the Indian Ocean, and the video image was projected onto a large-screen television. It seemed that the show would go on after all!

The day of the ceremony was hectic. We had to dismantle all the equipment the night before because another ceremony preceded ours in the same room. Once the ceremony was over, we quickly reset the cameras, lights, audio, and television projector and tested everything as far as Nairobi. They were receiving audio and video from us and we were receiving audio and video from the Indian Ocean satellite. There was still no word on whether we would get our satellite transponder when we needed it.

Just before the start of events, we received the test signal from San Francisco; we had video but no audio. As the ceremony began in San Francisco, we still were not receiving audio from them and San Francisco was not receiving us at all. About five minutes into the program, we finally started receiving the audio portion. Everything went smoothly as the other sites around the world were introduced: we could see and hear them all. San Francisco, on the other hand, still was not

(*Continued on page 11*)

TUNING IN

Update on Interactive Radio Instruction Activities

Introduction

by Thomas Tilson

It is timely that this issue of the *DCR* provides an update on interactive radio instruction (IRI) programs, for there have been many important developments during the past year. Increasingly, IRI is recognized as an important alternative for meeting the crisis of declining quality of primary school instruction in developing countries. While most nations have greatly expanded their enrollments during the past decade, they are finding it increasingly difficult to meet the rising costs of primary education and to maintain, no less improve the quality of instruction.

IRI is helping to meet this challenge by providing high quality education at a low cost and the United States Agency for International Development (AID) is continuing its support for this proven innovation. Included in this update are reports from Honduras, Bolivia, the Dominican Republic, Papua New Guinea, and Lesotho, where IRI programming is either being adapted or introduced into countries' educational curricula, or where IRI activities are becoming institutionalized into the educational system. IRI activities are also underway in Nepal. A report on these activities appeared in *DCR* No. 57.

Thomas Tilson is Project Director of the Radio Learning Project that is charged with diffusing the IRI model.

Honduras

by David Edgerton

The Honduras Radio Learning Project (HRLP) marks interactive radio instruction's transition from research and development to full-scale implementation.

With technical assistance from HRLP, a Honduran staff is at work on an IRI mathematics course for Grades One through Three, scheduled for test broadcasting in February 1988. National dissemination is scheduled for 1989. An IRI Spanish-language reading course for Grades One through Three is in the early design stages and is scheduled for broadcast in 1989.

Interactive radio is being developed in Honduras under the auspices of *AVANCE, La Asociación de Promoción y Desarrollo Socioeconómico* (the Association for Socioeconomic Growth and Development), which is unequivocal in its commitment to IRI. The name of its recently established radio production unit reflects this support – the *División de Radio Interactiva* (the Interactive Radio Division) – although *AVANCE* intends to generate a variety of educational and informational radio material in addition to IRI.

AVANCE is taking IRI program development in several interesting new directions. First, the math series is an intensive course in mental arithmetic. Mathematics educators agree that mastery of elementary mathematics is not primarily a matter of learning to solve problems on paper, but of cultivating certain mental processes. The aim of *AVANCE's* IRI math series is to bring the strengths of the IRI methodology to bear in teaching children these mental processes. The series will complement conventional pencil-and-paper textbook study by presenting lively interactive drill and practice in an engaging dramatic context designed to help learners discover how mathematical problem-solving applies in their own daily lives.

Secondly, HRLP recently prepared an integrated computer design to give *AVANCE* desk-top publishing capability, strong evaluation and research capability, and an integrated computer network designed specifically for generating IRI scripts on word processors. Script development is the heart of IRI program development, with countless working hours devoted to designing, writing, and revising each script. The use of computers to generate IRI scripts will itself be a technological leap forward.

Finally, *AVANCE* is setting out to generate a wide out-of-school listenership. For the first time, IRI programming will contain commercial listener appeal. *AVANCE's* goal, as specified in its Cooperative Agreement with AID, is to become financially independent within four years. This means that all *AVANCE's* undertakings, IRI included, must generate income. To accomplish this, its Interactive Radio Division must produce sufficiently engaging IRI programming to win a large public listenership and the support of advertisers.

If other IRI projects are any measure of the interest generated by this type of programming, attracting public listeners should not be a difficult task. Thanks to the proven success of pilot projects in other Latin American countries and to modern technology, Hondurans nationwide soon will have easier access to mathematics and language lessons that have been designed for their special needs. ■

Dominican Republic

The goal of building a full-service instructional radio unit based on the IRI model was achieved by IRI's on-going, fully institutionalized project: *RADECO, Radio Educativo Comunitario,* (the Radio Assisted Community Basic Education Project) in the Dominican Republic.

RADECO was the only original IRI project placed in a non-formal context. Programming was developed that presented the entire elementary curriculum condensed into three grade levels (for ages 7-14) in one-hour daily broadcasts, to communities in southwestern Dominican Republic where there are no formal schools.

In late 1986, the RADECO project was incorporated as a permanent unit within the Dominican Republic's Secretariat of Education, after the five pilot-project years showed conclusively that radio students learned at least as much as students who attended rural schools despite the lack of trained teachers and of standard instructional materials. Barahona Province, the original pilot region, still maintains its RADECO communities, receiving broadcasts on a regional station.

Plans are underway for full-scale national use of the *RADECO* broadcasts, expansion of lessons through the first six grades, and adaptation of programming for use in the formal school system. Meanwhile, the unit provides public-interest broadcasting from its studios in an annex of the Secretariat of Education, producing service spots and general education programming for transmission both on the Dominican Republic's national radio network and on commercial stations.

One lesson to be learned from the directions *AVANCE* and *RADECO* are taking is that the adoption of IRI methodology appears likely to lead to revitalized interest in instructional and public-service broadcasting in general, and to the placement of systems and agencies to serve this interest. For people who use the media to promote development, these are particularly gratifying secondary benefits of IRI program development. ■

David Edgerton is the Project Director and IRI specialist for the Honduras Radio Language Arts Project, and was formerly IRI specialist for the Kenya Radio Language Radio Arts Project and for RADECO.

Bolivia

by Michelle Fryer

In 1988, Bolivia will become the ninth country to use interactive radio instruction (IRI) to deliver in-class instruction. This new project will be promoted through community information networks, as is the Honduras Radio Learning Project. It will be managed by *Fe y Alegría* (Faith and Happiness) a Bolivian private-sector organization which administers 195 public schools under contract with the Ministry of Education and Culture. In support of Bolivia's effort to decentralize educational administration, the lessons will be broadcast over local radio stations rather than from a central location.

Earlier this year, *Fe y Alegría* conducted a pilot study to assess the feasibility of using interactive radio to improve the quality of mathematics instruction. The AID-supported Radio Learning Project (RLP) provided technical support throughout the study. The study showed that: 1) Bolivian school children can learn mathematics by interactive radio; 2) the Radio Mathematics curriculum, developed in an earlier program and used for the pilot study, not only meets but expands upon the official Bolivian curriculum; and 3) Bolivian teachers can effectively use the interactive radio lessons in their classrooms with a minimum of training.

Encouraged by these positive findings, The Radio Learning Project and *Fe y Alegría* began working together to adapt the entire interactive radio curricula for mathematics (Grades One through Three) and language (Grade One) – which may be adapted from other successful Latin American Radio Learning projects – for eventual dissemination throughout Bolivia. By the end of the four-year project, it is anticipated there will be: increased access to high-quality instruction at the primary school level; significantly improved teacher ability to instruct in these critical subjects; and more learning opportunities for out-of-school youth and adults.

These expectations stem from one of the critical objectives of the project – to widely disseminate the instructional radio programs. *Fe y Alegría* has had a long tradition of community service and has been particularly successful at organizing grass-roots support for educational innovations. This new project will enhance its institutional capability to mobilize national support for interactive radio programs. ■

Michelle Fryer is an educational specialist with the Education Development Center in Newton, Massachusetts.

Lesotho

by Philip Christensen

Interactive radio instruction (IRI) was introduced in Lesotho to help improve English-language teaching at the primary education level. English-language ability is a critical determinant of future success in school. In a country with one of the highest repeater rates in the world, where fewer than one child in ten finishes primary school successfully and on time, improving the standard of English almost certainly will improve educational effectiveness.

The AID-supported Basic and Non-formal Education Project (BANFES) has been operating in Lesotho since 1985 to improve the efficiency and effectiveness of its primary education system. BANFES first worked with the Curriculum Development Centre to do a small-scale pilot test to ensure that the Radio Language Arts method would work as well in Lesotho as it had in Kenya where it was first tested. Assistance also is being given in implementing the method nationally to support English instruction in Standards (Grades) One to Three following the approved syllabus. The Ministry of Education provides the necessary support staff, while Radio Lesotho guarantees the necessary air time. Scripts are now in the process of being revised and staff are being trained in IRI production techniques at the Instructional Materials Resource Centre. Workshops are being held to instruct teachers how to use the radio lessons.

Meanwhile, actors have been hired and 11 lessons have been recorded in preparation for the start of broadcasts of Standard One classes in January 1988.

The Project has purchased a supply of radios which are sold to schools at a subsidized rate rather than donated outright. Although this innovative program has not yet been officially announced, some schools have collected money from parents to buy the radios, demonstrating that interactive radio instruction will have support both from communities and from teachers. ■

Philip Christensen is the BANFES Technical Adviser for the Lesotho Radio Language Arts Project. He formerly was the Field Coordinator of the Radio Language Arts Project in Kenya.

Radio Learning Project

Papua New Guinea

by Frank Watson and Thomas Tilson

The Radio Science Project is well underway in Papua New Guinea. This first attempt at teaching science by radio requires new techniques for interactive radio, and the project team is now testing ways of expanding IRI to meet these new instructional demands. The following dialogue illustrates some of the exercises students are responding to:

Teacher — Everyone, look at Box Six...You will see a word. The word is written backwards...Partner A, place your mirror on the right side of the word so you can read it in the mirror.

Pause (:04) — Students respond.

Teacher — The word is light. Everyone say: light.

Pause (:02) — Students respond

Teacher — Children, raise your hand if you can answer this next question.

Pause (:02) — Students respond

Teacher — Why aren't there any shadows at night when it's dark?

These brief excerpts from the fourth-grade script on light illustrates some of the new ground being broken by the Radio Science Project. First, the lessons incorporate hands-on materials to a greater extent than previous IRI projects. Usually these are locally available materials such as leaves or stones, but sometimes they include simple equipment such as mirrors. Second, the lessons incorporate some thought-provoking, open-ended questions. While IRI has been extremely successful in getting children to actively participate during the radio lessons, this is the first project to engage them with the use of material objects and to use open-ended questions on a regular basis.

The initial response from children and teachers has been extremely encouraging. During 1988, the Radio Science Project will field test lessons for all of Grade Four. There will be two half-hour lessons each week; twenty minutes for the broadcast and ten minutes for the teacher-led activities. Lessons for Grades Five and Six will be developed during the next two years. ■

Frank Watson is Project Director of Radio Science in Papua New Guinea, and Thomas Tilson is Project Technical Monitor at the Education Development Center in Newton, Massachusetts, which manages this project.

A Communicator's Checklist

1 Distance Higher Education and the Adult Learner, edited by Ger Van Enckerwort, Keith Harry, Pierre Morin, and Hans G. Schutze, (Heerlen, the Netherlands, Dutch Open University, 1986) 228 pp.

This book contains papers presented at a conference held in the Netherlands in 1984 with education experts from industrialized countries where they shared models of distance higher education from their respective countries. Discussions centered on ways distance education could be improved to facilitate the participation of adults in higher education.

Like other compiled publications, this is not an easy book to read. Although the editors have done a commendable job in organizing the papers into a reasonable outline, they are uneven in focus and style. Despite their stylistic inconsistencies, these papers reflect a rich diversity of purpose, organization, and practice of distance higher education, as well as some significant similarities.

This collection is worth reading because it shows the distance learning enterprise in certain key industrialized countries is at a critical juncture in its relatively early history. The composite picture of the distance higher education efforts described in this volume shows that while each has tried through various innovations to overcome barriers surrounding the conventional institutions of higher education in their respective countries, all have fallen short of doing so. The reviewer believes the reason for this shortcoming is that they are still too bound by restrictive models of the educational process perpetuated by conventional universities.

Because much of the world looks to these countries for models of education, their common experience in pioneering experiments of this sort – and especially their common failings – will, in the future, have a profound influence on the attitudes toward and practice of distance higher education throughout the world. Hence, whether the common trends revealed here will continue may well decide whether distance higher education is destined to be more than just a very expensive direction in the history of higher education worldwide, even as new technologies emerge that would radically expand the potential for learning outside the walls of conventional institutions.

Barriers Remain

While the distance education efforts that are described owe their existence to many different intents and purposes, all share the stated goal of providing a "second chance" to adults not previously able to take part in higher education. *On the whole, however, in none of these cases does distance education seem to be extending educational opportunity across barriers that have kept adults from pursuing higher learning in the past.*

The best predictors of the success of a student in distance higher education are the same as those in conventional higher education – former educational attainment and family income. Most students opting for a distance approach to higher education come from well-educated and middle-class backgrounds.

Various reasons are advanced to account for this phenomenon, but one mentioned most often is that to succeed, the student pursuing higher education at a distance has to be even more motivated than the student on the university campus because guided independent study is an isolating experience. This is so even though most of the approaches to distance education represented in these papers provide for study centers where students can go for tutoring, studying in groups, and socializing with other students.

As as result, distance education programs described in this volume (England, the Netherlands, Germany, Portugal, Spain, Yugoslavia, Japan, Canada, and the U.S.) have been plagued by a high drop-out rate. While accurate figures are not available, those who are most likely to drop out – or not make the attempt at all – are probably those who found it difficult to participate in higher education in the first place.

"Second-Chance" Students

Some educators who originally looked to distance learning as a way to provide a "second chance" to needy adults have begun to doubt its capacity to do so. This skepticism underlies the following passage from this volume, which reflects a common sentiment. "The second-chance students often prefer more social contacts with fellow students and with tutors. They are newcomers to the academic game, they have not learned to be successful with new media and to be successful receivers of messages. They associate TV and video with leisure and passive reviewing rather than active learning." This commentator implies here that adults in need of a second chance may be better served in the learning environment afforded by the conventional classroom than by distance methods. In so doing, he casts doubt on the potential of distance learning in general, rather than questioning the efficacy of the particular approach to distance learning on which he bases these observations.

Many distance educators have failed to question whether the distance education approaches to higher education represented in this volume differ from the conventional on-campus approaches in ways that would rectify the deficiencies of the conventional approach to serving the "second chance" adult. I submit that the approaches to distance education typical of those described in the book do not differ in at least one fundamental way: like most conventional institutions of higher education, they have relied on a model of the educational process whereby what is taught flows one way – from teacher to student.

One striking similarity among the approaches described in this book is the predominance of print as the primary means of delivering instruction. To make up for the lack of classroom discussion, the print materials used in these programs are carefully designed, often by an interdisciplinary team consisting of subject matter experts, educationalists, and media specialists.

Despite, or perhaps because of this rather complicated development process, the product is often so structured, so concerned with efficiency in delivering the material, that it is sterile, lacking the personality a lively rendering by a teacher and lively discussion among teachers and students would permit.

Alternative Technololgies

Audio, visual, and other types of text and graphics media delivered through various telecommunications and computer technology, if they are used at all, are used mainly to reinforce and supplement the central teaching medium, the printed correspondence text. Experiences in the use of broadcast TV and radio have convinced many providers of distance learning that these delivery systems are almost without value in teaching adults. Such critics often cite the difficulty of scheduling broadcast time, the high cost of producing and airing the materials, and the lack of opportunity for feedback with one-way TV and radio. To a certain extent, the first two concerns have been mitigated by the greater availability and affordability of technologies such as videocassettes and players and direct broadcast satellite.

Even given these and other technological advances, there is no denying that, at least for the near future, broadcast TV and radio communication are primarily one-directional. However, there are no better reasons to exclude audio and video from the educational process than to do away with print. Beyond the potential of these media for conveying rich, multi-dimensional meaning, there is the reality that more and more of the world learns about the world through TV and radio.

(*Continued on page 10*)

Expanding Telephone Service in Rural Brazil

by Greta S. Nettleton

Recent applications of satellite technology are helping to expand the availability of telephones in rural areas of many developing countries. Brazil's new telecommunications satellites, Brasilsat-1 and -2, exemplify how this new technology can reduce the isolation of rural populations by enabling the establishment of telephone services in selected communities throughout the country. Other "entrepreneurial" telecommunication initiatives are also proving quite popular among rural residents in providing telephone linkages where government-sponsored services have not yet been installed.

Expansion of rural telephony in Brazil has been a priority since the beginning of the decade; over 10,000 municipalities, districts, and villages now receive some type of service. In urban areas, there is a program of popularizing phone service by making it available to poor neighborhoods, that has made some progress as well. In 1985 and 1986, gains were made in the number of public street phones, semi-public phones located in shops or restaurants, and community exchanges serving up to 100 subscribers – although the porportion of users to the total population is still very small.

Economics of Telephony

Cost of service is the main factor impeding the expansion of rural telephony. While urban users enjoy lower tariffs because of high usage and favorable geographical location, poorer areas that are further from commercial centers must pay much higher fees for comparable telephone service. This is true of infrastructure costs as well; in order to have a private line, rural customers must help to pay for the capital invested in the radio links that connect them to the system as well as the basic service and tolls (the charge per telephone call). In the isolated Amazonian and west-central regions of Brazil, tolls are extremely high because they are so far from service centers. The total cost of phone service can be prohibitive even for relatively wealthy ranchers who would like to install radio links to their ranches.

This disparity between rural and urban telephone service is also evident in telephone company revenues. Lesser-used rural telephone service is seldom profitable, requiring subsidies from profitable urban areas or outside funding sources to finance the installation and operation of remote telecommunications equipment.

Another economic factor is the high cost of maintaining equipment because of the tropical climatic conditions typically found in the jungles of northern Brazil. Electronic equipment is especially vulnerable to high temperatures and humidity. Unfortunately, the equipment used in this region has not been specially climatized and has a much shorter life than if operated in a more temperate climate such as São Paulo.

Brasilsat is Established

In 1985, the government set forth as national policy the expansion of rural telecommunications to be accomplished using transmission capacity of the new Brazilian satellite. With this national policy – and the two satellites – in place, public and private telephone service is now possible thanks to Brasilsat. On October 1, 1987, Brazil's President José Sarney dialed São Gabriel, a town 2,000 miles to the north, and inaugurated the ten thousandth Brizilian town to be plugged into the country's telecommunication system.

In a typical rural public telephone installation, a town of five or six hundred people is chosen as an official development site. *Telebrás*, the state-owned telephone monopoly, installs a six-meter dish and a small-scale local telephone system. A public telephone office is usually established – rather than an automatic exchange with private lines – to make the service more accessible to the entire population. Because public telephone service requires the presence of an operator to place all calls and to collect the charges, such an installation is only practical in areas already showing signs of development and the potential for relatively high usage in order to ensure its success.

Private installation sites are also placed where development is apparent – at remote mining or agribusiness centers, for instance. A mining company in Rio do Norte in the state of Pará sponsored an internal telephone system in a mining village of 6,000 and linked it to a local exchange. The *Telebrás* subsidiary, *Telepará*, which serves the state of Pará, then installed a 24-channel UHF radio link from Rio do Norte to Santaraam, a larger town with a better-developed telephone system, where the calls are uplinked to the satellite for domestic traffic or sent via line-of-sight microwave to the satellite uplink in Rio de Janeiro for overseas calls.

An Alternative Service

Establishing rural telephone services in this manner can be costly and slow – a customer may wait up to two years for a telephone line. Consequently, an interesting informal telephone system has emerged to meet the rapidly growing demand. This "parallel" system is offered by enterprising river dwellers who service remote mining and prospecting fields that are not operated by large corporations. Miners in these isolated settlements need the same international commodity price information on minerals found in the area as the large corporations, and are willing to spend a considerable portion of their meager resources to get it. They also want to keep in touch with their families who live far to the south.

To provide this telephone service, a local entrepreneur registers an old riverboat with the national Port Authority in Manaus, installs a UHF radio, and anchors his floating telephone offices in one of the numerous waterways of the Amazon near a mining community that also has a UHF radio. A radio link can then be established via the riverboat between the community and Manaus, where a Mobile Marine System coastal station attends to ocean vessel telephone traffic and relays messages. Remote villages situated near the river are also welcome to use this informal telephone service. The total cost of such a system is about US$3,500 per boat.

This enterprising operation has proved so popular that the air waves have become clogged with miners' and villagers' conversations and have caused overcrowding on the Mobile Marine System that has traditionally served only ships.

Conclusion

It is too early to know what the long-term effect of Brasilsat will be on the overall expansion of rural telephony. Because the high cost of establishing ground facilities is likely to limit the expansion of satellite-assisted telephone service, inexpensive telephone services such as the riverboat system should be examined as an alternative to meeting this growing need for expanded telephone service for rural Brazilians. ■

Greta Nettleton is a consultant in international telecommunications. She lived in Brazil for a year to research its telecommunications activities.

Cornell's Communication Workshop

Cornell's Department of Communication will offer its eighth annual Communication Planning and Strategy (CPS) program from June 5 to July 1, 1988. CPS is designed for managers, project directors, decision-makers, and other key officials in government and private sector agencies whose operations depend heavily on communication for success.

Eight partial scholarships are available to African applicants through the Cornell University African Development Program. For information contact: Dr. Royal Colle, CPS-88, Department of Communication, Cornell University, Ithaca, New York, U.S.A. 14850.

(**Hubley** *continued from page 12*)
over many teaching sessions a day, and the slidetape presentations give the facts and conserve the field worker's energy for stimulating follow-up discussion.

Video, a much cheaper medium than film, is particularly valuable for producing locally relevant programs. The medium was ideally suited for showing the different stages of latrine construction. We used the professional video production and editing facilities in the Ministry of Education to produce a 20-minute introductory program "Mathabo Builds a Latrine" in which our staff acted out the process of counseling a client, Mathabo, on the best way of building a latrine and then showing the different production stages. We have started using a simple video camera to produce less sophisticated programs and even these attract a good deal of attention, and are good starting points for lively discussions.

Print media developed to date include information leaflets that reinforce the one-to-one advice sessions and posters and wall charts. Now that health workers and teachers have begun to take an interest in sanitation and hygiene, we are starting to develop a wider range of print materials such as flip-charts that can be used in their health education activities within the community.

In developing learning resources, our aim has been to try to use as many local resources as possible. While assistance was initially provided by Britain through a health education consultant, our own staff was fully involved in the planning, script-writing, and acting. Two staff members received health education specialist training in Britain and have returned to help produce radio programs and to develop school curricula and learning materials.

Conclusion

Although the urban sanitation program in Lesotho is still in its early stages, the VIP latrine is already well established in Lesotho's cities, and over two thousand are in place. Much of the success of our work has been due to the emphasis we place on health education and communication support which has enabled a small team to make a significant impact. The lessons learned in the early work have now been put into practice in a recently established Rural Sanitation Project. Furthermore, an integrated national program for sanitation improvements is now being developed with health education and communication support as an essential component. ■

Dr. John Hubley is Senior Lecturer in Health Education at Leeds Polytechnic, Calverley Street, Leeds LSI 3HE, United Kingdom; Thabo Khaketla is Urban Sanitation Coordinator and Barry M. Jackson is Urban Sanitation Adviser at the Urban Sanitation Improvement Team of the Ministry of Interior, Private Bag A41, Maseru, Lesotho.

Characteristics of Effective Health Education

- Promotes actions which are realistic and feasible within the constraints faced by community.
- Builds on ideas, concepts and practices that people already have.
- Repeats and reinforces information over time using different methods
- Uses existing channels of communication such as songs, drama and story-telling, and is adaptable.
- Entertains and attracts the attention of the community.
- Uses clear, simple language with local expressions and emphasizes short-term benefits of action.
- Provides opportunities for dialogue and discussion to allow learner participation and feedback on understanding and implementation.
- Uses demonstrations to show the benefits of adopting practices.

Reprinted by permission from Waterlines, *Vol. 5, No. 3, January 1987.*

(**Jenkins** *continued from page 8*)
The one-way nature of these delivery methods only means that those who develop media for delivery by means of them must do so with care. More important, when these delivery methods are used in distance learning, other means must be made available to make possible feedback and discussion from and among the students.

Besides failing to realize the full potential of broadcast technologies, in general, these programs have not taken advantage of interactive technologies that facilitate communication between teacher and student and among students themselves. These are not necessarily new, costly technologies such as direct broadcast satellites or fiber optic networks, but rather ones like the telephone that are becoming more readily available even in nonindustrialized countries.

Once a good telephone system is in place, it takes a relatively small investment to make possible even more responsive and convenient two-way communication with the aid of computers. As the author of the last paper in the volume aptly suggests in his concluding paragraph, even in 1984, the barriers to using computers in distance education were not mainly technical or even economic; today they have become less so. "People are predicting that in a few years the computer will become as indispensable as a tool for business communication as is the telephone today. That will occur when the system becomes as easy to use as the telephone and the costs in relation to the benefits are reasonable. Whether or not this tool will play a significant role in education is not easy to predict. It has the potential to do so, but so do other technologies, and yet the vast bulk of instruction the world around is still provided through books and teachers talking while students listen."

Unaddressed in these discussions was the potential for telephone-based audio conferencing for distance education – a technology that is increasingly frequently found both in the U.S. and abroad.

The paper by Ian Morrison, director of a Canadian association for adult education, warrants careful reading. He cautions his colleagues in higher education not to be too uncritical of distance education. I would extend his caution by adding that we not be too uncritical of higher education in general. Of course we need to be more critical of the means and media by which higher education are delivered at a distance, but we also need to scrutinize the content of what is delivered. The *content* of distance education is all but ignored in this volume. Granted the theme was to focus more on the organization and delivery of distance education, but given the concern repeatedly expressed over the problem of motivating the adult student, it would seem that the content of distance education, and the relevance of this content to adult students, should have been of greater concern to the authors. Indeed, some of the most successful uses of distance learning for teaching adults have shown a preeminent concern for the content of education and only a secondary concern for the methods of delivery. ■

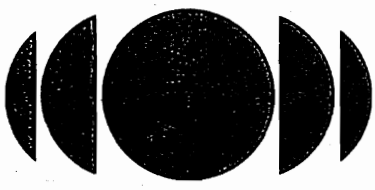
Available for US$21.50 plus postage from Longwood Publishing Group, Inc., Wolfeboro, New Hampshire 03894, U.S.A.

Reviewed by Davis Jenkins, Director of Research, Carnegie Foundation for the Advancement of Teaching, Adult Learning Project, Academy for Educational Development, Cambridge, Massachusetts, U.S.A.

Congo Radio Project Receives Rural Communication Prize

The 1987 IPDC-Unesco Rural Communication Prize was awarded to the Rural Radio Project of the People's Republic of the Congo. For the past ten years, radio programs have been broadcast in indigenous languages to help rural people improve their literacy skills, learn management and marketing techniques, and to train trainers. These programs have led to considerable progress in the establishment of self-sustaining development activities in agriculture, education, health, and social organization.

The Rural Radio Project was implemented by the Congolese Government with assistance from the Friedrich Naumann Foundation of the Federal Republic of Germany and the Food and Agriculture Organization of the United Nations.



(**Verhagen** *continued from page 5*)

receiving us; apparently a transponder was not available for us at that time. But then, just as the San Francisco host was finishing his introduction to our site, we gained access to our satellite transponder. The program switched over to us at that instant and we saw ourselves on the large screen, accompanied by cheers and applause from everyone in the State House audience! There were standing ovations at all the sites as the images of the six leaders being honored appeared on the screens simultaneously.

As we dismantled the system the following day, I found it hard to believe that our work was finally over. What a tremendous challenge it had been, bringing together such widely separated geographical locations representing such diverse cultures. Thanks to modern technology and cooperation at the personal and national levels, the challenge was met. ■

Paul M. Verhagen is an audio engineer at WCET, the Public Broadcasting Service affiliate in Cincinnati, Ohio, U.S.A. In 1985 he worked for three months as a short-term missionary in Nairobi, Kenya.

Briefly Noted

This column usually is reserved for short reviews of publications that the Clearinghouse feels our readers would like to know about. Recently, we have received so many interesting publications that we have prepared a list to share as many of them as possible with you. We hope you find some useful items among them to help you in your work.

A Manual For Trainers: Training in Basic Television Production and Technical Operations, Government of India. Development and Educational Communication Unit, Government of India, Ahmedabad 380 053, India

Annotated Bibliography and Resource Guide for Health Development Workers, MAP International, US$4, Learning Resource Center, MAP International, Box 50, Brunswick, Georgia, 31520, USA.

Appropriate Media for Amateur Trainers, Training Tips No. 606, UNDP Asia and Pacific Programme for Development Training and Communication Planning. For this and other DTCP publications contact: Publications Editor UNDP/DTCP, P.O. Box 2-147, Bangkok 10200, Thailand

Course Development: A Manual for Editors of Distance- Teaching Materials, Janet Jenkins. International Extension College, Commonwealth Secretariat, £10 (£7 LDC), International Extension College, Office D, Dales Brewery, Gwydir Street, Cambridge CB1 2LJ, United Kingdom, Telephone: 0223- 353321

ULCRA Newsletter, (Latin American and Caribbean Broadcasting Union newsletter). Published monthly by ULCRA, P.O. Box 213-2120, San Francisco de Guadelupe, Costa Rica.

International Directory of Development Journalists. Published by Development Forum/DESI, United Nations, DC1-559, New York, New York 10018, USA, Telephone:(212)754-1544

Portapak Production Techniques, Wayne Levy. Asian Mass Communication Research and Information Centre, 39 Newton Road, Singapore 1130, Republic of Singapore

Reporting Africa: A Manual for Reporters in Africa, Don Rowlands and Hugh Lewin. Thomson and Friedrich Naumann Foundations, £5, Friedrich Naumann Foundation, P.O. Box 1636, Harare, Zimbabwe

URTNA Family Health Broadcast Programme Catalogue (No.1, 8/87), Union Des Radiodiffusions Et Televisions Nationales D'Afriques. Published by URTNA/PEC, P.O. Box 50518, Nairobi, Kenya, Telex: 22675 URTNA

Vacciner Au Quotidien, République de Djibouti Ministère de la Santé. Publique et des Affaires Sociales, Agence de Coopération Culturelle et Technique, Agence de Cooperation Culturelle et Tech, 13, quai André Citroën, 75015 Paris, France, Telephone: 575-62-41

14th World Conference on Distance Education

The 50th International Council for Distance Education (ICDE) World Conference will be held in Oslo, Norway, August 9 - 16, 1988. The ICDE is an association of educators and educational organizations who support the aims and methods of distance education throughout the world by promoting and funding research and scholarly publications, facilitating communications and information exchange, and organizing conferences and workshops.

The Conference will provide a platform for such themes as the economics of distance education, communications technology, continuing education, women in distance education, and national development.

The final date for registration is April 1, 1988. For registration forms write to: ICDE Conference Office, P.O. Box 2100 Grünerløokka, N-0505 Olso 5, Norway. Telex: 72400 FOTEX N, attn. NADE OSLO.

Call for Manuscripts

CHASQUI is a Spanish-language quarterly published by the International Center of Communication Studies for Latin America (CIESPAL) in Quito, Ecuador. Each issue is devoted to a particular subject ranging from alternative and popular communication to technological and pedagogical innovations to communication and development.

CHASQUI invites submissions from all countries. To the extent possible, the content should be related to contemporary Latin American communication affairs. Manuscripts should be submitted in duplicate. *CHASQUI* will also consider previously published articles that have been translated into Spanish. Send your submissions to Dr. Howard Frederick, School of Telecommunications, Ohio University, 9 South College Street, Athens, Ohio 54701. Phone: 1-614-593-4867. Email: CompuServe 72746.3111 or PeaceNet hfrederick.

Information Helps Urban Lesotho Tackle Sanitation Problems

by John Hubley, Barry Jackson, and Thabo Khaketla

Lesotho is a small, land-locked mountainous country in southern Africa with a population of 1.6 million. The health profile of the population is dominated by gastro-intestinal and parasitic infections including endemic diarrhea and typhoid. Tuberculosis, influenza, measles, and malnutrition, are all common.

The World Health Organization has claimed that 80 percent of the sickness of the world is related to water and sanitation: this global picture also applies to Lesotho.

There has been an active water supply program in Lesotho communities dating from the early 1970s. Evaluations of health impact on communities showed that improving water supplies was not enough and emphasized the importance of linking water supply programs with the introduction of sanitation and basic hygiene education.

There is an urban population of 168,000 distributed between the capital, Maseru, and thirteen smaller towns. Like many developing countries, Lesotho has experienced a growth in the urban population. With families forced to live in confined spaces, sanitation has become even more important. The quality of sanitation in schools was poor and crowded public places such as bus stations and markets had rudimentary facilities. A survey showed that only 22 percent of the urban population had adequate sanitation. Sixteen percent have no sanitation at all and use increasingly contaminated spaces around their homes.

The Urban Sanitation Improvement Team (USIT) was established to meet this important need for sanitation. USIT only had a small team of engineers and community staff based at Maseru to tackle this massive problem. A way had to be found to create maximum impact using a small group of people.

One of the first priorities was to develop appropriate latrine designs that were effective, affordable, and culturally acceptable. Neither bucket latrines nor ordinary pit latrines are effective for safe disposal of disease producing organisms. High status is attached to the water flush latrines but their cost, heavy water use, and high level of maintenance made them inappropriate. Instead, the Ventilated Improved Pit Latrine (VIP) was adapted from Zimbabwe and modified for the Lesotho culture by adding seats and introducing a door.

Building Latrines was Not Enough

Our monitoring and evaluations showed that the program would have to extend well beyond promoting construction of latrines to include various health education components such as encouraging regular use of latrine facilities and promoting other hygiene practices.

Children were not always using the latrines – either because they were afraid to, or the latrines were kept locked. Our latrine program would have little impact on diarrhea if it did not ensure that the feces of young children were safely disposed of. A particular problem was the maintenance of latrines in public and institutional settings such as in schools.

Preliminary data on housing projects showed that even in situations when all homes had VIP latrines there was still diarrhea and the clean water supply was often contaminated by the time it was drawn from the water storage containers in the home. The importance of a range of hygiene measures including hand washing, food preparation, and water storage became clear. Additional health measures such as breastfeeding, oral rehydration therapy, and immunization were needed to ensure full health benefits from improved sanitation even though these were the responsibility of other government ministries.

"... the World Health Organization has claimed that 80 percent of the sickness of the world is related to water and sanitation: this... also applies to Lesotho."

A Health Education Strategy

An extensive health education and communication component was needed to complement the technical activities. We had to find ways to maximize the impact of our small team by mobilizing agencies and field workers who were already working with communities and could help us promote sanitation and hygiene. The strategy adopted included:

- developing a latrine design, building materials, emptying technology, etc. that were affordable and acceptable;
- involving numerous groups to support our work and carry out health education with latrine builders, teachers, etc.
- using our field staff to survey communities and promote a network of teachers, health workers, and demonstration latrines;
- using radio to explain the VIP latrine and to identify builders who were trained to construct the latrines;
- involving agencies in Lesotho in the production of leaflets, posters, slidetape programs, and video to support these activities.

Another strategy to increase the visibility of the latrines was to work directly with individual families and establish a series of highly visible demonstration latrines. A simple diffusion process was set into motion when families would hear of the VIP latrine over the radio or from neighbors and could either contact our office for information or go directly to a local builder.

Involving the Health Workers

Another priority task has been to incorporate the promotion of sanitation and hygiene into the emerging urban primary health care structure, composed of nurses, health inspectors, health assistants, and village health workers.

While a great deal of our learning materials for the general public are appropriate for health workers, we have also prepared a special training program. This consists of three slidetape productions which describe the links between feces and disease; the different modes of transmission through water, fingers, flies, and food; the use and maintenance of the VIP latrine; and child care and hygiene measures required for the prevention of childhood diarrhea. These slidetape sets are organized for use in three separate sessions and are accompanied by a series of introductory questions and activities to promote active discussion and dialogue.

Communication Support Activities

Initially, our field workers were spending valuable time meeting with local officials, teachers, health workers, and community groups, so the development of an extensive range of learning resources was an essential part of the health education strategy to supplement our limited numbers. A range of audiovisual materials was needed to explain the links between water, sanitation, and disease and the how our team could work with them.

In selecting learning resources we chose those that were affordable, simple, flexible, capable of arousing interest, and generating discussion. All materials were produced in the national language, Sesotho, as well as in English. Our staff produced a number of spot announcements and drama programs for radio – a useful way of spreading simple information to the general public. Although video and slidetape programs require specialized production and viewing equipment, the expense has been justified through extensive use.

Slidetape programs are easily updated and modified to suit local audiences. However, the integrity of the message remains constant

(Continued on page 10)

MAY 2 1988

Development Communication Report
Clearinghouse On Development Communication
dcr
1988/1
No. 60

Sharing Health Materials and Information in Developing Countries

by Roberta Ritson

A promising sign of growing self-reliance in developing countries has been the recent emergence of intercountry networks of collaboration on training materials for the health sector. A number of developing countries are working together to share staff, equipment, and consultants to produce their own health training materials.

The lack of appropriate and relevant teaching and learning materials for primary health care staff in developing countries is one of the most serious barriers to health development. Where teaching materials for health care staff do exist, they are often out of date, of poor quality, or are not relevant to the local health care situation. In addition, many have been adapted or translated from texts prepared in another country. Training materials for primary health care staff are best developed in the country where they will be used so they reflect the local language and culture. There are also differences in educational levels and in the types of tasks performed in a country's health care system that must be considered.

Program Objectives and Structure

More than twenty countries are now participating in the Interregional Health Learning Materials (HLM) Programme which is coordinated by a central clearinghouse in the Division of Health Manpower Development at the World Health Organization (WHO) in Geneva, Switzerland.

The Interregional HLM Programme has two primary objectives: to enable developing countries to produce their own relevant teaching, learning, and promotional materials for their national health care staffs; and to encourage interregional sharing of scarce resources, and to promote the exchange of materials and production experiences.

For national HLM projects to operate effectively on a long-term basis, they must be well integrated into a national ministerial infrastructure or face possible collapse when financing is withdrawn. Therefore, HLM projects are usually located within a ministry of health or education in participating countries, or within a university-level institute of training in health sciences.

A Central Clearinghouse in Geneva.

Supporting this in-country activity is a central clearinghouse on health learning materials in Geneva, which serves as a focal point for the collection and dissemination of information on training materials, specialized consultant services, and technical advice. It also coordinates intercountry exchanges of

(*Continued on page 5*)

Wilbur Schramm: An Appreciation

Readers of the *Development Communication Report* lost a friend and an intellectual forebear on December 27, 1987, when Professor Wilbur Schramm passed away at the age of 80. Wilbur Schramm was the father of communication research as an academic discipline, founding the communication research institutes at the University of Illinois and then at Stanford University. In doing so, he molded modern communication research into its multidisciplinary nature, drawing together the various communication arts practitioners. He showed that our understanding of communications could, in fact, be based on scientific study; communication became one of the human sciences.

In the early 1960s, Wilbur began to generate a vision of how communication technologies could be used in the service of newly developing countries. His seminal book, *Mass Media and National Development*, 1964, inspired people everywhere to think seriously about how communications could be used by people in the emerging nations to bind diverse societies into functioning, cooperating wholes; to educate; to train. He challenged leaders to see that communications could transcend the limitations of social and geographic isolation. That vision inspired the work of many, the author included.

From the late 1960s onward, I had the privilege of working with Wilbur Schramm in developing and funding, through the Agency for International Development (A.I.D.), a program of activities designed to lay a foundation for the future of development communication: case studies on the new educational media; evaluations of the pivotal instructional broadcasting projects in Samoa and El Salvador; policy studies of educational satellite potential in India; and research for the influential volume, *Big Media, Little Media*. In all these efforts, Wilbur Schramm showed that he was a tough-minded visionary, able to clearly see the practical limitations of many innovative efforts while distilling what could be learned to make subsequent success more probable.

(*Continued on page 2*)

Reader Survey Inside!

It has been nearly four years since we last asked our readers to complete a survey questionnaire. In this era of rapid change, that is a long time. We think it is time again to ask you about *DCR*: Is it meeting your needs? What changes or additions would you like to see? So, please, take a few moments to fill it out (it's only one page); then fold and return it to us via Air Mail if at all possible.

Thanking you in advance for your cooperation.

Kathleen Moran, Editor

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Sharing Health Materials 1
Schramm Tribute 1
Reader Survey 3
Mass Media and National Development in Nigeria 6
Tuning In: RADECO 7
A Communicator's Checklist 8
Briefly Noted 10
Listening and Questioning: Two Ways to Improve Messages 11
Listen Then Plan: A Focus Group Approach 11
Preparing a Pretest Questionnaire 12
Surveys—A Different Picture 13
In-country Certification for Swaziland Communicators 15
Un Nuevo Centro Uruguayo Dedicado a la Comunicación 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Patricia Simons, Information Specialist
Janice Stallard, Program Assistant

ISBN0192-1312

AED

Academy for Educational Development

(**Schramm** *continued from page 1*)

His respect for hard data was something I particularly appreciated; it was a respect that arose from a belief that we could develop communication as a serious tool for serving human aspirations only if we looked objectively at its effects on human beings, their learning, their behavior, their attitudes, and their social organization. Neither dreams nor careful plans of social planners were enough. People used and related to the new communication media in unexpected ways, which needed to be clearly observed and understood. The stream of research that was undertaken has served a central role in both demystifying and legitimizing the usefulness of the media for achieving major social undertakings.

Dr. Schramm was a superb writer, one who could describe research and its policy implications in a remarkably vivid, human way. (He had been a reporter and was the first director of the famous Iowa Writer's Workshop at the University of Iowa.) Those qualities also underlay his enormous contribution to the teaching of a generation of development communication specialists. With them, we at A.I.D. were able to create the intellectual infrastructure needed to make development communication a field. Through A.I.D. grants that culminated in the establishment of a master's program in development communication at Stanford University, these efforts attracted, trained, and nurtured such leaders in the field as Emile McAnany, John Mayo, Robert Hornik, and later Heather Hudson, Dennis Foote, Bella Mody, as well as scores of other superb scholars and practitioners throughout the world. After retirement from Stanford University in 1973, Dr. Schramm went on to more than a decade of continued writing and teaching at the East-West Center's Center's Institute of Culture and Communication in Honolulu, Hawaii, touching and training many others. Through these people and through his books, the fundamental contribution of Wilbur Schramm lives on and increasingly enriches our field and our lives.

Thank you Wilbur, well done. ■

Dr. Clifford Block
Associate Director for Educational Technologies and Communication,
Office of Education,
Bureau for Science Technology,
Agency for International Development

XIII World Conference on Health Education

The International Union for Health Education will hold the XIII World Conference on Health Education from August 28 to September 2, 1988 in Houston, Texas, U.S.A. The conference theme, "Participation for All in Health," further develops four sub-themes: involving people and communities; supporting community access; involving all relevant practitioners; gaining intersectoral support. The program includes papers, workshops, special interest groups, and networking sessions. A major exhibit will feature international state-of-the-art health education products, materials, and scientific exhibits.

For more information contact Dr. Judith Ottoson, Executive Director, International Union for Health Education, P.O. Box 20186, Suite 902, Houston, Texas 77225, U.S.A.

Clarification

In *DCR* No. 59, the article *Expanding Telephone Service in Rural Brazil,* by Greta Nettleton, carried an incorrect description of the riverboat telephone system. UHF radios are not placed in villages; instead, radios are installed on riverboats which people embark and make their telephone calls. Also, in describing the cost of telephone service for Brazilian ranchers, a sentence was omitted that compared satellite telephone systems to typical radio links to demonstrate that an individual satellite telephone system would cost ten times that of a radio link, putting it out of reach of even relatively wealthy ranchers. We regret these errors of omission and interpretation.

Conference on Education and Development

The Southeast Asian Ministers of Education Organization Regional Center for Educational Innovation and Technology (SEAMO/INNOTECH), the Southern Illinois University at Carbondale, and the University of South Carolina are sponsoring a conference in which the roles of education in development will be examined. Practitioners in educational development, rural education, distance learning, and low-cost instructional planning are being invited to participate.

The conference will be held November 16-19, 1988, in Manila, Philippines. For further information contact the Director, INNOTECH, P.O. Box 207, University of the Philippines, Diliman, Quezon City, Philippines or the Dean, School of Technical Careers, Southern Illinois University, Carbondale, Illinois 62901, USA.

Clearinghouse on Development Communication

Development Communication Report

dcr

(Please ignore the numbers in parentheses beside the boxes, they are for our coding purposes only.)

READER SURVEY - 1988

Each question indicates the number of boxes you are asked to ☑ check.

1. In which field do you do most of your communication work? (☑ one box only)

- ☐ population (1)
- ☐ agriculture (2)
- ☐ health (3)
- ☐ education (4)
- ☐ nutrition (5)
- ☐ telecommunications (6)
- ☐ other _____ (7)

2. Check the box that best describes you. (☑ one box only)

- ☐ Project staff (1)
- ☐ Consultant (2)
- ☐ Academic (3)
- ☐ Information manager (4)
- ☐ U.S.A.I.D. staff (5)
- ☐ Government official (6)
- ☐ Other _____ (7)

3. Where do you conduct most of your work? (☑ as many as appropriate)

- ☐ Africa (1)
- ☐ Middle East (2)
- ☐ Asia/Pacific (3)
- ☐ Caribbean/South America (4)
- ☐ Mexico/Central America (5)
- ☐ Europe (6)
- ☐ U.S.A./Canada (7)
- ☐ Other (8)

4. How do you read the DCR? (☑ one box only)

- ☐ Thoroughly (1)
- ☐ Selectively (2)
  If so, what type of articles?
  _____
- ☐ Add to a collection for others to read? (3)

5. Approximately how many other people read your DCR? (☑ one box only)

- ☐ none (1)
- ☐ (1-5) (2)
- ☐ (6-10) (3)
- ☐ (11-20) (4)
- ☐ (over 20) (5)

6. Have you used DCR in any of the following ways? (☑ as many as appropriate)

- ☐ Project design and evaluation (1)
- ☐ Teaching/research (2)
- ☐ Preparing for professional meetings/seminars/conferences (3)
- ☐ Ordering publications/ requesting information (4)
- ☐ Reprinting articles (5)
- ☐ Other: _____ (6)
  _____

7. Did you ever use a specific idea from the DCR or suggest an idea to someone else who used it? (☑ one box only)

- ☐ No (1)
- ☐ Yes If yes, please briefly describe the idea. (2)
  _____
  _____

8. Would you like to see DCR: (☑ as many as appropriate)

- ☐ Continue to provide articles on specific communication strategies? (1)
- ☐ Continue to cover technology applications? (2)
- ☐ Alert readers to new communication issues? (3)
- ☐ Be expanded? (4)
- ☐ Have more pictures/graphics? (5)
- ☐ Be translated into? _____ (6)
- ☐ Include a new section about? _____ (7)
- ☐ Other suggestions (Please use back flap) (8)

9. Do you find the English in the DCR: (☑ only one)

- ☐ Quite easy to understand? (1)
- ☐ Somewhat difficult to understand? (2)
- ☐ Very difficult to understand? (3)

YOUR PARTICIPATION IS IMPORTANT !

PLEASE COMPLETE THE SURVEY AND RETURN, VIA AIR MAIL, AS SOON AS POSSIBLE.

THE RESULTS OF THIS READER SURVEY WILL BE PUBLISHED IN A FUTURE EDITION OF *DCR*.

THANK YOU !!

SECOND FOLD

From:

AIR
MAIL

Kathleen Moran, Editor
Development Communication Report
Clearinghouse on Development Communication
1255 23rd Street, N.W.
Washington, D.C. 20037, USA

FIRST FOLD

We welcome your comments and suggestions:

(**Ritson** *continued from page 1*)

staff for training in special skills such as printing, illustration, or microprocessing techniques for the preparation of texts.

For example, the clearinghouse arranged for the Tanzanian HLM project manager, who has several years of experience in HLM development, to advise the Ugandan Ministry of Health on how to plan and develop its national HLM project. The clearinghouse also coordinate workshops in developing countries to train people in production processes using locally available materials and resources (see photo).

Information materials for the community must be developed with local needs and conditions in mind. (WHO photo by P. Almasy)

Promoting Intercountry Collaboration

Establishing in-country expertise in materials development is a difficult task on its own. But, when one developing country works with another on common concerns, the difficulties can be even greater. Whereas technical cooperation among developing countries has existed for a long time, practical examples of effective intercountry networking are not easily recalled. One such activity initiated by WHO's Geneva clearinghouse was a two-week intercountry workshop for writers and editors of training materials for health workers held in Rabat, Morocco, in 1986, attended by French-speaking health staff trainers from Benin, Mozambique and Rwanda, and staff from the Moroccan Ministry of Health.

Using Computers

Countries participating in the Interregional HLM Programmes are being equipped with compatible microcomputers and are beginning to exchange training materials texts on diskettes for adaptation purposes. In order to share materials and information, a reliable transfer system must be available and microcomputers equipped with word processing software represent an ideal technology for this purpose. It permits rapid and accurate exchange of educational materials that can be modified to include local references and culturally relevant illustrations.

As part of the ongoing network activities some countries are undertaking research projects on such topics as the development of training curricula to ensure their relevance to professional tasks, and the uses of distance education to train rural health staff. Recently, a joint research project has been proposed between Benin and Rwanda to investigate the use of training materials for different levels of health workers. Such research benefits not only the institutions or countries involved, but, if published and disseminated, can make a significant contribution on a regional level as well.

Exchange in Action

Exchanging information on the production of national training materials has focused primarily on four main language groups: the English-speaking network, the francophone group, the Portuguese-language countries in Africa, and the Arabic network. Country project managers in the English network in Ethiopia, Kenya, Sudan and Tanzania have already met at a training workshop in Nairobi to share materials and experiences.

A network of African countries is collaborating on Portuguese-language training materials which are urgently needed for all levels of health personnel in Angola, Cape Verde, Guinea-Bissau, Mozambique, and São Tomé and Principé. The Mozambique HLM project in Maputo was host in May 1987 to a meeting of representatives from other Portuguese-speaking ministries of health, which established intercountry contacts to share materials, and also launched a similar project in Guinea-Bissau.

The Arabic-speaking network is developing in the WHO Eastern Mediterranean Region. A recent meeting on Arabic-language teaching and learning materials for health workers held in Damascus in July 1987, brought together participants from ministries of health and training institutions in Bahrain, Jordan, Lebanon, Morocco, and Syria. At that meeting, four areas were selected for intercountry collaboration: school health; health education for primary health care workers at the community level; information, education, and communication for middle and lower level nurses and health inspectors in training; and continuing education for middle level health staff in environmental health. These programs will be organized and coordinated through the HLM clearinghouse at WHO regional headquarters in Alexandria, Egypt.

The Emergence of Lead Institutions

As intercountry activities develop, a lead institution emerges for that region as coordinator for health learning materials. This lead institution usually has a well-established HLM unit with relevant experience in the field and access to a production facility. The institution initiates network activities such as workshops and meetings, or acts as a clearinghouse for information materials and training manuals in the region.

In Kenya, the College of Health Professions in Nairobi acts as a lead institution for HLM projects in Ethiopia, Kenya, Sudan, Tanzania, and Uganda. The focus of this intercountry collaboration is an AIDS education program, and the College will play a significant role in coordinating information activities to help combat the spread of the disease.

In other regions, the lead institution may be a non-governmental organization or a WHO Collaborating Centre which provides consulting services and training in the areas of design, editing, and printing of educational materials.

The Interregional Health Learning Materials Programme has fostered cooperation and sharing among participating countries and has engendered a spirit of independence that will be required to carry on its activities after the withdrawal of external aid. It also has produced some significant results with increased availability of appropriate educational materials for primary health care in developing countries. ■

Dr. Roberta Ritson is a technical officer with the Division of Health Manpower Development at the World Health Organization in Geneva, Switzerland. She can be reached at the Health and Learning Materials Programme, Division of Health Manpower Development, WHO, 1211 Geneva 27, Switzerland.

Mass Media and National Development: The Nigerian Context

by Chris Okwudishu

Most writers on the subject agree that there is or should be an interactive relationship between the mass media and national development. One communication researcher writes that "the task of the mass media of information and the new media of education is to speed and ease the long, slow social transformation required for economic development, and in particular to speed and smooth the task of mobilizing human resources behind the national effort."

Another expert in the field emphasizes the importance of information in national development but argues that with the mass media usually being concentrated in urban centers, the content is often urban oriented and reaches the villagers through interpreters who also have an urban outlook. What the villagers eventually receive is incomplete, outdated, or distorted news that is scarcely relevant to their needs.

Numerous writers have suggested different ways in which the mass media can be used more effectively to support national development efforts. Within this frame of reference I have explored the relationship between the mass media and national development in Nigeria.

Who Has Access?

In Nigeria, the mass media have not and probably will not for some time to come make a significant contribution to national development. Therefore, the question that must be asked is: Can one talk about mass media affecting national development in Nigeria when, in fact, there are no effective mass media in place?

With a 35 percent literacy rate in some areas of the country, the newspaper can hardly be called a mass medium. Reaching a wide audience is difficult when a majority of newspapers are published in English rather than in one of the major local languages. And, distribution of these papers is greatly hampered by poor roads and an even poorer public transportation system, particularly in the rural areas where 70 percent of Nigerians live.

Radio appears to be the only candidate that comes near to being a mass medium in Nigeria. There is no question that radio has penetrated many remote villages in most developing countries. However, points not often considered are the relevance of messages being broadcast, the quality of reception, and the extent to which particular messages reach the intended audiences. For instance, in most rural areas of Nigeria there is no electricity to power radios, and in many cases people cannot afford the price of dry cell batteries. The case of television is even worse; it has barely penetrated rural Nigeria.

Little or no audience research has been done for either radio or television to determine if farmers tune into programs on modern agricultural methods, or if a housewife listens to or watches programs designed to inform her about better child care techniques, or if the public listens to the announcements and jingles about the need to keep their environment clean.

Inappropriate programming is another reason the mass media, particularly radio and television, have not contributed significantly to national development. In developing countries, the social, economic, political, and cultural needs of the people dictate that radio and television programs should strive to provide information, education, and generally an understanding of the society in which they live. Unfortunately, there does not appear to be an overall guiding philosophy in program development in most Third World countries, and Nigeria is no exception. Instead, one finds foreign programs that satisfy the interest of a small elite population and do not extend and improve the educational, social, or cultural environment for a majority of the nation.

Needed: A Communications Policy

Lacking an established policy on how to use the mass media to further Nigerian national development efforts, government agencies independently engage in educational campaigns with little or no interagency coordination. Many of these efforts have resulted in duplication and waste of both human and material resources. To address this problem, a proposal was made at a recent seminar on National Communication Policy to establish a National Broadcasting Commission. Its mandate would be to coordinate broadcasting activities and to institute general guidelines and policies for all Nigerian federal and state broadcasting organizations.

The seminar also recommended the establishment of a National Council for Communication Training and Research. If established, this council would set guidelines for the examination and certification of Nigerian journalists to promote professionalism within their ranks.

If these and other recommendations of the seminar are implemented, a giant step will have been taken toward making the mass media important instruments of national development.

Some Suggestions

If we accept the definition of development as being a widely participatory process of social change in which the people have an opportunity to take part in making decisions that affect their lives, the need to properly integrate the mass media into national development efforts becomes apparent. This might be accomplished by relinquishing some government control in favor of alternative or commercial broadcasting operations and encouraging increased educational and national development programming.

All stations, state run or private, would be required to air a given number of hours of educational programming per week to encourage them to address local issues and problems. To assure compliance, defaulting stations would be penalized either by license withdrawal, or in the case of state-operated stations, by withholding federal government matching grants.

Radio and television are necessary tools for social change and national development. If the Nigerian government desires to use mass media to establish a dialogue with its rural population, radio and television facilities will have to be equipped with the capability to accomplish this task and then policies and guidelines will have to be established to support this process. ◘

Chris Oklwudishu is a Lecturer at Ondo State University, Ado-Ekiti, Ondo State, Nigeria.

CARINET: Low-cost Computer Communications

CARINET, an international computer communications network, has recently added a health component that will give members access to several health-related databases. This service is in addition to those already in place for agriculture, education, environment, and disaster relief via CARINET's global development network.

A discussion of these services and applications of computer and other international communications technologies in the health field will be featured at the National Council for International Health national conference to be held May 19-22, 1988, in Washington, D.C.

For more information please contact: Noreene Janus, Director, CARINET, 50 F St., N.W. (Suite 900), Washington, D.C. 20001, U.S.A. Phone: (202)638-4905.

TUNING IN

RADECO: A Precedent in Education

(Radio Assisted Community Basic Education (RADECO) was initially an A.I.D.-supported pilot project in the Dominican Republic to provide interactive radio instruction to children living in rural areas with no primary schools. RADECO is now a fully institutionalized program within the government's Secretariat of Education, Fine Arts, and Religion. The following is an unofficial translation of an article appearing in the Santo Domingo La Tarde Alegre, *on November 10, 1987.)*

by Virginia Berges Rib

Radio Community Education (RADECO) is an innovative program that is creating important national and international precedents in providing education to rural populations.

The initial lessons of the first four years of school were offered in 1982 when the project was still in the experimental stages. Today, RADECO maintains 64 centers in 54 communities in the southwest provinces of Barahona, Bahoruco, and Independecia, and students have completed the first four-year sequence of instruction.

It is an excellent example of radio technology's support to community education, employing an interactive teaching method and offering an alternative solution to the problems confronting the Dominican Republic's education system.

Along with primary education programs, two weekly programs motivated the community to join in the project. "Education with the People" and "Teaching Update" are offered on Thursdays at 7:30 p.m. and Saturdays at 7:00 p.m. on the Dominican Radio and Television network.

Because activities are being carried out in the country's southwest region, little is known about RADECO in Santo Domingo, where its headquarters is located, but RADECO is disseminating important new programs in Dominican education. It is a strategy which uses radio to achieve a number of objectives in our educational system.

Campesino children are offered the opportunity to learn how to read and write and to complete the first four grades of primary education. To carry this out, community members elect helpers, *auxiliares*, who, after brief training, function as teachers. They must also prepare a building in which the students can gather for classes – generally an open thatched-roof structure furnished with simple stools or tree stumps for seats where the children listen attentively to the RADECO lessons.

RADECO gives the centers a radio and teaching materials for the lessons, which are broadcast in the afternoon. The schedule is determined by the need for daylight in communities without electricity, and because the children work in the fields with their parents in the mornings.

Agricultural production cycles determine the times of the year RADECO courses are offered. Internal migration is intense in areas where *campesinos* move their families to pick coffee, or to harvest cotton and tomatoes.

Consequently, RADECO's schedule does not coincide with the official school year; only two grades are offered each year. The dropout rate is high, but children sometimes join RADECO centers in the new communities where their parents' work takes them.

Characteristics of RADECO

Radio's limited sensory impact and its one-way nature demand preparation of scripts that hold the childrens' attention and avoid monotony. RADECO technicians use an interactive methodology with questions, songs, and exercises to elicit verbal, written, and mimicry responses from the students. Traditional community values are combined with national values in the lessons which always end with the national anthem.

Some Background

RADECO originated as an experimental program sponsored by A.I.D. to test the potential for learning by radio. Projects were carried out in Nicaragua, Kenya, and the Dominican Republic, but only here has a permanent program been created. Its success was such that it has offered technical assistance to new programs of its kind, for example, one initiated recently in Honduras.

The southwest region's geographic and socioeconomic characteristics made it the zone of choice for RADECO's first phase, as the project was designed to address the national education system's deficiencies.

During the earlier years, the project was administered under contract with InterAmerica, a U.S. development organization with participation of Dominican technicians. From the sixth year, the project has been assimilated by the Secretariat of Education, with continuing support from A.I.D. and full endorsement from the Dominican government.

In response to the possibility of extending RADECO to other communities in the Dominican Republic, Director Altagracia Diaz de Jesus said "the ideal would be to create for each region a new program which responds to the educational needs of the nation while focusing on local characteristics." However, since creation of a separate system for each region would be very costly, adapting the southwest's program to other regions would be more feasible and economical. RADECO's 1988 plans are to expand the program's coverage, creating new centers in Pedernales and Elias Pinas provinces. ■

Two Interactive Radio Publications Available

The Clearinghouse is distributing two new publications on radio-based education in pilot sites in two countries, funded by the U.S. Agency for International Development.

Radio Assisted Community Basic Education (RADECO) presents an overview of the interactive radio education project that was implemented in the Dominican Republic and has recently been integrated into the country's educational system. The RADECO project provides radio-delivered instruction in rural areas where there are no schools and where children must work during regular school hours. It is intended to serve as a basic model for the implementation of instructional broadcasting programs at the primary level in similar educational circumstances.

Teaching English By Radio: Interactive Radio in Kenya documents the activities of a five-year project. The purpose of the Radio Language Arts Project was to develop, implement, and test the effectiveness of an instructional system that used radio intensively to teach English as a foreign language at the lower primary school level (grades one to three). Its setting was Kenya.

Both books are available free to developing countries, US$5 to developed countries, from the Clearinghouse on Development, 1255 23rd Street, N.W., Washington, D.C. 20037, U.S.A. Please indicate by title which volume you want if you are ordering only one.

A Communicator's Checklist

1 Development Communication: Information, Agriculture, and Nutrition in the Third World, by Robert C. Hornik, (New York and London: Longman, 1988) 182 pp.

This book summarizes two decades of experience of the author, Robert Hornik, certainly one of the most competent scholars of development communication working today. Like its author, this book is serious about the topic and should not be taken on a plane ride for light reading or placed on a night table for a quick skim before going to sleep.

The effort to read the book carefully, however, is rewarding for those who wish to understand the case for development communication. One can read it at two levels: first as an analytic discourse on the logic of planned communication interventions with the available evidence from the social sciences; second as an apologia (I mean this in a positive sense of a careful set of conclusions and judgments about communications' impact extrapolated from experience and the available evidence) for the role that information aided by communication technologies may play in solving serious human development problems. The two are closely tied together in the text. Hornik, the demanding critic of data, also has high hopes for the usefulness of communication technology's role in information for behavior change.

The author begins the book with a previously developed functional analysis of communication's role in development that he has published elsewhere calling it "communication as complement." It is important to understand the basic assumption at work in this early chapter and in the remainder of the book concerning the idea of "complement." Hornik sees communication as helping but not causing significant change, complementing economic and cultural changes in a society or operating in that sometimes small opening for change in an otherwise rigid system.

This assumption is central and frequently referred to throughout the text when the author asks repeatedly whether there is evidence for the potential behavior change through better information in specific agricultural and nutritional problems, even when economic and cultural determinants are strong. There are many critics of development communication who have dismissed this potential for change as negligible or non-existent, and have fallen back on a reductionist model of political economy as all determining.

Hornik's strength is that he accepts the evidence about the degree that economic (and perhaps cultural) factors limit behavior change in many situations. On the other hand, he is far too honest to be caught in the trap of expecting change where there is no supporting evidence. Thus he carefully outlines where and under what conditions information has been shown to play a role in behavior change.

The second chapter tackles a daunting problem: why there have been so many failures in development communication. This frank statement puts distance between the author and those apologists who have nothing but praise for technology, but who do not take seriously the problems of development. In this chapter, Hornik suggests three possible reasons for failure: theory failure (or what I call incorrect assumptions about the nature of the problem); program or design failure in doing an intervention right; and political failures, where members of power structures in given countries do not accept the intervention as serving their interests.

Throughout the remainder of the book and in the conclusion, Hornik leans heavily toward program failure; perhaps because that is where development communication can accomplish something in the disturbing development environment. He refers to the failure of political will but seems to sense that little can be done on this score. Instead, he suggests the strategy of looking for situations where political changes are already in process or at least favorable to a given intervention.

The two major sections of the book are on agriculture and nutrition. Some readers may discover that sections of the discussion and analysis are dense and difficult to follow, but they are worthwhile pursuing in depth for two reasons. First, unless one understands the issues raised by the author in the substantive agriculture and nutrition sections, the conclusions about applications may make little sense. Second, it helps one get a better grasp of the development communication field. Hornik makes it clear that in order to use different communication technologies well, they have to be adapted to the real needs of a particular development sector. This requires professional communication researchers to understand both the substantive problems of the development field and the various communications strategies. This, then, is not a cookbook or a how-to book, but a serious effort to make sense of how communication might play a role in the development of Third World countries.

The final chapter goes beyond the analytic method and the empirical evidence and tries to generalize the findings for the benefit of planners. Here, the apologia takes precedence and Hornik gives us his ideal system and its assumptions on how things *might* and *should* work. The system proposed could be called radical in the sense that the author disputes the received wisdom of diffusion and development communication research about the predominant role of field agents in facilitating individual change. Hornik argues that, given economic and management constraints, in order for most Third World countries to reach the majority of their populations with information, their media systems ought to replace conventional field agent systems. The political feasibility, by the author's own admission, is not great, but the proposal needs to be taken seriously. There is sufficient evidence on behalf of media-based systems promoting behavior change to make this argument more than just advocacy, but there are also problems to be faced.

My own question regarding Hornik's ideal system, however, is not so much the political feasibility of dismissing or retraining agricultural extension agents. Rather, I question the feasibility of a national mass communication institution that can create and maintain a feedback system responsive to the wide variety of audience needs. The idea of feedback or feedforward has been around long enough to have been tested seriously, but the only evidence currently available comes from pilot projects that were heavily supported by outside institutions. A national system of this kind has yet to operate, much less show its feasibility in the development context of the Third World. The question for me is not so much whether such a system would work, but whether it will even be tried on a national scale.

If it is not, then we need to question if we have not asked too much of the managerial systems that most countries can create for rural development, including the mass media. Here we return to questions of politics, not in the sense of power structures within given national contexts (although important) but in the sense of the politics of bureaucratic structure that hinder the operation of very reasonable and needed systems of service delivery for the rural poor. What Hornik has done in this book is to move us along a path toward formulating a reasonable system based to a large extent on evaluation evidence from the field. The next stage for development communication may well be to concentrate its attention on implementation rather than on planning and on outcomes as this book has done.

Development Communication takes us a good way toward the goal of better development, and we hope the author and his

students will be able to now show us how a more effective system can be created and then survive. ◘

Available in hardback for US$35.95 plus shipping from Longman, Inc., 95 Church Street, White Plains, New York 10601-1505.

Reviewed by Emile McAnany, Professor in the Radio-TV-Film Department at the University of Texas, Austin, Texas, U.S.A. He is currently on sabbatical.

2 Distance Education in Asia and the Pacific Volumes I and II: Proceedings of the Regional Seminar on Distance Education (Manila: Asian Development Bank, 1987) 1291 pp.

Although entitled the *Proceedings of the Regional Seminar on Distance Education,* which was held in Bangkok in late 1986, these two volumes go far beyond being a mere record of those discussions. They are an invaluable resource for anyone interested in distance education issues, approaches, technologies, and an in-depth picture of the state of distance education in Asia today.

Volume I presents a concise summary of the discussions that occurred at the conference, a list of the recommendations made by the participants, and the resource papers that were the basis for much of the discussion. Recurring themes that emerge throughout this volume are: the need for high quality instructional materials for pedagogical, motivational, and credibility purposes; the definite need for intensive and extensive planning before launching a large-scale distance education program; the need for special training of all staff members of a fledgling distance education institution; the value and limitations of a multimedia approach; and the complex issue of cost-effectiveness.

Featuring eight well-written papers, *Volume I* focuses on the process of distance education. The first, "Issues in Distance Education," by Dr. Motilal Sharma of the Asian Development Bank, points out that 63 percent of the world's population resides in the Asia-Pacific region, including over one billion young people under the age of fifteen. With the need for educational programs overwhelming the resources of the present education establishment, Dr. Sharma suggests that a distance education approach can meet part of this demand and may expand the educational opportunities available to all segments of society.

In "Growth and Scope of Distance Learning," Professor Ralph Smith of the British Open University outlines the types of needs that distance education may satisfy and how to organize the educational training process – from needs identification and course development through student support systems and assessment strategies.

"Distance Education in Asia and Pacific," by Dr. Mohammad Selim of Unesco, reviews the educational dynamics of the region, discusses the nature of the distance education alternative, and surveys the status of distance education efforts in sixteen Asian countries.

The final five papers in this volume present specific aspects of the distance education question. James Taylor of Australia's Darling Downs Institute of Advanced Education examines the "Application of Distance Education in Formal and Non-Formal Education." He describes the need for a multidisciplinary team approach to develop materials and outlines the scope and limitations of a mixed instructional media effort. In another article, "Planning and Management of Distance Education," G. Ram Reddy of the Indira Ghandi National Open University examines the planning methods and managerial structures of different types of distance education systems citing a number examples from the region.

The next few articles look at the technologies that have been or may become important to distance educators. In "Hardware and Software in Distance Education," Takashi Sakamoto of the Tokyo Institute of Technology reviews a wide range of technologies including radio, television, audio- and videotapes, videodisk, computers, and distribution systems.

The potential of hardware to support distance education programs is given additional attention in Mohan Sundara Rajan's article on "Satellite Applications in Distance Education Through Radio and TV." It reviews the state of satellite technology and the movement toward more powerful satellites and educational programs in India, Indonesia, and the South Pacific.

The last article in *Volume I* addresses the crucial financial issues: How can distance education be financed? Are distance education programs cost-effective? In "Financing and Cost-Effectiveness of Distance Education," Wichit Srisa-an draws upon his experience as rector of Thailand's Sukhothai Thammathirat Open University to present data from his institution and others in the region to answer these questions.

Volume II contains case studies from five countries – India, Indonesia, Pakistan, Korea, and Thailand. Twelve shorter papers survey distance education activities in Australia, Bangladesh, Bhutan, Burma, Fiji, Hong Kong, Japan, Malaysia, New Zealand, Papua New Guinea, Philippines, and Sri Lanka. These papers recount the development of a variety of distance teaching programs including correspondence schools, open learning systems at the primary, secondary, and tertiary levels, and satellite-delivered instruction. Some of the papers are refreshingly forthright in identifying the problems encountered and lessons learned the hard way. In addition to presenting a comprehensive summary of many of the distance education efforts undertaken in the Asia-Pacific region, the papers are an excellent resource for educators who are currently running or planning a distance education program.

The Asian Development Bank should be commended for having the foresight to go beyond the sponsorship of a conference by producing this valuable collection of resource papers. ◘

Available upon request from the Information Office, Asian Development Bank, P.O. Box 789, Manila, Philippines.

Reviewed by Willard Shaw who was Chief Adviser to the Indonesian Distance Education Satellite System and currently is Program Coordinator of the A.I.D. Rural Satellite Program.

3 Measurement in Health Promotion and Protection, European Series No. 22, edited by T. Abelin, Z. Brzezinski, and V. Carstairs, (Copenhagen: WHO Regional Office of Europe, 1987) 658 pp.

The need for accurate and easily understood measurement practices and reporting is critical in planning, implementation, and evaluation of health programs and activities. This was acknowledged when participants at the IXth International Scientific Meeting of the International Epidemiological Association, IEA, and WHO workshop recommended that another volume follow an earlier WHO publication, *Measurement of Levels of Health.*

This new book aims to provide a framework from which health planners and practitioners can operate. It establishes working definitions of the concepts of health, health promotion, and disease prevention; examines various methods of measurement; and presents examples and applications of previous measurement activities. The focus is on concepts and applications directed toward providing measurements of health rather than concentrating on mortality, morbidity, and other manifestations of ill health, as traditional measures of health have tended to do.

The book is divided into three sections. The first part introduces readers to the conceptual and methodological aspects of measurement in health and health promotion, and provides some essential groundwork for those with little or no experience in empirical research.

Part II begins with a basic discussion of the "what and how" of measurement. Individual articles cover measurement of health, measurement of health promotion and protection, and information strategy as a basis for measuring progress and programs toward health.

(Continued on page 10)

Briefly Noted

by Pat Simons

o The *Handbook for African Journalists* is a collection of articles on the fundamentals of journalism. Written by leaders in African journalism, each article covers a different aspect of journalism and includes a bibliography. Topics discussed include: journalism training in Africa, writing leads, news reporting, interviewing, identifying basic news sources, ethics, feature stories, editing, headlines, editorials, writing for radio, the legal aspects of journalism, photo journalism, press releases, sports reporting, and news agencies. The final section includes a glossary of mass media terms and a list of mass communication centers in Africa.

This concise collection of articles would be useful for mass communication students, beginning journalists in Africa and journalists seeking a basic reference guide to journalism in Africa. It is available from World Press Freedom Committee, c/o the Newspaper Center, P.O. Box 17407, Dulles Airport, Washington, D.C. 20041, U.S.A. or from Calliz Udofia, Itiaba Publishers, P.O. Box 404, Abak, Cross River State, Nigeria. Up to 10 copies free.

o *Technologies for Management Information Systems in Primary Health Care* introduces health managers to the basic concepts and skills necessary for the development of management information systems in primary health care programs.

Focusing on managerial strategies for developing a new information system or modifying an existing one, the paper includes guidelines for determining the appropriateness of microcomputers in a system, selecting hardware and software, introducing microcomputers into the work environment, training personnel and managing technical assistance.

This paper is one of the issue papers in the *Information for Action* series prepared under the auspices of the World Federation of Public Health Associations for the Aga Khan Foundation and UNICEF. It is available free to developing countries from UNICEF, Division of Information and Public Affairs, UNICEF House #3, UN Plaza, New York, NY 10017, U.S.A.

o To further documentation and bibliographic control of worldwide mass communication literature, John Lent has compiled *The Global Guide to Media and Communications*. This bibliography covers all regions of the world except the U.S. and includes citations for books, dissertations, monographs and some periodicals. It is arranged regionally with country-by-country subdivisions. Some of the regional sections are also divided topically. Although most of the materials are in English, numerous citations are in other languages. Some entries have been annotated.

The guide also includes a good list of general reference materials such as handbooks, directories, yearbooks, bibliographies and indices that cut across regions.

A useful research tool, the guide is available from K.G. Saur, Inc., 175 Fifth Avenue, New York, NY, 10010, U.S.A. US$70.

o *Computers in Education. An Outline of Country Experiences* is one outcome of the Third Asian Seminar on Educational Technology (Tokyo, 26 September-2 October 1984). The paper describes developments in educational computing in Australia, China, India, Japan, the Philippines, Sri Lanka, and Thailand. An additional section describes Singapore's efforts to move toward high-technology-based industries and services.

Building on the outcomes of the Third Asian Seminar on Educational Technology an Experts Planning Meeting on the Use of Computers in Education was held in Bangkok from 2-7 December 1985. *Developing Computer Use in Education: Guidelines, Trends and Issues* is the result of this meeting. With the realization that computer-based technologies have made computer literacy and skills essential for accessing current and future information sources, countries must recognize the need to develop computer education programs. This paper's objective is to provide policy and decision-makers with an overview of the trends and issues in computer education within the countries of the Asia and Pacific region, which can be used as a basis for the development of such programs. Current and future developments in computer education as well as considerations for the development of national policies on computer education are discussed.

Some of the policy issues educational planners must address include equity of access, the needs of special groups, the levels of education to receive priority, security and privacy, equipment obsolescence, software selection, ergonomics, the promotion of domestic industries and computer awareness in the overall community. A useful checklist of guidelines for selecting hardware is outlined and the development of software repositories to provide teachers with information and assistance is suggested.

The paper defines the four major barriers to implementing computer education programs as hardware acquisition, software suitability, teacher education, and support services and discusses their importance in respect to the development of national policies. A glossary of computer terminology is included.

Both papers are available from the Principal Regional Office of UNESCO for Asia and the Pacific, P.O. Box 1425, General Post Office, Bangkok 10500, Thailand. US$5.00 each.

o The *ACCIS Guide to United Nations Information Sources on Food and Agriculture*, compiled by the Advisory Committee for the Co-ordination of Information Systems, is a directory of over 120 U.N. agencies that are sources of food and agriculture information. Because agricultural development encompasses a number of disciplines and is of such global importance, the guide lists a broad spectrum of UN agencies that collect and disseminate information on agriculture and food and related social and economic activities. CGIAR supported research centers are also included.

The information sources are arranged under the following subject headings: 1) Food and Agriculture Information Sources in

(*Continued on page 14*)

(**Checklist** *continued from page 9*)

Examples and applications of measurement techniques used in the field are covered in Part III, again, as they pertain to different populations, situations, and diseases. Nineteen cases are presented in which various health problems and populations were addressed and different measurement tools and evaluation processes were used. The cases are brief but to the point, providing extremely helpful recommendations and insights.

Chapter 12 is an excellent resource for those in search of instruments and charts to use in the field. Also included are easy-to-use charts for monitoring the nutritional status of children, a health profile questionnaire, and guidelines for the development of charts, scales, and possible applications. Excellent tables, statistics, and references provide valuable information and resources to the health planner, evaluator, or practitioner.

Measurement in Health Promotion and Protection is a valuable resource for people in health management and policy development, particularly those concerned with health promotion policies and their evaluation. ◻

Available in softcover only from WHO Publications Center USA, 49 Sheridan Avenue, Albany, NY 12210 for US$50 or from WHO Distribution and Sales, 1211 Geneva 27, Switzerland for 80 Swiss francs.

Reviewed by Sharon Smith Elsayed, currently in the graduate program for Health Communication at the University of Maryland, College Park, Maryland, U.S.A.

Listening and Questioning: Two Ways to Improve Health Messages and Program Effectiveness

Communicating effective health messages is a difficult task given the complex and often technical nature of most health-related information. In recent years, marketing specialists have added new measurement and information-gathering tools to help design better health materials. Examples of two techniques, the focus group interview, and the pretest questionnaire, are given below to illustrate how these new tools differ in application and usefulness.

Listen Then Plan: A Focus Group Approach

by Judi Aubel

There is much talk among health education and communication planners about the need for programs to be more culturally relevant – to take into account the community's perspective. To date, however, health education programs often lack an understanding of the prevailing health beliefs and practices of the community. One way to gather this information is with a focus group. The term focus group comes from the field of marketing where it is used as a technique to elicit discussions from a small group of clients focusing on a proposed product. Sometimes called indepth group interviews, the focus group, in this context, is used to address this need for cultural relevance by providing initial community assessments to serve as the basis for the development of health education and communication programs.

Quantitative versus Qualitative

Most health sector planners normally associate a community study with survey research. Health planners and funders are particularly interested in studies that produce neat quantitative results. Problems associated with doing surveys are numerous, including the time and cost involved, and the uncertain validity of questionnaire answers because respondents often try to please the interviewer rather than to respond honestly.

Aside from the problems associated with actually conducting a survey, if the purpose is to understand a complex system of health-related beliefs, values, and practices, the highly structured quantitative survey is a limited tool. For example, a survey figure showing that 86 percent of targeted mothers do not use an oral rehydration solution (ORS) does not give the type of information needed to help planners decide how to encourage them to do so. In order to understand why mothers do or do not use ORS, what they perceive as the advantages and disadvantages of ORS, or what mixing or administering problems they are having, a qualitative data collection method such as the focus interview should be used.

Qualitative research uses open-ended techniques to collect detailed information on what the community thinks and does about a given health problem. While it varies more in content and is more difficult to analyze, qualitative research does give greater insight into a community's underlying health and illness systems.

The focus group approach is a semi-structured discussion of a predetermined subject of interest to researchers or program planners. It is an informal discussion between a small group of individuals led by a trained facilitator who poses open-ended questions to the group as a whole. A trained focus group facilitator encourages participants to respond individually as well as to discuss their ideas with group members. This atmosphere encourages participants to spontaneously and honestly share their knowledge and feelings about the topic.

A Tunisian Example

In 1986, Catholic Relief Services, in collaboration with the Tunisian Ministries of Health and Social Affairs, launched a Diarrheal Disease Management Project *(LAD: Lotte Anti-Diarrheique)* to educate mothers, train health personnel and to use mass communication in their activities.

One of the preliminary steps in the development of this three-year project was to carry out focus group discussions at the community level. The information collected in the focus groups was the starting point for the development of the three-pronged project.

Focus group discussions were conducted first with low-income mothers and grandmothers and second with fathers of young children. The objective was to understand their perceptions of diarrhea and dehydration, and their approach to treatment. The discussions took place in each of the seven cultural regions found in Tunisia, with female nutritionists as facilitators for the women's groups and male social workers for the fathers. In all cases, the group members participated enthusiastically in the discussions.

The information collected was rich with useful detail when compared to the findings of earlier quantitative studies done in Tunisia.

- The focus groups found that the population studied had two distinct perceptions of the causes and treatment of diarrheal disease. Some causes were attributed to "scientific" factors such as poor hygiene; other causes were identified by parents as "metaphysical" in nature – such as the onset of diarrhea due to the flight of a particular type of bird over their child's crib. When a "scientific" problem arises, home remedies and formal health sector services are used. If sickness is attributed to personal beliefs, parents will use home remedies but are more likely to consult traditional health practitioners. Since the goal of the program was to change parents' behavior in feeding and treatment and not personal belief systems, these systems were not contradicted; the parents were simply advised to treat their childrens' diarrhea, whatever the attributed cause, with recommended liquids and appropriate dietary regimens.
- Focus group participants used twenty-one different terms for diarrhea and dehydration, yet some of them did not know to use the term itself to describe the condition. It was important that health and social workers be familiar with and not openly reject local terms, and that families understand the danger that the symptoms of dehydration represent.

The use of focus group studies in the Tunisian Diarrheal Disease Management project produced information on community knowledge and local practices that proved invaluable in the development of project activities that were culturally relevant to the target population. ◻

Judi Aubel, B.P. 3746 Dakar, Senegal, is a consulting health educator who gave technical assistant to the Tunisian Diarrheal Disease Management project for PRITECH.

DTCP Communication Courses

The Asian and Pacific Programme for Development Training and Communication Planning has announced its 1988 training courses for program managers and communication specialists. Topics to be covered include planning, management, supervision, evaluation, and training. For more information contact Dr. M. Khemmani, DTCP/UNDP, P.O. Box 2-147, 19 Phra Atit Road, Bangkok 10200, Thailand.

Preparing a Pretest Questionnaire

When you are preparing a message for a specific audience, you need to know beforehand if the message will appeal to those for whom it is designed and if it will be correctly understood. Pretesting with a small sample of your audience can help identify problems. Pretesting has become quite sophisticated over the past few decades as our understanding of what it can accomplish has grown. Subjects of importance for the professional test designer include the selection and number of respondents, preparation of interview guides, analysis of materials to be tested, training of the interviewers, and even the pretest setting. The following set of questions might be asked by an interviewer, and give a quick overview of the kinds of questions pretesting can help clarify. Naturally, the actual formulation of specific questions should reflect the vocabulary of the respondents and the specific materials being tested.

A Standard Pretesting Questionnaire

1. **Main Idea Communication, and Comprehension**

What was the main idea this message was trying to get across to you?

_____

_____

What does this message ask you to do?

_____

_____

In your opinion, was there anything in the message that was confusing?

_____

_____

Which of these phrases best describes the message?

_____ Easy to understand
_____ Difficult to understand

2. **Likes and Dislikes**

In your opinion, was there anything in particular that was worth remembering about the message?

_____

_____

What, if anything, did you particularly like about the message?

_____

_____

Was there anything in the message that you particularly disliked or that bothered you? If yes, what?

_____

_____

3. **Believability**

In your opinion, was there anything in the message that was difficult to believe? If yes, what?

_____

_____

Which of these phrases best describes how you feel about the message?

_____ Believable
_____ Not believable

4. **Personal Relevance and Interest**

In your opinion, what type of person was this message talking to?

Was it talking to...

_____ Someone like you
_____ Someone else, not you

Was it talking to...

_____ All people
_____ All people but especially (the selected audience)
_____ Only (the target audience)

Which of these phrases best describes how you feel about the message? Was it...

_____ Interesting
_____ Not interesting
_____ Informative
_____ Not informative

Did you learn anything new about (health subject) from the message? If yes, what?

_____

_____

(Continued on page 13)

(*Questionnaire continued from page 12*)

5. **Other Audience Reactions**

Audience reactions to messages can be assessed using pairs of words or phrases or using a five-point scale. The following is an example of how this is done.

Listed below are several pairs of words or phrases with the numbers one to five between them. I would like you to indicate which number best describes how you feel about the message. The higher the number, the more you think the phrase on the right describes it. The lower the number, the more you think the phrase on the left describes it. You could also pick any number in between. Now consider each set of words. Please tell me which number best describes your reaction to the message.

Too Short	1	2	3	4	5	Too Long
Discouraging	1	2	3	4	5	Encouraging
Comforting	1	2	3	4	5	Alarming
Well Done	1	2	3	4	5	Poorly Done
Not Informative	1	2	3	4	5	Informative

Is there anything in the message that would bother or offend people you know?

_____

_____

6. **Impressions of Presenter**

Please select the one answer from each pair of phrases which describes your feelings about the presenter.

_____ Believable
_____ Not believable
_____ Appropriate to the message
_____ Not appropriate to the message
_____ Gets the message across
_____ Does not get the message across

This questionnaire was reprinted from "Pretesting in Health Communications," *Publication No. 84-1493, prepared by National Institutes of Health, National Cancer Institute, Bethesda, Maryland 20205. U.S.A.*

Surveys – A Different Picture

by Sharon Smith Elsayed

The idea of conducting a survey can bring with it some frightening images: extensive preparation, cumbersome and time-consuming data analysis, enormous target populations, and budgets to match. This overwhelming picture of the "typical" survey process understandably prevents many in development work from using survey methodologies; the obstacles to effective use of survey designs may seem to outweigh any readily apparent advantages.

But, suppose we were to approach surveys from a different perspective. Instead of looking first at the demands of a "typical" survey process which incorporates many of the above assumptions, let's begin by focusing on some general needs of development communication projects and how survey techniques can meet these needs; that is, how can they be used in audience research, for materials testing, program monitoring and finally, in summative analysis? Our focus will be on health projects, but the concepts are readily transferable to other areas of development.

Audience Testing

First on the agenda in planning a new program or intervention is building an understanding of the "target" population and the status of the problem which is to be addressed. Developmental research, often called formative research, is aimed at providing such background information from which strategies can then be formulated. A variety of designs using survey methodologies to serve this purpose include: sample surveys, intercept surveys, focus group discussions, in-depth interviews, ethnographies, and behavior observation.

Sample surveys collect data on a small portion of the audience you intend to investigate. The questionnaire on pages 12-13 is a good example of such a survey. KAP surveys (knowledge, attitudes, and practices) are another typical design used in developmental research.

A sample survey conducted in Madhya Pradesh, one of India's four lesser developed states, demonstrates such an effort to design a limited survey. The idea of using comic books to disseminate health information to rural populations had been proposed, but uncertainty existed as to the extent to which comic books, popular in urban areas, had filtered through to rural school children. In order to determine viability and design, the program planners needed to uncover the target audience's preknowledge of immunization, its visual literacy, and interest in story types.

Results from the survey proved to be invaluable to later planning; providing details about the population which greatly affected both message design and dissemination decisions (for more information about this survey, see *DCR* No. 59).

Materials Testing

Once the audience research has been conducted and the messages selected, materials are developed. The need to know if these materials and the selected strategies will work with the target population can be met by testing a smaller group similar to the target population to allow for immediate analysis. Unfortunately, there are numerous examples of materials or messages that were not pretested and, after much time, effort, and money, the strategies often failed.

To be successful, a test should be systematic – founded upon clear goals, carefully monitored, and consistently analyzed. For example, a picture to be used in rural Lesotho meant something very different when pretested than what the artist had intended. The artist had indicated that the

(*Continued on page 14*)

(**Smith Elsayed** *continued from page 13*)

couple in the picture was wealthy by putting them on a padded sofa. When the test group was asked "Are they happy?", several said "No, because the couple is sitting in a thorn bush." The lines that she had drawn to represent creases in the buttoned cloth were misinterpreted as thorns.

Between the Start and the Finish

Program monitoring does not actually constitute a separate stage of the intervention, but rather part of the ongoing observation process. No program will be perfect, no matter how carefully designed. Use of survey techniques for early detection of flaws, oversights, and unanticipated changes can drastically affect the final outcome of a program.

Monitoring activities can be built into the program plan to provide regular feedback on progress and problems. These could include distribution systems for products and materials, internal administration and adherence to work schedules and budgets, and audience levels of knowledge, acceptance, and practices. They can also be short term and directed at a specific problem. For example, the immunization delivery service in Ecuador evidenced a continuing problem. Many parents were not returning to clinics to complete the full series of vaccinations for their children – a common occurrence in many countries. Communication and behavior specialists observed the behavior in several rural clinics, hoping that direct monitoring of the parents at the clinics would reveal reasons for this situation.

The somewhat surprising conclusion of the study was that mothers were reasonably motivated to travel the difficult distances to the clinics for immunizations, but the health workers were not following norms and were not sufficiently motivated to provide accurate information and positive reinforcement. The study was initially focused on mother's motivations; results indicated that follow-up efforts should really be focused on motivation and education of the health workers.

Were We Successful?

The final evaluation of a project often presents a tremendous challenge. How to measure and quantify what has been achieved can be a formidable task, but may be a requirement for many programs.

Any of the survey techniques mentioned earlier can be useful, but it is here that the large-scale survey is most common. Surveys conducted both before and after a program allow for measurement of details regarding a group's knowledge, attitudes, and practices related to the targeted problem. The "after" survey also ascertains exposure to media channels, messages, and subsequent impact.

However, the type of quantitative data resulting from such a large-scale survey may be insufficient to provide a balanced and insightful analysis of accomplishments. An accompanying observational study, which is of a more qualitative nature, can add depth to the numbers supplied by a sample or even an intercept survey. It is also useful in testing the validity of self-reported data, by allowing the observer to make additions to previous data from a more detailed participant response.

Surveys can fit the "typical" picture. They can be large, expensive, time-consuming, and even yield data that may be useless. But plan carefully. Don't assume that your needs must be adapted to a survey. Rather, you must make the survey design fit your needs by choosing methods and techniques that meet the objectives and constraints of your project.

Project plans and final evaluations of development projects provide excellent resources on survey design and implementation. The following texts may also be of assistance.

1. *Survey Research Methods*, E.R. Babbie, Wadsworth Publishing Company, Inc., Belmont, California, U.S.A.(1973).

2. *Survey Questions: Handcrafting the Standardized Questionnaire,* J.M. Converse & S. Presser, SAGE Publications, Inc., Newbury Park, California, U.S.A. (1986).

3. *Focus Group Interviews: A Reader*, J.B. Higginbotham & K.K. Cox, American Marketing Association, Chicago, Illinois, U.S.A. (1979).

4. *Research Methods: Issues and Insights*, B.J. Franklin & H.W.Osborne, Wadsworth Publishing Company, Inc., Belmont, California, U.S.A. (1971).

Sharon Smith Elsayed was formerly with the Peace Fellowship Project for Egypt (AMIDEAST) and the PRITECH Project (Management Sciences for Health).

(**Briefly Noted** *continued from page 10*)

General; 2) Plant Production and Protection; 3) Animal Production and Health; 4) Food and Nutrition; 5) Land and Water Development and Natural Resources; 6) Economic and Social Development; 7) Trade and Commodities; 8) Agro-Industries and Industrial Development; 9) Fisheries and Aquaculture; and 10) Statistics.

Libraries, documentation centers, clearinghouses, document collections, and computer databases are among the sources noted. Each entry includes a description of the agency, defines the scope of information and types of resources available, and lists serial publications such as directories, yearbooks or newsletters published by the agency. The outputs, both printed and on magnetic tape, are given for computer databases that are not accessible through public networks.

Addresses of international organizations, addresses of database hosts, and national contact addresses for specific agencies as well as depository libraries are listed in the annexes.

The guide is thorough, well-organized, and easy to read and use. Practioners, researchers, educators, and librarians would all find this an invaluable guide to the sources of agriculture information within the UN system.

It can be purchased from authorized FAO sales agents or directly from Distribution and Sales Section, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy. (Order #F3145). US$13.50.

- Another extremely useful FAO publication is entitled *Forestry Extension Methods*. This paper is a careful discussion of forestry extension activities in the field. Assuming that the reader has some knowledge of forestry, the authors describe a number of extension methods that can be used to present appropriate forestry activities to a community.

Communication, the authors say, lies at the core of any extension program. After a brief description of the communication process the paper continues with an excellent discussion of the various means of communication that may be applicable in a particular extension project. Audiovisual aids, including projected and non-projected aids, tape recorders, video recorders, puppets, music, plays, mobile units, display visuals, and extension literature are detailed for use in more formal settings. Individual and group extension methods such as home visits, telephone calls, group meetings, demonstrations, field days, panel discussions, and extension schools are also discussed. Additionally, mass extension methods ranging from circular letters, newspapers, posters, pamphlets, and exhibits to radio and television are outlined.

Each method or media presented includes a description of the media, guidelines for its use, technical considerations and a list of advantages or disadvantages that may apply in a given situation. These detailed and balanced discussions would prove useful to project planners and field workers involved with forestry extension as well as with other types of development projects.

Another section of the book details planning, implementing, monitoring, and evaluating extension campaigns. The paper concludes with a discussion on organizing, managing, financing, conducting and evaluating training programs.

Written by D. Sim and H.A. Hilmi, this is FAO Forestry Paper 80 and is available from FAO Sales Agents or directly from Rome (see above address). (Order #F3149). US$15.75.

Pat Simons is the Information Specialist in the Clearinghouse.

In-country Certification for Swaziland Communicators

by Allan Kulakow

On December 4, 1987, twenty-two Swazi communicators received academic certificates for having completed six courses in development communications taught in Swaziland by California's San Diego State University. Formal graduation exercises were held on the campus of the University of Swaziland where some of the courses were held.

This is the first development communications program ever offered by an American university in a developing country. The two-year accredited program offered the students courses in how to plan the development communication process, radio scriptwriting and production, and media research and evaluation. Each course, when successfully completed, gives the students three credits at San Diego State University.

The program was developed as part of the Swaziland Development Communications Project funded by the U.S. Agency for International Development(A.I.D.)/Swaziland and implemented by the Academy for Educational Development. The purpose of the project is to develop the communication skills of Swazi professionals who work in such Ministries as Agriculture and Education, and in other organizations where communications are used. Because of radio's extensive coverage in Swaziland, program production is a principal focus of the project's training.

Equally important is the strengthening of the skills of Swaziland Broadcasting Services personnel who work closely with the various development ministries. In fact, the Swaziland Development Communications Project is housed in the Swaziland Broadcasting Services facilities.

The courses are offered in an intensive three-week, seven-hour-a-day format, followed by a practicum related to each student's actual professional responsibilities. Supplementing the coursework are on-the-job tutorials given by radio experts and workshops conducted by Project personnel.

An enthusiastic demand for continuing the certification program led to the formation of a second class – "the Class of 1989." A similar program is being offered by San Diego State in Lesotho as part of the Basic and Non-Formal Education Support (BANFES) project, also funded by A.I.D. In most cases, the courses are scheduled so the visiting instructor can teach the course first in Swaziland and then in Lesotho.

The Swaziland Development Communications Project continues to address and respond to identified training needs. Ambitious program plans for 1988 will result in increased levels of participation by the Swazi population in a variety of development communication activities.

Graduates of the first development communications course assemble for their class picture after receiving their certificates of completion.

For more information about this project write to:

Polly McLean, % USAID, P.O. Box 750, Mbabane, Swaziland.

Allan Kulakow is Director of African Programs for the Academy for Educational Development.

Cornell International Agriculture Summer Courses

In conjunction with its Summer Courses in International Agriculture series running June through September 1988, the International Agriculture Program at Cornell University is offering two workshops. From July 5-22, "Video Communication I: Basic Concepts and Skills" examines the use of the portapac video and production planning for simple video presentations. July 25-August 12, "Video Communication II: Training and Development Applications" covers advanced concepts of video application including planning research, production, design, and evaluation for training modules. Both workshops are designed for professionals working in educational or development environments particularly in Third World settings.

For registration information contact Mr. James E. Haldeman, Training Officer, International Agricultural Program. P.O. Box 16, Roberts Hall, Cornell University, Ithaca, New York 14853-5901, U.S.A.

INTERPAKS Short Courses Announced

The International Program for Agricultural Knowledge Systems (INTERPAKS) is offering the following short courses in 1988. "Training of Trainers for Agricultural and Rural Development" will be held June 6 to July 1, 1988. "Organization and Management of Agricultural Extension Systems: A New Look At Knowledge Transfer" will be held September 5 to September 30, 1988.

For enrollment information contact John W. Santas, INTERPAKS Training Officer, University of Illinois, 113 Mumford Hall, 1301 West Gregory Drive, Urbana, Illinois 61801, U.S.A.

Un Nuevo Centro Uruguayo Dedicado a la Comunicación

por Victor Bjorgan

En el Uruguay existen en la actualidad aproximadamente veinte instituciones dedicadas a estudios de temas sociales y entre ellas, el CIIDU, un Centro de Información, Investigación y Documentación creado por un grupo de investigadores, técnicos, docentes y periodistas, animados en el propósito de contribuír a la recuperación y consolidación de la democracia.

El Centro de Información, Investigación y Documentación del Uruguay, que así se denomina, lleva actualmente adelante varios programas, como por ejemplo el denominado SERCOM, consistente en una Red Informativa para Organizaciones no-gubernamentales; un Servicio de Información para el Desarrollo que constituye una verdadera Agencia de Noticias que sirve de apoyo a los medios de comunicación del interior del país; el Programa MUJER, que comprende un proyecto de investigación y difusión de la situación de la mujer en el Uruguay; trabaja tambien en un Banco de Datos, consistente en un servicio de documentación computarizado para organizaciones no-gubernamentales y por último, el Programa Comunicación para el Desarrollo, programa consistente en la capacitación de comunicadores radiofónicos para el desarrollo, en el interior del Ûruguay.

Es de destacar que este último proyecto se cumple con el apoyo técnico y financiero de la Fundación Friedrich Naumann de Alemania Federal y su duración es de cuatro años, debiendo culminar en 1989.

El CIIDU cuenta con recursos humanos de gran nivel (profesores, investigadores, abogados, periodistas y técnicos) que, en función de equipo, permiten la elaboración e investigación de temas de interés social de gran importancia que luego se trasuntan en proyectos o programas a ejecutar.

Crearon Cuatro Centros Productores de Noticias

Se han creado cuatro Centros Productores de Programas en las ciudades de Melo (fronteriza con Brasil), en Colonia (litoral sur), Salto (litoral norte), y Tacuarembó (centro norte del país).

Los Centros ofrecen cursos de capacitación y seminarios, donde participan periodistas de medios radiales, prensa escrita y de televisión además de personas que se desempeñan en actividades de comunicación y relaciones públicas, caso de asociaciones gremiales, cooperativas, etc.

Servicio de Audio-visuales

Otros de los departamentos del CIIDU tienen que ver con el Servicio de Audio-visuales, orientado a promover un sistema de comunicación, favoreciendo la consolidación de la democracia.

Basado en métodos didácticos este servicio permite la filmación de videos, tanto documentales como films; consultorias, marketing publicitario, información relacionada al servicio de televisión, campañas publicitarias, organización de eventos científicos-culturales, relaciones públicas y capacitación técnica en Radio y TV.

Informática y Biotecnología para el Desarrollo Nacional

Por otra parte el CIIDU promueve el conocimiento y la aplicación de los adelantos científicos y tecnológicos necesarios para el desarrollo nacional, a través de sus programas de Informática y Biotecnología, para los que cuentan con modernos equipos de computación y personal calificado.

El personal diseña "software específico" para base de datos sobre gerencia pequeña y mediana empresa agrícola y agroindustrial, biotecnología e integración regional, proyectos de Banco de Datos para los sectores productivos y organizaciones del área no-gubernamental.

En la parte internacional se integran temas que tienen que ver con Integración regional y otros. Las informaciones llegan al Banco de Datos a través de publicaciones especializadas y de los medios de prensa del país, servicio éste que se brinda a las organizaciones no-gubernamentales, estudiantes y a investigadores. El Banco de Datos del CIIDU procesa promedialmente unas 2000 informaciones al año.

La Mujer y su Programa

El programa Mujer que encara actualmente el CIIDU tiene por objetivo la investigación real y completa de la situación de la mujer en el Uruguay y en los campos social, político y económico y la posterior divulgación de los resultados.

El primer proyecto a que se abocó el Departamento fue el de la Campaña de Esclarecimiento de los Derechos de la Mujer en el Uruguay. Encara sus acciones a través de las áreas de Investicación, Trabajo de Campo y Comunicación.

El procesamiento de estos índices, su evaluación y almacenamiento en un verdadero banco de datos mediante una avanzada tecnología. permiten arribar a estadísticas que puedan ser utilizadas por aquellos grupos que estudien el tema de la condición de la mujer y requieran la información. Asimismo los resultados de esta evaluación serán divulgados a través de publicaciones, boletines o informes.

La comunicación se viabiliza a través del Servicio de Comunicación del CIIDU rescatando la información internacional y canalizando las noticias nacionales referidas a la mujer en envíos diarios al interior del país, de este boletín para la Mujer editado periodicamente y de diversas emisiones radiales.

La mayoría de las actividades del CIIDU están relacionadas con la comunicación, y es la única institución no-gubernamental del Uruguay dedicado a los medios de comunicación y a los comunicadores, lo que constituye un punto de destaque para un Centro de Estudios de reciente creación.

Para mayor información sobre los programas del CIIDU comuníquese con Victor Bjorgan, Director Ejecutivo, CIIDU, Av. 18 de Julio 1377, Montevideo, Uruguay. ◘

****

Article Summary

There is a new institution in Uruguay whose purpose is to strengthen the country's democratic processes. The Center for Information, Research and Documentation (CIIDU), founded by a group of researchers, educators, and journalists, has a number of programmatic areas aimed at stimulating information access and local participation.

Four news production centers have been established to train press, radio, and television personnel, and to encourage their collaboration with local organizations such as unions and cooperatives. There is an audiovisual unit that will provide such services as film coverage of cultural or scientific events, or the development of publicity campaigns. Through a database which is being developed and made available, CIIDU encourages the application of advances in biotechnology, particularly for the improvement of the agricultural sector. A campaign on the rights of women was an early effort of CIIDU's Women's Research Project, that is developing a database of statistics on Uruguayan women.

The focus of CIIDU's activities is on communication channels and how to use them for social service. Contact Victor Bjorgan, CIIDU's director at the address above for further information. ◘

AUG - 4 1988

Development Communication Report
Clearinghouse On Development Communication
dcr
1988/2
No.61

Acknowledging the growing number of requests for information on computer applications for developing countries, Development Communication Report *presents four articles, with assistance from Gary Theisen of the Bureau for Science and Technology, Office of Education, A.I.D. These articles address the issues of computer modeling and planning, and their current and potential applications in developing nations.* DCR *would like to thank Mr. Theisen and his fellow contributors for preparing these timely and informative articles. (A glossary is included to assist readers with some of the computer terminology used in these articles. An asterisk (*) identifies words included in the glossary.)*

Computer Technology: Models and Educational Development

by Gary Theisen

Decision-making is one of the most frequent and yet difficult tasks engaged in by leaders. Often, problems arise unexpectedly and solutions must be found quickly - with or without the benefit of supporting data. But, recent developments in computer hardware* and software* technology provide quick access to information that can help people make better-informed decisions. Policy formation and decision-making are influenced by a host of political, social, and economic factors. Issues decided without the benefit of empirical data are not necessarily irrational; even the most blatant political agendas are rational to the parties who stand to benefit from them.

While the application of computer technology to educational planning and management does not ensure that decisions will be "better" or that policies will automatically reflect the findings of an empirical analysis of education systems, it helps in a number of important ways. Computer technology helps to *identify problems* rather than to *establish priorities* – the assumption here being that computer technology applied to planning and decision-making allows quick access to current information which is valued, and will be used by policy-making officials.

What, then, can it do to promote development in the education sector? Computer technology will benefit education in three ways: by facilitating planning, by improving system efficiency, and by enhancing system quality. When educational data is collected, analyzed, and reported in a timely, issue-oriented fashion, policymakers have descriptive data to inform their decisions, a summary of cost benefits associated with potential actions, and a selection of alternative policy and programmatic options.

While policy decisions might not correspond with the empirically based conclusions that the analysis would indicate, the process of evaluating and weighing alternatives that policymakers must go through makes clear and even strengthens the logic and strategies used to arrive at the final policy decisions.

Educational Planning

With nearly 20 percent of many developing countries' national budgets allocated to the education sector, even marginal errors in estimating capital and recurrent costs associated with education can have enormous economic and political impact. Estimating the human and fiscal resources needed to build, staff, and equip schools requires data on population growth, infant mortality, enrollment targets, and salary structures. Estimates of the expected number of students and costs associated with their enrollment can be made by combining existing and projected data. The impact of shifting resource allocations and of varying growth rates can be simulated, and alternatives can be weighted based on political and economic constraints.

(*Continued on page 2*)

Family Planning Uses Traditional Theater in Mali

by Joan Schubert

An ordinary day begins in the courtyard of a simple household in the outskirts of Bamako, Mali. Ayowa, one of Padé's two wives, gathers her many children about her as she patiently ladles a meager portion of breakfast gruel to each from a large bowl. Across the way, Padé's other wife, Séra, decides that Ayowa's children have taken more than their fair share. One thing leads to another, and soon dishes are flying and arms are raised to strike as children scurry for cover. Padé appears just in time to break up the fight. After briefly scolding the wives, he leaves for work shaking his head in dismay. The two women withdraw to their separate corners to sulk.

This domestic drama was the opening scene of a theatrical improvisation form known in Malian tradition as *Koteba*. In a creative blending of modern technology with Malian cultural heritage, the story of Padé and his two quarreling wives was videotaped for television and used as a vehicle to present in an entertaining fashion the advantages of family planning through the use of modern contraceptive methods.

Family Planning in Mali

Family planning services have been available in Mali for more than a decade. Although there is no official population policy, the Malian government was the first of the sub-Saharan francophone countries to support family planning services as a means of reducing the high levels of mortality and morbidity among women and children. The Malian Ministry of Health reports that family planning services are currently available in 54 clinics nationwide – primarily in urban areas and major district capitals. At the same time, it is estimated that only about one percent of the population practices a modern method of contraception.

(*Continued on page 16*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue . . .

Computer Technology: Models for Educational Development 1
Family Planning Uses Traditional Theater in Mali 1
Simulations for Policy Making in Education 3
Projection Models in Educational Planning 5
Computer Simulation Games in Population and Education 7
Glossary of Computer Terms 8
A Communicator's Checklist 9
Briefly Noted 10
Planning Ahead for Large-Scale Success 11
Sri Lanka Trains Health Workers in in Visual Communication 13
On File at ERIC 14

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Patricia Simons, Information Specialist
Janice Stallard, Program Assistant
ISSN0192-1312

AED

Academy for Educational Development

(**Theisen** *from page 1*)

Using data to make projections fosters planning in two ways. First, by testing and modeling* different assumptions about resources and population characteristics, a planner can estimate what the educational system of the country might look like in a given number of years and then project what it will cost to develop this educational profile. Second, a planner can start with a desired set of targets (enrollment or resource commitments, for example) and use the model to do "backward" planning to estimate annual requirements needed to achieve the stated objective. In either case, an empirical reality has been introduced into the planning process. Although planning of this nature is not new, the flexibility and low cost of microcomputer technology coupled with innovative developments in software now make these planning capabilities more readily available, particularly in developing countries.

The Efficiency Factor

Annual repetition and dropout rates exceed 15 percent in many developing country school systems, and completion rates for the primary cycle are frequently less than 40 percent. Hence, some Grade-one children will be denied access to overcrowded classrooms whereas at other levels, due to dropouts, there will be room for students to be accepted. In addition, some classes will not have teachers because regional or national plans did not accurately anticipate enrollment growth rates or teacher availability.

Neither projection models nor management information systems (MIS)* are new phenomena, but until recently only expensive centralized computers had the capacity to store large volumes of data required to describe education systems. Because data compilation at the regional and district levels is still largely done by hand it is subject to error. However, with the introduction of inexpensive optical scanners and hard-disk computer technology, more accurate and rapid mechanical reading and storage of data is possible. With the introduction of an efficient management information system, statistical reporting and presentation can be standardized and integrated across educational district boundaries with relative ease.

The result is a more accurate and timely identification of existing resources and diagnosis of future needs. Regional and national planners can better anticipate building and instructional material requirements, more effectively plan teacher placements, and more efficiently estimate inequities in learning opportunities. Most importantly, the speed with which enrollment information can be collected and analyzed enables planners to design appropriate intervention strategies that can be quickly implemented and targeted to reduce the number of dropouts and repeaters.

Cross-Sectoral Linkages

Education is a necessary prerequisite for growth-oriented governments and is equally essential for progress in agriculture, health, nutrition, and employment generation. Research-generated knowledge, microcomputer technology, and advances in software design now permit analysts to model the impact of educational development based on changes in other sectors. For example, by measuring the increases in agricultural productivity caused by increasing education levels in a country, it is possible to estimate what effect this change in productivity might have on nutrition, and subsequently, on infant mortality. Infant mortality, in turn, has a direct bearing on the number of children requiring schooling.

The number of sectors that can be potentially included in models of this type is limited only by our understanding of the linkages among the sectors and the number of interactions an analyst is willing to entertain. The more complicated the computer model, the more tentative the conclusions because of the greater number of assumptions built into the logic of the equations. The importance of modeling cross-sectoral linkages to education lies less in the statistical information generated from them than in the comprehensive, analytic process that unifies strategic thinking about development into an integrated, holistic framework.

Implications for the Future

Computer technology and modeling are not panaceas for problems in the development of education in developing countries. They do not provide answers or recommend solutions to planning, efficiency or quality issues. Computers and modeling software are *means* to a better understanding of the costs, benefits, and associated tradeoffs tied to policy options and alternative decisions. The great contribution of computer technology to this process is that it can make the projected impact of various factors accessible to more people. The efficacy of decisionmakers' final policy decisions rests on the quality of the initial information that is used to develop policy options and on the acumen of those making the decisions. ■

Gary Theisen is the Chief Technical Officer for the BRIDGES project, and has worked on both education development problems and planning issues in numerous countries around the world.

Simulations for Policy Making in Education

by Noel McGinn

Imagine this situation: a minister of education returns from an international meeting on policy innovations with a list of new ideas. She enthusiastically tells her directors what she has learned. The more timid of them hold back—they are concerned that implementation of the new policies will cost too much, or that the system does not have the teachers to carry them out. Her planner offers to develop a simulation that can project what the new programs would cost and how many teachers will be needed. "We can know by next week whether the idea is feasible" he claims.

Simulating Reality

Simulation refers to the imitation of reality. In this case the reality is the operation of an education system, and the imitation requires construction of a model of the system that approximates its features or concerns. Operation of the model then simulates the operation of the system. All simulations have underlying models, but only those models that can imitate the operation of a system are considered simulations.

A simulation is a means for communicating knowledge of and hypotheses about the structure and process of any system. A model represents a set of assumptions (based on a mixture of data and theory) about the essential features and operation of the system; the simulation is a means of persuading others of the validity and utility of those assumptions.

Simulations can be excellent teaching devices. Students can experiment with different sets of data and different policies and programs and observe likely effects on the performance of the system, all within a short period of time. New data can be entered and important variables can be changed to simulate a different education system.

Simulations can be very helpful to policymakers who are dissatisfied with the current performance of an education system but are unwilling to risk the costs of experimentation. A good simulation can help policymakers anticipate the likely outcomes of alternative choices, as well as their probable financial costs. Some simulation methods can even suggest the likely political risks of alternative policy options.

Unlike forecasting methods in which the emphasis is on predicting what will happen if all assumptions are confirmed, simulation methods are used to generate information about other outcomes and to suggest what could be made to happen if new assumptions are introduced. Therefore, in situations of higher uncertainty or greater freedom of action, simulation is preferable over forecasting. Such situations call for creative thinking about alternative futures.

The use of simulation has a long history. The first Phoenician who carved a model of a new type of boat and tested it in a pond was simulating the likely seaworthiness of the design without risking human lives. The first Chinese ruler who asked advisers to recommend a strategy to repel a threatening invader preceded today's use of role playing and scenario construction as simulation methods. The game of chess has been described as a simulation of the social structure of medieval Europe.

A simulation is a means for communicating knowledge of and hypotheses about the structure and process of any system.

Methods of Simulation

A simulation has two basic elements: a model or representation of the particular reality in question; and a set of procedures or rules that permit a person to interact with or operate the model. The model used in a simulation must be capable of assuming different values selected by the user to represent policy choices.

Models are only representations of reality—their very usefulness comes from reducing its complexity. This is accomplished in several ways; the most common models are mathematical and algorithmic*. One or more equations are used to express the relationships between variables*; users enter and assign numerical values to variables to represent choices from among policy options, or change assumptions about the conditions in which the education system might operate in the future. The model develops a solution by indicating the likely outcome of the policy choices or changes in assumptions; computers are essential for the operation of such mathematical models.

Other simulations, such as those that require participants to solve administrative problems or to act out roles in a given situation, are based on heuristic* models in which some relationships are specified in advance, while others are developed by the participants' actions. These kinds of simulations are preferred in training for complex situations with a high degree of uncertainty. Simulations of this type, in which individuals compete against each other or a set of criteria, are called games*. Another article in this issue by R. Scott Moreland describes the use of simulation games used in the population and education fields.

A Mathematical Simulation Model[1]

One example of a mathematical model for policy choices was developed by Schiefelbein for use in planning the educational reform of Chile.[2] In this simulation, users set the goals to be achieved by the education system (such as level of enrollment), specify resource constraints (both human and fiscal), and then choose levels of spending on variables such as teaching training, school construction, or the creation of new teacher positions. The model then calculates how much of each goal can be achieved within the constraints. At the time this model was originally developed (1965), computing was expensive and time-consuming. The model had 80 variables and 196 equations and required considerable correction and adjustment before it was operational, making development costs high; a single run of the model took several hours. The cost discouraged users from playing with different assumptions or choices. The model required expert knowledge of the computer in order to insert data, and results were presented in a way that required a technician's interpretation. As a result, the full benefits of this model were not realized by policymakers.

Interactive Simulation Models

Although the number of mathematical models developed for educational planning in developing countries is large[3], most are so technically complex as to be of limited use to policymakers. Until the appearance of microcomputers, development costs made prohibitive the construction of interactive simulation models in which a non-technical user could ask questions of or respond to questions asked by the simulation program.

An example of an early interactive simulation for a developing country is one designed to project future enrollments and total costs of the primary and secondary school system, of Mexico.[4] Users could vary assumptions about student flow rates (promotion, repetition) or choose among policy options described in the text. The simulation was used to alert educational planners to the relative sensitivity of enrollments to changes in repetition or dropout rates.

(*Continued on page 4*)

Degree Opportunity in Development Communication

It is particularly encouraging to note the growing recognition communication is receiving in academic institutions in the Third World. This is a positive and important development in the institutionalization of development communication as a field of research and study and more clearly defines its role in social development initiatives. A case in point is the Centre for Development Communication at Gujarat University, Ahmedabad, India, which is now offering a two-year master's degree in Development Communication. Areas of study in the program include the process of development and the role of communication in Indian society, specific national development issues and the role of communication in them, and skills in preparing communication materials for print, radio, and TV along with a better understanding of alternative media applications. Practical exercises have been created to facilitate skills development in these areas.

For details and enrollment information, contact the Centre for Development Communication, Guru Nanak Bhavan, Gujarat University, Ahmedabad-380 009, India. Telephone 407481.

Spanish and French Profiles Available

The Clearinghouse now has available, in Spanish and French, sets of *Project Profiles*.

These are minicase studies of projects throughout the world, in various sectors, that use communication media in their implementation. Sets are available at no cost for developing countries, $US5 elsewhere.

To order the new *Profiles*, write to Clearinghouse on Development Communication, 1255 23rd Street, N.W., Washington, D.C. 20037, USA.

(**McGinn** *from page 3*)

Another simulation, the Education and Demographic Simulation Model (EDSIM), was designed to improve understanding of the interaction between population growth and education in developing countries.[5] The model takes population data and projects enrollments using official dropout and repeater rates by level and sex. Projections can be displayed in tabular and graphic form.

A more recent enrollment projection simulation is the System for Tracking Educational Progress (STEP). This simulation calculates promotion and repetition rates using data on enrollments by age and grade; it projects enrollments for as many years forward as the user desires; and it computes a series of internal efficiency measures.[6]

Off-the-shelf Applications Packages

The writing of mathematical models has been made much easier in recent years by improvements in off-the-shelf microcomputer software applications packages. These include spreadsheets and databases and others. Examples of simulations written with a spreadsheet* software package are the *Economies in Curricular Choice Model*[7] and the *Educational Finance Simulation Model*,[8] both written in Lotus 1-2-3. The first allows users to simulate the effect on demand for and cost of teachers when there are changes in schedules and the amount of time assigned to various secondary school subjects.

The *Educational Finance* model allows users to see effects on enrollments and staffing by varying assumptions about levels and rates of growth of finance, student flow rates, costs, and teacher turnover. Both models are sufficiently complex so that users can construct scenarios that simulate a broader range of issues than can be described here.

In some simulations the education system is part of a larger social system. For example, the *Bachue-International, Long-Term Simulation Demo-Economic Model* contains a module that describes the projected economic production of school-leavers at various levels of attainment. The model is designed to study the long-term relationship between population and economic processes.[9]

The rich complexity of these simulations highlights a critical issue in the development of simulations for policymakers. Most simulations that use spreadsheets and other packages and those that are written in programming languages require some technical expertise to operate the simulation. They cannot be used by a policymaker who has not been trained how to use the microcomputer and the particular software package. Users must approach the simulation with prepared questions.

Not yet available is a simulation for developing countries that is sufficiently complex to be interesting and useful, yet designed for policymakers'direct use: they must still rely on their planners. The next generation of simulation models should be designed to permit policymakers to use the model without being technical experts. ■

Footnotes:

[1] This article refers only to simulations for education systems in developing countries. There are simulations of all kinds for other parts of the world. See *The Guide to Simulations/Games for Education and Training*, by Robert E. Horn and Anne Cleaves, Eds., 4th Edition, 1985. Hardcover, US$49.95 plus shipping. Order from Sage Publications, P.O. Box 5084, Newbury Park, California 91359, U.S.A.

[2] Schiefelbein, Ernesto, and Russell G. Davis, *Development of Educational Planning Models and Application in the Chilean School Reform*, Lexington, Massachusetts: Lexington Books, 1974. (Out of Print)

[3] At least 19 different models had been developed in Mexico by 1980. See Adrian Castellanos, *Estado actual del conocimiento de simulatión del sistema educativo mexicano*, México: Fundación Javier Barros Sierra, 1980.

[4] McGinn, Noel, Eduardo Rivera, and Adrian Castellanos, "El sistema educativo mexicano (un modelo de simulacion de escenarios)," *Revista Latinoamericana de Estudios Educativos*, XI:3 (1981), 33-73.

[5] The Futures Group, *EDSIM: Education and Demographic Simulation Model: Final Report*, submitted to Division of Human Resources, Office of Policy Development and Program Review, USAID, Washington, D.C., 1985.

[6] Basic Research and Implementation for Developing Education Systems (BRIDGES) Project, 452 Gutman Library, Harvard University, Cambridge, Massachusetts, U.S.A.

[7] Nazareth, Anita *The Economies in Curricular Choice (ECC) Model*, World Bank, Washington, D.C.,: World Bank, 1986.(Out of Print)

[8] Zymelman, Manuel, *The Educational Finance Simulation Model*, World Bank, 1987. US$23.00 plus shipping. Order from the World Bank Book Store, 1818 H Street., N.W., Washington, D.C. 20433.

[9] Described in IBM, *The Guide to Software for Developing Countries*, 1985. Order from: Communications and External Programs Manager, IBM Area South, 190 Avenue Charles de Gaulle, 92523 Neuilly sur Seine, France.

Noel McGinn is director and principal investigator of the BRIDGES Project at the Harvard Institute for International Development, and a professor at the Graduate School of Education at Harvard University, Cambridge, Massachusetts.

Projection Models in Educational Planning

by Luis Crouch

One of the most basic aspects of planning for educational investment is forecasting demand for places in the educational system and associated resource requirements and costs. Without knowing the numbers of students that can be expected to go through an educational system, educational planners and policymaker cannot persuasively lobby for investment allocations to the educational sector from the national budget. At the same time, without a formal method for assessing the financial impact of political or social commitments such as "universal education by the year 2000," it is hard for education policymakers to internally debate the likelihood of being able to fulfill such commitments. Consequently, education planners have always been interested in methods of projecting enrollment and investment needs.

History

Various international organizations have historically responded to this need by attempting to provide both methodological guidance and computer packages to planning agencies in developing countries. By sponsoring planning exercises in various countries, UNESCO, for example, has been a leading institution in the development and publication of methods for education planning. Some of its manuals have become standard reference works in this field. Similarly, the World Bank and USAID have contributed in major ways to the development of methods and computer packages for enrollment and cost forecasting. Other international organizations, such as the International Labor Organization, the InterAmerican Development Bank, and the Organization for Economic Cooperation and Development have contributed more sporadically to these efforts. Finally, some developing countries have embarked on the development of computer packages for these purposes.

But because educational projections require a great deal of computation, until the advent of microcomputers*, the models and packages were to varying degrees, examples of "inappropriate technology" for most developing countries. Models that required the use of mainframe* computers contributed to mystifying the process of enrollment and cost projections. Educational planners had access to the models only through computer technicians. In addition, planners had to compete against payroll processing for scarce computer time.

Educational Projection Models

Educational projection models vary considerably in the types of data they require and information they generate, completeness and complexity of model structure, methodology, and computer implementation.

Appropriate data can be as simple as a few historical years of population and total primary enrollment data, together with a given population projection. On the other hand, some models require many years of data on enrollment by grade and age, repetition and dropout data, basic demographic data such as fertility and mortality expectations, historical data on recurrent costs and capital investments, and teacher salary scales and qualification goals.

Simple to Complex

The information produced by the projection model can range from simple total primary enrollment projections to projections of enrollment by age, grade, and sex; projections of the relevant measures of access to and internal efficiency of an educational system (gross and net enrollment rates, primary completion rate, student-years per graduate), projections of teacher supply and demand, and recurrent costs and investment needs.

Educational projection models can be relatively simple in their methodology. For example, enrollment can be forecast simply by applying a percentage to the projected population of school age. The disadvantage of this method is that it handles problems such as repetition and dropout implicitly rather than explicitly, which can be misleading. It does not lend itself to the analysis of wastage due to repetition and dropout and of policies aimed at reducing this wastage.

More complex models track the flow of students through the educational system in a way that more closely mimics the real course of a typical student's progress, and allows the planner to focus on issues such as repetition and dropout. Complexity also results from the attempt to model school systems with multiple education branches (such as one encompassing several types of vocational training), especially when students coming from different branches are allowed to rejoin at the next higher level. In general, the attempt to model reality in a more detailed and accurate way necessarily increases the complexity and difficulty of the model.

Finally, the type of method that will be used to implement the model on a computer must be selected. The model can be performed on an electronic spreadsheet, for example. This might be quickest and most appropriate for a relatively simple model, but soon becomes unmanageable as the complexity of the model grows. Other options include use of computer languages such as Pascal, C, or Fortran, or there are computer packages specially designed for system simulations.

How the model will be used and who its users will be, define the features of an appropriate model. Today, however, some features are considered essential if the model is destined for use in developing countries. They are becoming the universal criteria on which microcomputer models are being developed in and for the Third World.

Three Universal Criteria

First, the model must be capable of running on a microcomputer. The availability and cost of mainframe computing is still beyond the reach of educational planners in developing countries. Second, manipulation of the model must be directed by a menu, giving options to the user that briefly explain the choices. Third, the model needs to take into consideration the data limitations in most developing countries and work around the constraints of this limited data.

Types of Models

Besides these basic features, there are others that can be selected depending upon the needs of a particular situation. The main determinants in a situation are the use and the user. Below are several examples of cost models that progress from lesser to greater cost and complexity.

Case 1 – Here, the need is for a one-time, medium-term (five-year plan), simple enrollment projection, without a need to analyze the efficiency of the educational system. The users are accustomed to microcomputers and do not require a fully menu-driven* system with detailed explanations. A simple model is recommended in this case. The only sources of information are a current population projection and past population and enrollment data. A model of this type could be run in a matter of days, if not hours, with off-the-shelf software such as an electronic spreadsheet.

Case 2 – Another level of need might be for a system to make projections that can be used repeatedly and by people with little or no computer experience. The system would not need to generate information beyond simple enrollment projections. Here, the ideal solution is to use a programming language such as Pascal or the C language to develop a custom-made program that coaches the user every step of the way from putting in data to

(*Continued on page 6*)

(**ERIC** *from page 14*)

countries are suggested, and a glossary is included. Available from EDRS in microfiche for 78¢ or in paper copy for $3.70.

To order these documents, please see the first paragraph of this report.

Barbara B. Minor, Publications Coordinator, ERIC Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York 13244-2340, USA.

PTC Call for Papers

The Pacific Telecommunications Council (PTC) has extended a call for papers to be presented at PTC's 1989 Conference, January 15-18, 1989, in Honolulu, Hawaii. The conference theme is "Pacific Telecommunications Connectivity: Users, Networks, and Information Services." Participants will explore the rapidly developing areas of networks, information and entertainment services, network-oriented equipment, and management of these activities from the perspectives of the user and the provider.

PTC will accept two-page outlines through June 30, 1988, covering the subject and scope of proposed papers, summaries of findings, and a brief biography of the major authors. Exhibits of equipment and services related to the conference theme are especially invited. For an exhibits brochure or other conference information contact PTC '89, 1110 University Avenue, Suite 308, Honolulu, Hawaii 96826 USA.

Tobacco Alert *in Spanish*

In collaboration with the Spanish Society of Cardiology (SEC) and the Spanish Society of Respiratory Pathology (SEPAR), the World Health Organization will soon publish *Alerta al Tabaco*, the Spanish- language edition of *Tobacco Alert*. The issue covers health topics related to smoking and smoking awareness campaigns worldwide. For further information, contact the WHO Programme on Smoking and Health/The Division of Public Information and Education for Health, World Health Organization, 1211 Geneva 27, Switzerland.

(**Crouch** *from page 5*)

performing projections. Developing this kind of model can take months of a programmer's time and can be very expensive.

Case 3 – The most complex need is for a system that can project both enrollment and internal efficiency measures, is transportable, relies on menus, is able to make medium- and long-term plans, and can make projections using different demographic scenarios. It would take several programmers nearly a year to develop such a system, and it would be too expensive for most developing countries. This level of effort would be worthwhile only if the model were to be applied in many provinces and be used frequently; otherwise, development costs would greatly exceed benefits.

The BRIDGES Project

One of the missions of the BRIDGES Project is to develop tools for educational planning and policy analysis, including software for enrollment projections. This software must be quite powerful and at the same time relatively easy to use and transfer to developing countries. In other words, the project adheres to the three universal assumptions listed earlier.

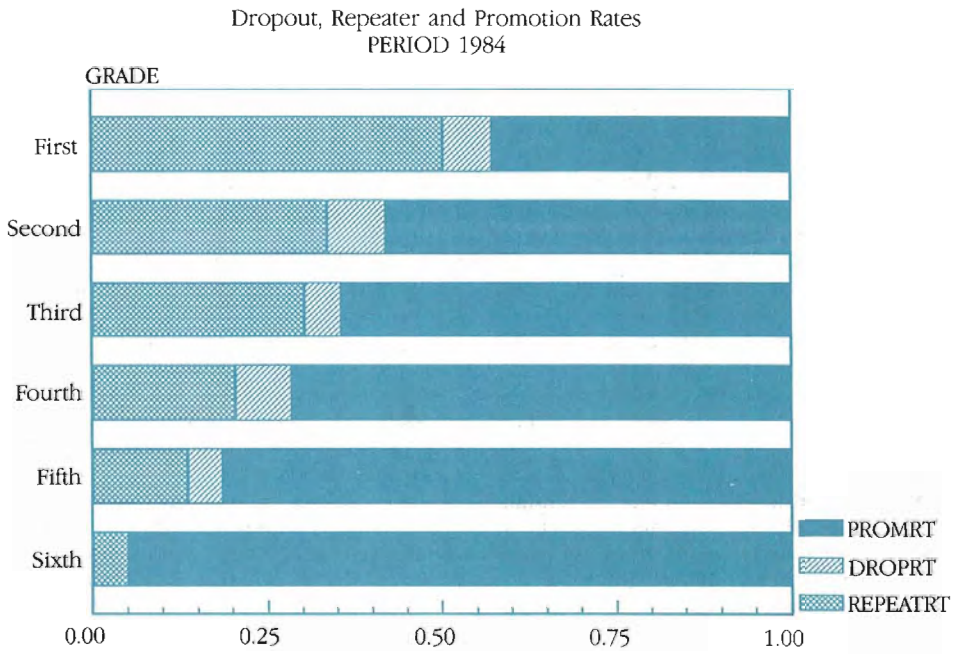
One such software package, the System for Tracking Educational Progress (STEP), is designed to answer a scenario similar to Case 3 outlined above. It is a modular system that can be used to project population and estimate historical repetition and dropout rates. It can be used to project these rates into the future as well as project student enrollment, measures of internal efficiency such as primary completion rate, and some measures of recurrent and capital costs (see graph 1).

Information required to use the package includes historical data on enrollment by grade and age, historical repetition data, either projected population or basic projected demographic parameters such as fertility and mortality, and cost parameters. Results can be shown either in the form of tables or color graphics. The user has a great deal of control over the final appearance of the results whether in tables or graphics. Any language based on the roman alphabet can be used to describe the tables and graphs and their variables. ■

For more information about obtaining this software contact: the BRIDGES Project, 452 Gutman Library, Harvard University, Cambridge, Massachusetts 02138, USA.

Luis Crouch is an economist at the Research Triangle Institute in North Carolina, USA. He has worked in the development of education sector planning models and methods in Ecuador, Thailand, Dominican Republic, Indonesia, and Turkey. He was co-developer of the STEP microcomputer model, under the auspices of the BRIDGES project.

Graph 1



Graph 1 shows the pattern of estimated rates at which primary students dropout, repeat, and are promoted. Notice that repetition gradually declines in importance.

Computer Simulation Games in Population and Education

by R. Scott Moreland

Simulation games have been in use for a number of years as heuristic* devices. Developed primarily for the military after World War II, in recent years they have been increasingly developed and applied in such diverse areas as private sector corporations, public utilities, political and international organizations, public health, and public planning agencies including education, health, and human resource divisions.

What Games Are

Games are primarily training devices that allow the "players" to make decisions about a specified range of policies or actions in the game's domain. For example, players may make budgetary decisions with respect to family planning programs or educational investments. After the decisions are made, some kind of artificial environment simulates the reaction of the real world, and players see the impact of their decisions. In the case of computer simulation games, the reaction of the environment is simulated with a computer model. In noncomputer-based games, a predefined "script" of the environment's reaction to a specified range of decisions exists, and the game leader communicates the results of their decisions to the players.

Computer-based simulation games used for training differ from the use of simulation models for the same purpose in that games are typically played in a role-playing structure by more than one person. Players are assigned decision-making roles and may be organized into teams which then compete to attain specified goals. Thus, an education planning game may involve teams consisting of decisionmakers responsible for budgetary matters, curricula, personnel, teacher training, and school construction. Each team may be given a budget and constraints within which to work (typically expressed as parameters). They may then attempt to maximize enrollment or to decrease enrollment and to improve learning. Usually a game leader is required to guide players and to act as a referee.

Advantages of Games as Training Devices

Gaming is an effective training device because it actively involves the player-participants in the learning process in a non-threatening way. There are several other advantages. First, players are given experience in understanding and negotiating strategies for achieving their goals in a dynamic and changing environment. Second, the use of the computer gives them instant and visual feedback on the effects of their decisions. Third, players gain practice in using a range of cognitive skills including analysis of complex situations, decision making, creativity, and cooperation. These skills are practiced in a situation similar to that found in the workplace. Fourth, games encourage exploration and inquiry in a context of authenticity that other training methods do not offer: players of computer simulation games can typically experiment with several options before submitting a final decision. Lastly, model-based games introduce players to the use of computer models as a work instrument and planning and policy tool. (See article in this issue by Luis Crouch on projection models.)

Two related games are briefly described below that have been developed for planners in the public sector.

Games in Population and Education

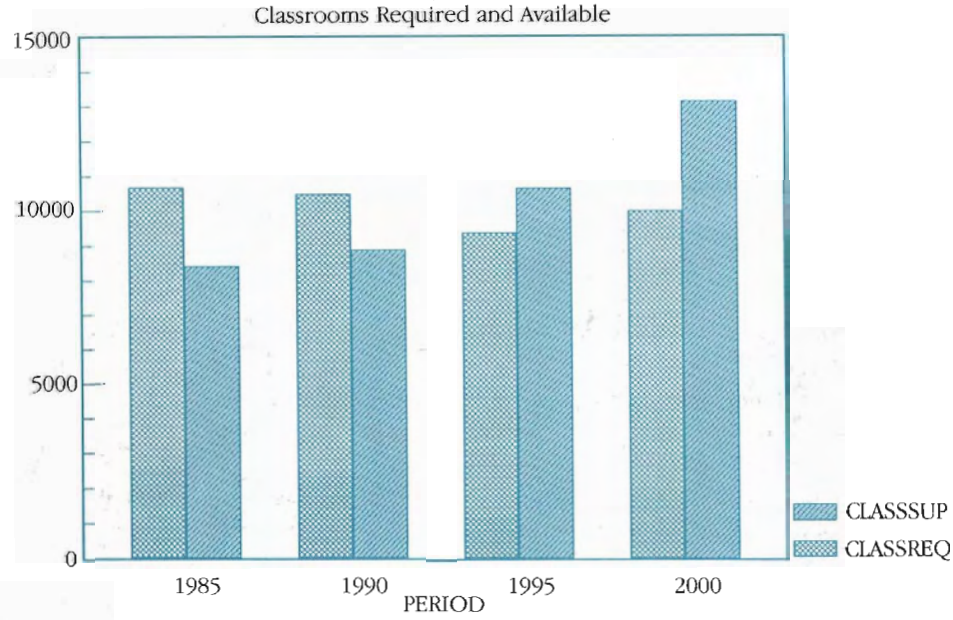
Two recent examples of games which were developed as training tools for decision makers and planners in public-sector planning agencies are the *United Nations Population and Development Game and the BRIDGES Education Planning Game*[1]. Both are microcomputer-based simulation games developed for use by Third World participants or by individuals interested in learning about the kinds of planning and policy decisions facing officials in the Third World. The BRIDGES game is an outgrowth and extension of the U.N. game and contains some of its elements.

The U.N game focuses on teaching playersabout the interactions between population variables and the national economy and about the complementarity between, for example, education policies and population policies. The BRIDGES game, while using the same basic structure as the U.N. game, has a more fully-developed education sector. Its purpose is not only to teach players about the effects of educational attainment on, for example, the labor market, but also to teach them about the efficacy and relationships between educational policies and educational outcomes.

In both of these games, players' decisions consist of setting the numeric value of certain variables which are identified as policy or decision variables at the beginning of play. Policy decisions in the education area affect the supply and requirements for teachers and classrooms through spending. These decisions must be made within a budget specified by the game organizer. Other decisions in the education area concern student-teacher ratios, student-classroom ratios and other parameters which can be manipulated in the real world through policies (see graph 2).

(*Continued on page 8*)

Graph 2



Graph 2 shows the number of required and supplied classrooms given the education assumptions made by a player. Notice that in the early years of the simulation, the player had a shortage of classrooms and in the latter years a surplus existed. By judicious juggling of the education budget over time, the player could have eliminated these imbalances.

Glossary of Computer Terms

Algorithmic - using a predetermined set of instructions for solving a specific problem in a finite number of steps. (Opposite of heuristic)

Computer Program - a series of commands, instructions, or statements put together in a way that tells a computer to do a specific thing or series of things.

Data - a general term meaning any and all information, facts, numbers, letters, symbols., etc., which can be acted on or produced by a computer.

Database - a collection of related data that can be retrieved by a computer (such as a mailing list or a list of accounts).

Games - computer programs in which individuals compete against each other or against a set of criteria, simulating real life.

Hard Copy - a printout of information produced by the computer.

Hardware - the physical equipment of a computer system.

Heuristic - designating a trial and error method for finding the solution to a problem by evaluating the progress made at steps along the way. (Opposite of algorithmic)

Input - the transfer of data into the computer.

Mainframe - the piece of equipment that contains the central processing unit and is used to refer to a large computer system.

Menu-driven - a system where the main menu of a program appears on the screen and from which an operator selects more detailed menus or functions to be performed.

Management Information System - the process by which a computer is used to provide information helpful to managers (such as inventories, payrolls, accounts payable, and receipts).

Microcomputer - a small, low-cost computer that contains its own microprocessor and is used mainly in small businesses or in the home.

Minicomputer - an intermediate-sized computer that generally operates about twice the speed of a microcomputer and supports many high-level programming languages.

Model - a preliminary description of how a system works based on all of its known properties.

Output - the information produced by a computer from a specific input or any of the devices involved in printing or storing the results of computer processing.

Parameter - a characteristic element with a fixed limit or boundary.

Program - a set of instructions that tells a computer to do something or to prepare a set of instructions.

Software - programs, languages, and/or routines that control the operations of a computer in solving a given problem.

Software Packages - a set of prewritten programs that can be purchased for use with a specified computer to perform various duties, such as accounting, payroll preparation, statistical analysis, and spelling.

Spreadsheet - a program that organizes numerical data into columns and rows (on a terminal screen) and allows calculations and forecasts according to certain formulas, such as adding two or more columns.

Variable - something having no fixed quantitative value.

Word Processing - the entry, manipulation, editing, and storage of text using a computer.

(**Moreland** *from page 7*)

In the population field, players' decisions concern family planning costs for various contraceptive methods for different parts of the country. Players can, for example, choose between low-cost but less effective methods such as condoms, and higher-cost, more effective methods such as pills and IUDs.

Economic policies that players can affect include government investment by region, the allocation of foreign exchange reserves to consumer imports, the exchange rate and other macroeconomic policies.

Players enter the values of the decision variables into the computer, which in turn simulates the reaction of the socio-economic system of a fictional developing country. The simulation consists of a relatively simple system of submodels of population, the education system, and the national economy. By entering the values into the computer and running the submodels, players can obtain feedback on the simulated effects of their decisions and can change them. Results are obtained by viewing tables and graphs. Players thus gain experience in the use of computer models in addition to the didactic content of the games.

In these two games, the object of play is to improve the performance of the various subsystems as measured by improvements in the value of various result indicators. Examples of such performance indicators in the education area are the gross enrollment rate by sex and level and the primary school completion rate by sex. In the population area, performance may be seen as measured by the contraceptive prevalence rate and the growth of the population. Examples of performance variables in the economy are the unemployment rate, income per capita, and a measure of income inequality.

Overall performance in these two games is measured by a single score that allows the order-ranking of players' outcomes based on the performance indicators. At the beginning of the game, the players and the game organizer can decide which indicators are more important by specifying a set of weights to apply to the indicators in the scoring. For example, if education performance at the primary level is more important than at the secondary level, then greater weights would be applied to the primary-level indicators than to the secondary-level indicators.

These games can be played by one or more people. When more than one player is involved, game play can be organized into either competitive or cooperative play. In competitive play, players compete on the basis of their scores. Depending on the number of players, competitive play can consist of several teams or of individual players (teams of one). Within each team, the players may assume roles such as chief economic planner, educational planner, etc. Again, depending on the number of participants, players can organize into groups each of which can be responsible for

decisions in particular areas.

Experience with these two recent games has been encouraging. The U.N. game has been used in several U.N.-sponsored regional training courses. The BRIDGES game was used during a month-long educational training course last summer at Harvard University, Boston, Massachusetts, ■

Footnotes

[1] The U.N game was developed by RTI for the Department of Technical Cooperation for Development, United Nations. The BRIDGES game was also developed by RTI under the Basic Research and Implementation in Developing Education Systems, sponsored by the USAID. The U.N. game is available from Scott Moreland, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, North Carolina 27709, USA. To request information about the BRIDGES Game, see the Crouch article on page 5.

Scott Moreland is an economist at the Research Triangle Institute. He has developed numerous models and several games during his career, including ones for Tunisia, Tanzania, Somalia, Ecuador, Mauritania, and Nigeria. Dr. Moreland is RTI project leader for the BRIDGES project.

A Communicator's Checklist

Educational Media in Retrospect. Education and Training Series Report No. EDT58, by Drew Tiene and Shigenari Futagami, (Washington, DC: World Bank, 1987), 105 pp.

This is a report for development communicators who, in the dark of night or in the middle of a long shower, ask themselves, "What communications media strategies really work? Why do some efforts succeed while others fail?" *Educational Media in Retrospect* examines the critical issues in using media for development, especially radio and television, and tries to answer these basic questions.

Readers with long memories or with access to a good library can compare this volume with UNESCO's 1967 classic, *The New Media: Memo to Educational Planners*. The late Wilbur Schramm and others summarized three volumes of case studies on pioneering applications of educational technology around the world (some barely underway at the time) and looked ahead optimistically to what could be achieved with "the new media."

Two decades later, this World Bank overview is a successful sequel to Schramm, et al. Examples from several applications discussed in *The New Media* – especially the Ivory Coast educational television project – are used to explain why and how some projects accomplish their goals and others fall short of expectations. Other examples cited include the Nicaragua Radio Mathematics Project and its adaptation to Thailand, Kenya's Radio Correspondence Course for teacher training, the Philippines CET and RATES pilot projects using radio for teacher upgrading and classroom instruction, and China's Television University. Examples from the USA and Japan are used to illustrate how methodology can be observed, adapted, and applied elsewhere.

Drew Tiene is a young scholar at Kent State University. Shigenari Futagami, a senior figure in development communication, retired in 1987 after 20 years with the World Bank preceded by a similar period with Japan's broadcasting organization, NHK. Representatives of two generations and two cultures, the authors blend personal experience and insights gained from past and ongoing projects into a report designed to help media project planners and managers create and administer successful educational media projects in the future.

Their scope is wide ranging, reflecting an awareness of relationships and interactions between many factors affecting media projects that were not raised in the more idealistic UNESCO volume. Socio-political contexts, language differences, interagency cooperation, infrastructure requirements, equipment selection, teacher attitudes, production technicalities, feedback and evaluation, and cost-effectiveness are some of the issues treated in a two-stage format used throughout many of the chapters.

With this format, the authors first present the problems associated with project facts-of-life, followed by successful strategies to overcome such problems, based on field experiences. They conclude the report by providing planning guidelines and, at a time of rapidly expanding communication and computer technology, speculate about the future of educational technology applications in the Third World.

The cautious reader (like my librarian wife) familiar with international development agencies and their publications will want to know if this report is putting a brave face on World Bank projects, some of which have cost a great deal but accomplished little. I think readers will find this an honest depiction of events, rather like the "handing over" document of a retiring senior officer, who wants to leave behind some of the wisdom gained from overseeing major media projects from their planning to completion and final report writing.

To those thoroughly knowledgeable about the projects presented, there is an apparent avoidance of details, associated more with individuals than with entire projects, and, therefore, are out of place in a report such as this. In several non-World Bank projects, the authors had to take at face value the reports written by those who did the evaluations.

This is not a publication for those who adhere to the philosophy that "Technology is the answer." Project managers are cautioned throughout the report not to go forward with activities that are ill-conceived, lack proper analysis, and do not meet the authors' common sense criteria for ensuring that new projects will be successful.

This report especially warns against putting large sums of money into projects where governments are not prepared to meet preconditions for reasonable success. Instead, emphasis is placed on the use of pilot projects before deciding upon nationwide, large-scale educational media adoption. (See "Tuning-In" column for related article.)

In the end, radio – humble but robust when used creatively – stands the best chance of success when projects are properly conceived and managed. The sensible conclusion from Messrs. Tiene and Futagami is that no application of educational technology will succeed if the right conditions do not exist or are not sustained. ■

A complimentary copy of *Educational Media in Retrospect, Report No. EDT58,* is available by request from the Education and Employment Office of the Population and Human Resources Department, World Bank, Room S6029, 1818 H Street., N.W., Washington, D.C. 20433, USA. Please include the full title with the report number when requesting this publication.

Reviewed by David Giltrow, an independent consultant and Executive Secretary of Communications Consultants Cooperative International, based in Santa Fe, New Mexico, USA.

Briefly Noted

by Pat Simons

An FAO Expert Consultation on Development Support Communication (DSC) was held 8-12 June 1988 to analyze DSC experiences, advise FAO and member governments on the appropriate role of communication in development projects, and recommend methods for realizing its potential. A series of case studies and a general paper discussing DSC strategies in rural development were prepared as background materials for the meeting. These papers and the report prepared as an outcome of the meeting should be useful to those planning, implementing, or evaluating development communication activities. The following is a synopsis of the case studies and the Consultation's report.

- *Perspectives on Communication for Rural Development*: This paper provides a good introduction to the development and use of DSC strategies. It begins with a description of the conceptual and historical development of development communication and its use within the U.N. system and FAO. Four kinds of DSC field activities are described: information, dissemination and motivation; participatory community development; training for rural producers and field workers; and institutional management communication. DSC delivery strategies are discussed under the headings "interpersonal communication," "rural broadcasting," "group media," "mass campaigns," and "distance education." An overall DSC process model, a management plan, and a staff training plan designed to take one through the steps necessary for applying DSC to an activity are presented. A short bibliography is included.

- *The Paradigm for Communication in Development: From Knowledge Transfer to Community Participation – Lessons from the Grameen Bank, Bangladesh*: This paper discusses the establishment, philosophy, and growth of the Grameen Bank, which has used participatory activities to enable poor people to borrow and repay loans. Decision-making, information sharing, development facilitation, monitoring and evaluation are all carried out through the use of interpersonal communication and group work. The bank's philosophy stresses the utilization of the assets and skills of the poorest of the poor and fosters self-reliant development for women as well as men. This paper provides an excellent overview of the Bank's operation and the reasons why it can claim a loan repayment rate of nearly 98 per cent in a country where a 10 to 40 per cent repayment rate is common.

- *Education through Entertainment: The British Radio Drama Series "The Archers – An Everyday Story of Country Folk:"* Created in 1951 and still running in Great Britain, "The Archers – An Everyday Story of Country Folk" has been an immensely successful combination of entertainment, information, and education. Developed to stimulate agricultural development and increased farm production in Britain following World War II, the Archers quickly acquired a national audience in both rural and urban areas. This paper discusses the criteria used to create the characters, storylines, music, and subject matter for the drama and the factors that contributed to the program's success. Based on storytelling and aiming to foster imitation, this type of program may have considerable potential for use in rural development programs in the developing world.

- *Pioneering a New Approach to Communication in Rural Areas: The Peruvian Experience with Video for Training at Grassroots Level*: This paper describes the activities of CESPAC in Peru, which has been involved in the most extensive use of video for rural development in the Third World. From 1974 to 1986 the project produced more than 1000 video programs of about 20 minutes' duration which have been used with approximately 150,000 farmers for agricultural extension and rural development training. The paper describes the equipment used; staff selection, motivation, and training; and financing and costs. More than 150 Peruvians were trained in video production and another 200 were trained in the use of the programs. Additionally, Peruvians from CESPAC have provided technical assistance for similar video programs in other Third World countries.

- *A Rural Communication System for Development in Mexico's Tropical Lowlands.* This paper focuses on PRODERITH, another integrated rural development project which used video to promote information exchange and staff training. The author of the paper, Colin Fraser, states that this project "is one of the most imaginative and successful examples of Development Communication anywhere in the Third World." The PRODERITH was intended to develop Mexico's tropical lowlands and followed an earlier "top-down" project which because of its emphasis on infrastructure provoked resistance among the peasants. PRODERITH and its Rural Communication System strove to provide an environment in which village people were participants in the development process and utilized video to facilitate peoples' participation and grass-roots-level training. Video was used to inform peasants about the project and solicit their response to it, to communicate between village communities, for staff training, and education and to provide information at the institutional level. The paper describes the project's development, the production of materials, training of personnel, equipment used, costs, and evaluation methods.

- *Rural Radio in Mauritania*: Beginning with a discussion of the history of rural radio in Mauritania, this case study describes the Mauritania Rural Radio Project, which began operation in 1985. The program was based on the principle of promoting the participation of the rural population in program production. This was done by making recordings of rural people in their villages and encouraging them to discuss issues affecting their daily lives. Combining development themes such as environment, health, bush fires, and locusts with the traditional African oral culture, the radio programs used poems, chants, games, and quizzes to initiate an interactive discourse with the listeners. Rather than assuming a one-way broadcast, the programs adopted what were termed "gentle-teaching methods" designed to elicit the appropriate response from the audience, preserve the individual's self respect, and promote a participatory spirit.

- *Filmstrips in Extension and Training in Burkina Faso*: Since 1982 eleven filmstrips, with accompanying cassettes in the national languages, have been produced in Burkina Faso to assist the government's promotion of a wide-scale use of animal traction in agriculture. The author of this paper surveyed the directors of audiovisual units, group discussion leaders, and extension agents to gather information about the use of the filmstrips. The result is a discussion of why the filmstrips were liked or disliked and used or not used, as well as a list of comments from trainers about what they feel they need to be more effective extension workers.

- *The Report of FAO Expert Consultation on Development Support Communication* is the result of the Expert Consultation Meeting. The members agreed there has been insufficient recognition of how communication can increase efficiency, cost-effectiveness, and continuity of development activities and recommended ways that FAO and member governments could increase awareness of the potential of development communication.

They recommended that FAO's DSC Branch strengthen its information role and increase its development communication training activities in respect to field programming staff, missions, and member governments. This should include approaching national training institutions to build up their development communication curricula. The Branch should also place more priority on producing materials for training.

(*Continued on page 12*)

TUNING IN

Planning Ahead for Large-Scale Success

by Jamesine Friend

(This paper is adapted from a presentation given at the 35th Annual Conference of the International Communications Association, in Honolulu, Hawaii.)

In the developing world, projects that succeed on a pilot basis sometimes fail when implemented on a wider scale. This paper considers factors that might impede the success of a larger project. In discussing this situation, I am drawing from my knowledge and experience with educational radio programs designed for elementary school children in developing countries.

One way of better understanding the factors leading to success is to take a negative approach and ask: What are the barriers to success? Consider, for example, a project that provides daily radio lessons in an essential school subject. We will assume the radio lessons worked well when pilot tested on a small scale, so we know the students can learn given the right conditions. But what might happen when these same lessons are used more widely? For lessons to succeed, students must first be able to listen to them. Barriers to this might be that the teacher did not turn on the radio; or the lesson was not broadcast; or perhaps there was no radio in the classroom and even if there was it may not have been working, possibly because the batteries had run down.

In most instances, merely listening to the radio is not enough. The bulk of educational radio programs are accompanied by printed materials – for students and for teachers; some programs require special equipment; still others ask that the teachers perform certain functions requiring special training. Barriers to success could arise if the teacher fails to distribute the needed worksheets or they are not delivered to the classroom; the equipment may be missing or broken; the teacher may not have a manual to follow along with the lesson; or the teacher was not adequately trained to use the equipment.

Classifying Barriers to Success

One way of classifying barriers is on a tangibility scale ranging from items such as radios, batteries, and teaching manuals to such intangible factors as teachers not understanding the goals of the program or having poor attitudes toward the program. Another helpful classification approach is to look at the locus of existing barriers influencing a program. The relevant localities for the type of educational program we are looking at here are found at the national, regional, and classroom levels.

National- or Regional-Level Barriers

At the national level, the first challenge is whether or not the project should be implemented on a wide scale. There are many political and even psychological factors that enter into this decision, depending upon the country involved. These may relate to such intangibles as whose vested interests are at stake; how committed a country is to educational improvements; whether there is a favorable attitude toward distance teaching; whether radio is perceived as substandard to television; and how well the pilot project worked.

There are funding questions as well. Do the decisionmakers think the project is worth the investment required? Does the country have the money to invest at the time? Even if it can be shown that these lessons are the most cost-effective solution in the long run, the start-up costs may not be affordable, particularly if new transmitting facilities are required.

If the country decides to proceed on a large scale, project implementors will be confronted with a number of logistical and administrative barriers at the national and/or regional levels. Placement of project management is a crucial decision, the choice usually being between the Ministry of Education or the Ministry of Communications, but this varies from country to country. Regardless of where management is placed, logistical problems will develop related to broadcast preparation, printed materials' delivery, equipment distribution, and teacher training.

Getting on the Air

Of primary importance is the availability of a sufficiently powered transmitter in order to reach school sites with educational broadcasting. Fortunately, high-powered transmitters are already in place in many countries. If an existing government-owned transmitter is already fully dedicated to broadcasting educational programs, access is usually not a problem. Often, there are not enough programs to fill the allotted time and such programming is welcome. Elsewhere, however, scheduling conflicts may arise because of competing demands. In that case, the only recourse may be to purchase time on a commercial transmitter. At the very worst, a new transmitter would have to be built, and this would be warranted only if there were several hours of daily programming.

Providing Printed Material

Being dependent upon regular delivery of printed materials can cause continual problems. In general, it is easier to mount a one-time distribution effort than to count on maintaining regular material deliveries to remote schools. It has been my experience that depending on disposable worksheets that require yearly restocking is not as desirable as providing the initially more expensive textbooks that can be used again and again. (There may, however, be pedagogical reasons for preferring worksheets to textbooks.)

The distribution and maintenance of radios and other equipment presents problems similar to those of print materials. Since most schools in developing countries do not have electricity, batteries must be used. The potential problems arising from this dependence include supply and delivery problems if batteries are distributed from a central warehouse, financial problems if batteries are to be purchased locally, or lack of an adequate local supply when replacements are needed.

Training Teachers

Teacher training is another challenge. In some countries, special in-service training is provided in the capital city or in large regional centers to which teachers must travel during school vacations, involving considerable time and expense for the teacher. In other countries, a trickle-down approach is applied wherein regional inspectors are trained and sent out to train others who in turn train the teachers. Unless this form of training is well defined and well planned, the message may not make it through these multiple layers. Even if a well-organized system of teacher training is in place, not all teachers benefit from it because they may not learn about training opportunities in time, may lack the funds to travel, or may not be interested in further training.

Classroom-Level Barriers

Assuming that the central and regional authorities did an exemplary job of delivering equipment, printed materials, and other necessaries to the classroom, and that the teachers were properly trained, there remains

(Continued on page 12)

(**Noted** *from page 10*)

Recommendations to governments stressed the fact that development is based on voluntary change by people, which can be greatly facilitated by communication. Governments should consider establishing functional DSC units for rural development and allot suitable budgets for development communication.

A number of points were highlighted during the Expert Consultation. Some of these focused on the case studies and what could be learned from them in terms of media and usage. Others used the case studies and other experiences to determine the extent to which communicators have taken into account local culture and values as well as traditional communication channels and structures. Also discussed was how communicators could insist on a proper communication methodology that includes research and planning, message design, pretesting, formative evaluation, and proper staff training; and how they could utilize the well-developed science based on psychology and group and individual behavior that has been successfully used by marketing people to affect attitudinal and behavioral changes.

All of the above papers are available free from: FAO, Development Support Communication Branch, Information Division, Via delle Terme di Caracalla, 00100 Rome, Italy.

• *Water Supply and Sanitation for Developing Countries. An International Sourcelist of Audiovisual Materials:* This publication is an inventory of audiovisual materials on water supply and sanitation that have been identified by a variety of worldwide organizations. The materials presented range from simple posters for use in health education in rural communities, such as the Gambia Health Education Unit poster titled "Wash Your Hands with Soap" to multi-media modules designed for training sanitation engineers, such as the 20 modules listed from the Economic Development Institute of the World Bank, which cover a number of topics including "Sector planning," "Economic cost-benefit analysis," and "Ground water development."

The guide is well organized with separate sections for the following media: 16mm films and videos, slides, filmstrips, posters, flashcards, and flipcharts as well as a miscellaneous section that includes materials for exhibitions stands, magnetic boards, and flannelgraphs.

Each entry includes the title of the audiovisual, the language(s) in which it is available, the intended audience, the distributor, and price information. Indices by title, subject, and distributor are also included. Available free from Community Water Supply and Sanitation, Division of Environmental Health, World Health Organization, 1211 Geneva 27, Switzerland.

• *Techniques d'Impression à Cout Modere'* is a very useful, well-written, and clearly illustrated guide to low-cost printing methods appropriate for developing countries. It is intended for those who do not have professional training in print media production. Although written to address the conditions that exist for printing materials in francophone Africa, much of the information in this publication could be adopted for use in other developing regions.

The guide is divided into three sections: 1) the decision to print;, 2) appropriate techniques; and 3) using professional printing facilities. The first section discusses a number of points that must be addressed when printing materials. These include questions regarding the message and the audience, the type of document to be printed, the number to be printed, and the frequency and means of distribution as well as concerns related to available skills, facilities, equipment, and space for printing.

The second section explains various printing methods and procedures such as stencils, alcohol duplicators, silk-screening and simple offset printing. The third section discusses professional printing facilities, how to evaluate them, and what steps must be taken to have a document professionally printed. The book concludes with a glossary of terms and a bibliography of related books, published in both French and English. Published in French, this publication is available for 70FF (plus 15FF postage to France, 20FF outside of France, and 35FF for air mail) from GRET, 213, rue La Fayette, 75010 Paris, France. ■

Pat Simons is the Information Specialist for the Clearinghouse.

(**Friend** *from page 11*)

another type of barrier in the classroom in the form of teacher resistance.

In my experience, most classroom teachers are dedicated workers; they go into education because they like children and want to provide them with better educational opportunities. They usually are willing to try anything that appears to improve the teaching environment provided that the potential for learning will outdistance the perceived disadvantages of an innovation. Given this commitment to their students, teachers view with some skepticism innovations that are proposed by "outsiders" who may not understand the conditions under which most of them work. They ask themselves "What are the benefits? What are the costs?" Benefits, from a teacher's point of view, are increased educational opportunities for all or some of the students and less work for the teacher (preparation time, etc.). The advantage of a reduced work load is that time or energy saved in one subject area can be used to increase the quality of instruction in another subject.

Costs translate into more than just cash outlay for a teacher – although cost is always a factor since most teachers are not paid enough to buy school supplies out of their salaries. But costs in terms of time and effort in preparation and in class time must be weighed as well. For instance, if special equipment or displays for the classroom are required, it very likely is the responsibility of the teacher to gather these materials. Other intangible costs can be defined in terms of the mental effort required to change classroom management habits, to master new pedagogical techniques, or to learn new course content. Or, there are those costs to students both in the form of actual cash outlay for special materials and books, or in loss of time because of increased problems in classroom management. For example, in science classes, teachers are sometimes asked to encourage students to work independently in an "open classroom" environment; some teachers see this as leading to disruption of the classroom and, consequently, a reduction in learning.

Thus, it would seem to me that what is often labeled "teacher resistance" to innovation is often a rational balancing of conflicting desires. And a project that does not come out well in the balance is one that will fail at the barrier of teacher resistance. Teacher resistance is not the only barrier at the classroom level, although it may be the most important. Other barriers to consider are lack of classroom supplies (paper, pencils, chalk), insufficient light, insufficient space, poor equipment (desks, blackboards), inaccessibility of schools to students during rainy season, etc.

Some Final Thoughts

The above suggestions for classifying barriers to success provides a framework for organizing strategies to overcome potential barriers before they are encountered. Problems anticipated in advance often seem to solve themselves, and more difficult problems can often be circumvented by making corrective decisions while the educational products are being designed. Good product design is thus dependent upon anticipating barriers; to foresee future problems requires information – information about both tangible and intangible factors at all levels – national, regional, school, and classroom. ■

Jamesine Friend is president of Friend Dialogues, Inc., a private firm that does research and development work in education. She was the overseas Director of the Radio Mathematics Project in Nicaragua from 1974 to 1978 and has since been involved in radio projects in the Dominican Republic, Papua New Guinea, and Honduras as well as consulting and providing training for radio projects in Brazil, Kenya, and the Philippines.

Sri Lanka Trains Health Workers in Visual Communication

by S.B.R. Nikahetiya

It all began when Worldview International Foundation (WIF), a nongovernment international development organization whose activities are focused on development communication, provided funds to assist UNICEF in its Child Survival and Development program in Sri Lanka.

At the first meeting of representatives of WIF, UNICEF, and the Sri Lankan Health Education Bureau, the most significant question posed was how to use available funds best. Several important points were brought out. While the field health workers, who are the vital link between the medical personnel and the public, were deemed technically competent in the areas of health, nutrition, and family planning, they were poor at communicating their messages. What the health workers needed was to acquire skills in developing, producing, and using simple visual aids based on fundamental principles of communication.

How to Train?

Another matter was the decision whether to train a limited number of trainers in each district, so they could train all field health workers, or to directly train field health workers in selected districts. It was decided that direct training would be used because even though the "multiplier effect" of pass-on training is frequently recommended, it has not seemed to work as well as the direct training approach. The multiplier effect of pass-on training may not be realized, since trainees often return from these sessions only to be reassigned.

Goals emerging from the meetings between UNICEF and WRI included:

- training field health workers in support of UNICEF's "Child Survival and Development" effort;
- concentrating on the identified needs of field health workers;
- training as many field health workers as possible by the direct approach;
- using an action-oriented training and a workshop style encompassing more group activity;
- focusing on developing practical skills, in which small groups of trainees go through the stages of planning, production of simple visual communication materials, and field pretesting.

In addition:

- the workshops would emphasize training that was relevant to local needs, and subjects chosen for the production of visual aids would be based on actual health and nutrition problems prevalent in the regions, in which trainees worked;
- a visual aids kit would be prepared for each trainee at the end of the training course as an incentive to use their newly-acquired skills in their day-to-day activities in the field;
- the workshops would be conducted in only one district at a time;
- as field health workers could not be released from their normal duties for long periods of time, each training course for 30 trainees would run only for three days.

With assistance from the Health Education Bureau staff, the course content was prepared. Included in the curriculum were: the definition and basic principles of communication; barriers to communication; communication skills; communication methodologies; the role of visual aids in communication; types of visual aids and their preparation; practical group sessions on producing visuals; field pretesting of the visuals produced by the group; and presentations by group leaders using their own visuals.

Thus, the three-day course was designed to introduce trainees to basic concepts of communication to establish a theoretical base, while at the same time helping them to develop their skill in the production and use of simple visual aids such as flip charts, flash cards, flannel graphs, chalk boards, leaflets, and posters.

. . . their visual aids kits. . . (helped them) become more effective. . .

The Visual Aids Kit

The final activity before launching the project was the preparation of the visual aids kits to be presented to each trainee. This practical kit contained, among other items, a portable chalk board. An extension officer who had learned how to prepare the boards while abroad on training undertook the manufacture of them for the Health Education Bureau. They are constructed out of cloth, composition board, paste, and green paint. They can be rolled up and carried by a field worker, hung in a convenient place, and be written on like an ordinary chalk board.

Other items in the kit include a piece of flannel to make a flannel graph, drawing paper, a set of colored felt-tip pens, sandpaper, glue, colored chalk, pencils, and erasers. The first training program was conducted as a three-day residential course in July 1986.

Today, after a year of activity, all participants can look back with pride and satisfaction. In spite of many problems, 12 training programs have been completed for groups such as family health workers, public health inspectors, school dental nurses, and field nursing sisters. Training will continue as long as funds permit.

Assessing Results

Finally, the actual success of a training course can be judged only by the degree to which the newly acquired skills and knowledge are put into practice in the field. This is the purpose of the second phase of the project – the "Monitoring and Evaluation Phase." This phase is currently in progress. Each trained health worker receives a questionnaire each month to follow-up on how they are using the visual aids kit and what they are producing with it.

Data received from these questionnaires are being analyzed and put in graph form to detect trends in the use of the materials in the visual aids kit. The results obtained so far are encouraging. All of the health workers are now using at least one of the visual aids, whereas very few were using them before their training. The most frequently used visual aid is the portable chalk board, which is probably a matter of it being ready to use straightaway without the need for special preparation.

The second most frequently used visual aid is the flannel graph. Since trainees received instructions on how to use flannel graphs in training, it is easy to understand why they are used more often. An interesting finding from the responses is a gradual increase in the use of flash cards. A number of factors explain this increase:

- flash cards are small enough to be carried easily by health workers during their field visits and can be used with small family groups;
- subject areas of general health, nutrition, and family planning lend themselves well to the flash card format;
- because it takes time to properly prepare flash card material, the increase will be gradual.

The most important and gratifying feedback received from the health workers is that by using their visual aids kit, they believe their health extension activities have become more effective and are easier to perform. ■

Mr. S.B.R. Nikahetiya is currently Director of WIF's Media Center in Colombo, Sri Lanka. He has 30 years of experience in the field of development communication and has a master's degree in agrarian development and communication.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers and reports on information strategies for Latin American countries; an MIS for educational administration in the Caribbean; using an MIS for enrollment management in a college in the United States; a discussion of the factors involved in classroom computer use in developing nations; and a report on the development of a bilingual interface in Arabic and English for a full-text database search facility in Egypt; and papers from a meeting on information systems in urban and regional planning in Asia and the Pacific. All five of these documents are available in microfiche and paper copy from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, USA. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. U.S. requests should calculate postage based on the following: 3 microfiche = 1 ounce, 75 microfiche = 1 pound, 75 pages of paper = 1 pound. Overseas requesters should contact EDRS for postage costs. (VISA and MASTERCARD charges are accepted by EDRS.) **The ERIC Clearinghouse on Information Resources located in Syracuse, New York, cannot supply copies of these documents.**

● Crowther, Warren. *Tailoring Information Strategies for Developing Countries: Some Latin American Experiences.* 1984, 12pp. (ED 274 375)

This article discusses the conditions in developing countries that must be taken into account when developing information strategies for their public and educational institutions or projects. Its central argument is that newer information science concepts, although demanding technological and conceptual sophistication, can be useful in the transition from an information-poor society to one that is rich in information; however, they must compete with a continuing flood of modern and less demanding concepts that result in acquiring the trappings of an information-rich society, without the power or decision-making effectiveness that should accompany it. To demonstrate this point, Crowther lists 24 design principles for information strategies obtained from recent experiences in the public sector and in universities in 20 Latin American countries. He proposed these principles as general specifications for technical cooperation with Third World countries. Additional information is provided in 11 endnotes. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Heuvel, John W. *Management Information Systems as a Tool for Educational Administrators in the Commonwealth Caribbean.* 1985, 19pp. (ED 276 144)

This paper introduces the essential concepts underlying management information systems (MIS), from the managerial perspective then outlines, a form of MIS design and implementation that may be attainable in a Caribbean educational setting. Noting the growing importance of information and the increasing need to amass thorough information for decision making, the paper proposes using MIS to improve accountability and enhance administrators' ability to defend budgets and to demand autonomy. The capabilities of simple data banks and more advanced systems are discussed, referring to the needs of educational administrators along with the vital role of top management in supporting the implementation and acceptance of MIS. The paper stresses the need for adequate MIS management and lists its basic functions within individual institutions, concluding that it is likely that MIS will increase in both value and complexity. Appendixes show the kinds of information MIS can make available and detail the vital steps in MIS implementation. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Mehran, Nojan and Michael L. Clemons. *Data Base Development for Effective Enrollment Management.* 1987, 33pp. (ED 286 400)

The design and development of an enrollment management database at the State University of New York at Oswego are described. A basic premise is that the concept of enrollment management has begun to replace the traditional admissions model. Enrollment management helps the college identify existing and potential markets; determine the resource allocation and programming strategies needed to effectively serve its clientele; and forecast enrollment and rates of retention/attrition for various student groups as well as determining the causes of attrition. The primary purposes of the enrollment management database are to integrate longitudinal external and internal environmental trend data and to track students from initial contact, through application, enrollment, retention, graduation, and alumni follow-up. The database includes reasons why students attend the college; characteristics of matriculated students, students who complete programs, and dropouts; and personal and/or institutional variables that affect enrollment, retention, attrition, and the benefits accrued by students who attend the college. Data components of the database are outlined. Available from EDRS in microfiche for 82¢ or in paper copy for $3.88.

● Fayen, Emily Gallup and others. *The Arabization of a Full-Text Database Interface.* 1986, 5pp. (ED 281 519)

The 1981 design specifications for the Egyptian National Scientific and Technical Information Network (ENSTINET) stipulated that major end-user facilities of the system should be bilingual in English and Arabic. Many characteristics of the Arabic alphabet and language affect computer applications, and there exists no universally accepted character encoding scheme equivalent to the ASCII standard for Latin alphabets. In order to overcome the language barrier in the system, a native language interface to existing software was developed. The Arabic language software functions include an Arabic editor running under the UNIX operating system, an Arabic database search facility, and electronic mail. These functions were implemented for peripheral devices using the CODAR/UFD Arabic character encoding scheme. The Arabic database search facility has been developed by arabizing BRS/Mate, a menu-oriented front end to the native mode of Mini-Micro BRS/Search, a full text state-of-the-art information management software system. Five references are provided. Available from EDRS in microfiche for 78¢ or in paper copy for $1.85.

● Friend, Jamesine. *Classroom Uses of the Computer: A Retrospective View with Implications for Developing Countries. Discussion Paper.* 1985, 36pp. (ED 282 519)

Although computers have been used in education for 20 years in the United States and Europe, they have not been widely used in the less developed countries of the world because the initial investment and operational costs of computers have been too high. Should advances in hardware technology continue to reduce such costs, some educational applications of computers will soon be affordable to less developed countries. In this paper prepared for the World Bank, the current status of educational applications for computers is reviewed with a view toward predicting the direction of such applications in developing nations. An overview of the development and use of computers from the 1950s to the present is provided, and hardware and financial factors influencing the development of education software are discussed, as well as classification and design principles relating to these programs. Potential problems areas in using computers in developing nations are described which include 1) the environment; 2) power requirements; 3) lack of human resources; 4) curriculum and pedagogy; 5) high costs of both the initial investment in computers and their operation; and 6) the development quality of courseware. Specific areas in which computer-assisted instruction may prove to be cost-effective for developing

(*Continued on page 6*)

(**Shubert** *from page 16*)

This included criticizing and making merry at the expense of the king. The key to the game, however, was that the next day no one could utter a word about what had happened the day before.

Over time, this game evolved into an annual event, usually taking place just after the harvest. It also began to assume a distinctive pattern that included dance and music followed by an improvisational performance.

Usually, there is a dance performed around a fire preceding the play. Drummers and percussionists are in an inner circle closest to the fire, moving in one direction; next come the women, clapping and singing, moving in the opposite direction. A circle of men moving in time with the percussionists completes the circle, outside of which are the spectators. In fact, it is this back and forth spiralling motion that earned *Koteba* its name, which literally translates from Bambara as the big *(Kote)* snail *(ba)*.

The second part of the *Koteba* is the theatrical portion, which is normally performed by five principal characters. There is no script – everything is improvised. Usually the key percussionist assigns parts to various people, but everyone knows the rules and understands the purpose of the play. The object is to exaggerate social issues and problems to the level of the ridiculous, helping to clear the air and, more often than not, instigate food for thought. People can then get on with their lives.

For Malians, the *Koteba* format was a natural vehicle for expressing messages about family planning to the general public. The slices of life depicted in the television program are quite comical, yet real and convincing. The example of the two wives who go to the family planning clinic for counseling illustrates how reality can be slightly exaggerated and a potentially delicate topic broached. The two wives smile and nod their heads in unison as the clinic nurse patiently introduces the range of contraceptive methods available, holding them up one by one and describing how to use them.

Family Planning as a Malian Tradition

Although the *Koteba* was acted out and filmed in a Bamako neighborhood, it never was performed as a live community play because by coupling the traditional theater format with television, exposure to family planning messages was increased at least ten-fold over live audiences. As noted earlier, family planning services in Mali are probably best developed in the urban zones. These are the same areas – at least in southern Mali – where television viewing is the greatest. Although it is uncertain how many Malians own television sets, the number of people who have access to a set is estimated to be relatively high. For example, in Bamako it is not unusual for several families to get together during the evening and watch a favorite program or the news.

Approximately a year after the *Koteba* was first shown, the *AMPPF* conducted an abbreviated survey over a two-week period with 500 individuals who visited the *AMPPF* clinic for services or information. This survey assessed how a select group of people perceived family planning and indicated whether they had been exposed to the various project interventions, including the *Koteba* teleplay.

Survey findings showed that roughly a quarter of the people attending the clinic during this period remembered the *Koteba*.

. . . coupling traditional theater with television. . . greatly increased the audience.

Although age did not seem to be an important factor, more working women than housewives watched the program.

JHU/PCS is currently planning a second phase of this project with the AMPPF that will build on its experience of blending traditional and modern communication channels. During phase two of the project, many of the programs developed for television will also be available in video for use by various government and nongovernment organizations as an entertaining, family planning awareness-building tool for community outreach activities, workshops, seminars, and family life education programs. In this way, many of the programs produced for television can be used again and again in a variety of contexts, increasing overall exposure of relevant messages and themes.

Malian heritage boasts a rich array of traditional communication channels. Songs, stories, parables, music, dance, theater, and mime – sometimes made even more lively by the use of masks or the wizened voice of a *griot* (a story teller) – are all age-old forms of Malian expression. They are as popular now as they were centuries ago. Virtually every ethnic group in Mali has a particular set of stories, dance, music, or mask forms that it can claim as its own, giving *AMPPF* reason to be optimistic that by disseminating family planning information in a culturally acceptable fashion via *Kotebas* and other traditional media, people will be more receptive to the message content. This approach, coupled with the use of mass media, will give maximum exposure to messages at a relatively low cost.

AMPPF's goal will have been reached if the theme, "Family Planning as a Malian Tradition," is on its way to becoming an accepted household phrase by the end of the project. ■

For more information about this project, contact Joan Schubert, Population Communication Services, 624 N. Broadway, Baltimore, Maryland 21205, USA.

Joan Schubert is Program Officer at The Johns Hopkins University/Population Communication Services (JHU/PCS), who works primarily in francophone West Africa. She is currently involved in several JHU/PCS projects in the region that integrate mass media, traditional, and interpersonal communication channels to disseminate messages about family planning.

Communication Seminar on Agriculture and Rural Management

A seminar is planned June 21-24, 1988, at the Agricultural and Rural Management Training Institute (ARMTI) located in Ilorin, Kwara State, Nigeria. Cosponsored by the Canadian International Development Agency, the purpose of the seminar is to help promote better networking and information exchange in developing countries, particularly among African agricultural policymakers, practitioners, and agricultural organizations. Objectives of the seminar are to:

- review the current methods of managing and disseminating agricultural information;
- design improved strategies for effective agricultural information;
- develop a directory of producers and users of agricultural information;
- identify training needs for information managers and communication specialists and recommend a standard training mode;
- initiate the concept of networking and the exchange of information among institutions concerned with management of rural development and agriculture.

DCR will carry a report on the seminar when the proceedings are published.

For more information about the activities of ARMTI, contact: The Director, ARMTI, Km. 18, Ilorin-Lokoja Highway, P.M.B. 1343, Ilorin, Kwara State, Nigeria.

(**Shubert** *from page 1*)

Since October 1985, The Johns Hopkins University/Population Communication Services (JHU/PCS) has enjoyed an active working relationship with the *Association Malienne pour la Protection et la Promotion de la Famille (AMPPF)*. The *AMPPF*, a member of the International Planned Parenthood Federation (IPPF), pioneered family planning in Mali and works in collaboration with the Division of Family Health to provide training, contraceptive materials, and communication support. Of prime importance is the Association's role in providing information to the general public on family planning matters and motivating the public to accept and use contraceptives.

JHU/PCS has helped *AMPPF* enhance its skills in program strategy development and has worked with its members to create and produce innovative, appropriate information, education, and communication (IEC) materials using the established PCS principles of population/family planning communication. During the course of a 24-month project between the two institutions, a variety of materials – posters, pamphlets, radio programs, a national logo, etc. – were designed, pretested, and produced. Several rounds of focus group discussions were carried out over the life of the project with a variety of groups, including potential clients, current clients, and service providers to ensure the suitability of materials and messages being developed and disseminated.

Several of the IEC efforts carried out under the project successfully merged traditional and modern communication channels. For example, radio programs featured presentations of traditional stories, sayings, and music built around family planning themes.

The *Koteba* Project

Of all the materials developed, however, the one that seemed to generate the most excitement and interest was a televised *Koteba*, or traditional theater piece, that brought to light the many social and economic benefits of family planning for the average Malian family. The *Koteba* teleplay was the result of the joint efforts of several organizations, including the *AMPPF*, the *Radiodiffusion Télévision du Mali (RTM)*, and the *Institut National des Arts (INA)*. Much of the message content for the *Koteba* was inspired by a series of focus group discussions carried out in a number of neighborhoods in Bamako, the capital, at the beginning of the project. Together with consultants and actors from the *INA*, the *AMPPF* worked out a story outline, keeping in mind key family planning messages developed and pretested during the focus group discussions. Characters were then "fleshed out" until it was felt that rehearsals could begin. When everything was ready, the RTM sent its mobile unit to the outskirts of Bamako and shot the 80-minute play in three days. Because RTM donated the use of its equipment and offered free broadcast time, the total cost for the production, which was aired three times on national television due to popular demand, was approximately US$3,000.

The plot is relatively simple. Using considerable humor, the story parallels the lives of two government employees who work in the same department. One has two wives, too many children for the family's means, and innumerable problems as a result – incessant fighting between the wives, disrespectful and delinquent children, and constant turmoil. What has gone wrong? The other, with one wife and fewer children, enjoys a more pleasant life; his children were planned. Home life, in general, is comfortable. One day, he invites his friend home for dinner and the conversation turns to family planning. The friend is quite taken with the idea and later convinces his wives of the advantages of family planning. One of the final scenes is of the two wives together at the family planning clinic where they receive a detailed explanation of family planning methods. (See photo)

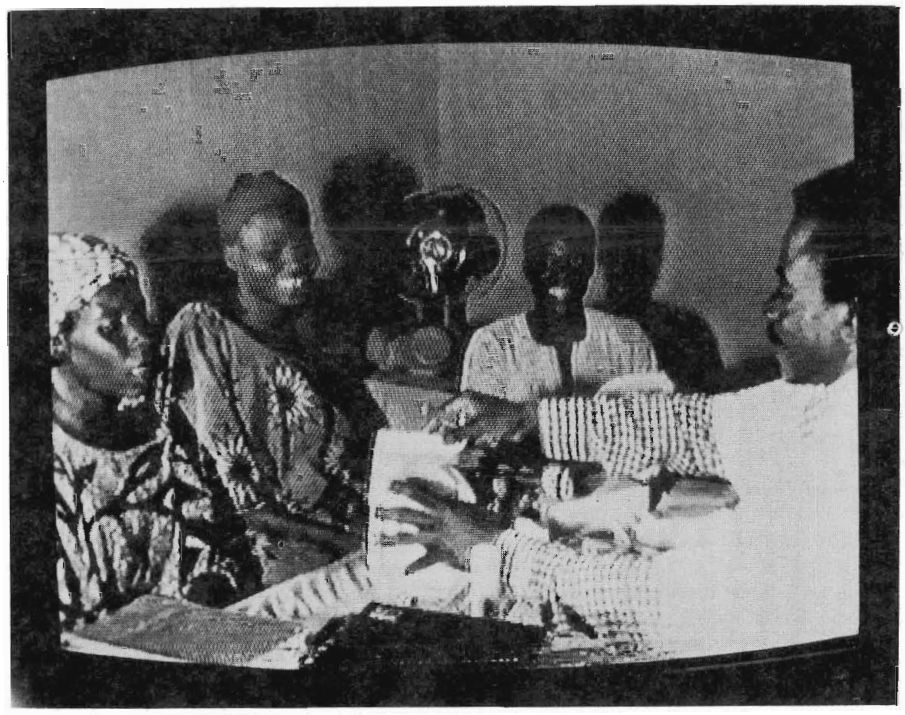
The dialogues are in Bambara, a language understood by roughly 70 percent of the Malian population, as well as by a number of ethnic groups elsewhere in West Africa. Informal group discussions carried out at Ministry of Health (MOH) clinics also revealed that service providers unanimously approved of the teleplay as a motivational tool to steer potential clients to clinics to seek family planning information and services. JHU/PCS has agreed to fund two additional *Koteba* plays as a follow-up to the initial endeavor. The new plays will be broadcast on television and will be available on video as well as transferred to 16mm film so that they can be used as entertaining discussion starters for conferences, workshops, community meetings, and other family planning education forums. Based on popular feedback from the community and MOH service providers, these teleplays will feature family planning from the perspective of maternal and child health, with more information on where to go for contraceptive services.

Strategically speaking, the decision to use the *Koteba* theater format to disseminate family planning messages to the general Malian public was an excellent one. In most regions of the world, particularly when it involves mass media, family planning topics are often shrouded in a variety of other messages so as not to offend or shock the audience. The beauty of *Koteba* is that it is traditionally used as a vehicle to express the everyday concerns of Malian people.

The Origins of *Koteba*

There are several theories as to where the *Koteba* theatrical format originated. One involves a greatly feared Bambara king who ruled at the turn of the century. He was very conscious of his power and was known to gloat about the authority he could wield over his subjects. At the same time, he was aware there was a great deal of dissatisfaction and unrest brewing among his people. Not wanting to cultivate the seeds of potential revolt, he created a game for his subjects. He ruled that for one evening – and one evening only – the populace would have total liberty to amuse themselves in any way they wished.

(*Continued on page 15*)



Padé and his two wives at the family planning clinic.

Development Communication Report
Clearinghouse on Development Communication
dcr
1988 /3
No.62

OCT 18 1988
Agency for International Development
Library
Rm 105 SA-18
Washington, D.C. 20523

Social Marketing + Radio = Educational Success

by Elizabeth Booth and Dr. Jose C.C. Calix

They said it couldn't be done! Some said it shouldn't be done. But the first experiment in marketing interactive radio instruction to school teachers has begun, in Honduras, with remarkable success. More than 80 percent of the first grade teachers in the pilot area purchased the first commercial interactive radio product and are using it in their classrooms. [Interactive instruction is characterized by a mimicking of conversation between students and teachers.]

Background

In early 1987 the Agency for International Development's (A.I.D.) mission in Honduras began a major new Efficiency in a Primary Education Project. One of the seven components of the project was interactive radio instruction to improve the quality of mathematics and Spanish instruction. Responding to a request from the Ministry of Education (MOE), A.I.D. provided a grant to *AVANCE*, a local nonprofit organization dedicated to the use of mass communications for social development, to implement the interactive radio activity. The Ministry made the request with the understanding that they would coordinate with and support the interactive radio component. The A.I.D. mission provided technical assistance to *AVANCE* for the development and marketing of this work through the Radio Learning Project.

AVANCE's mandate requires financial self-sufficiency within three years. This meant that, for the first time, the supplementary print and other interactive radio support materials would have to be sold commercially rather than be distributed free through the public system. *AVANCE* staff faced the unique challenge of applying the lessons learned from the social marketing of products and concepts in agriculture, health, and family planning to the field of education. With the umbrella provided by the A.I.D. funding, they had the opportunity to experiment and revise the process over a three-year period.

Why Sell to Teachers?

In initial planning sessions, *AVANCE* thought they would market interactive radio instruction to the local Parent/Teacher Associations. However, research revealed that although many PTA's maintained school buildings, they generally did not purchase educational support materials. The research also indicated there was an underlying tension between parents and teachers. Teachers maintained that the community did not support them, while parents felt that education was basically the teacher's job.

(**Booth** *continued on page 2*)

Dear Readers,

With this issue, the Academy for Educational Development's management of the Clearinghouse on Development Communication comes to an end.

Funded by the Office of Education of the Agency for International Development's Bureau for Science and Technology, the Clearinghouse is a contractual project that is periodically awarded competitively. For the past 17 years, the Clearinghouse contract has been held by the Academy. This year, A.I.D. has awarded a new five-year contract to the Institute for International Research, Inc., whose staff will continue to provide the publications and information services associated with the Clearinghouse.

We have been privileged to work with you, our readers, over the years, to bring development communication to a point where it is universally accepted as an essential component of development activities. There is still, however, a gap to be closed between acceptance and application to which we must all continue to apply our efforts. We, at the Academy, will continue to work in development communication, and encourage you in your own good work!

On the Road with the Atelier Theatre Burkinabe

by Joy Morrison

In Ouagadougou late one night recently a 16-member theater company quickly loaded two Land Rovers with equipment, props, and costumes for a weekend tour of two northern towns in Burkina Faso. The *Atelier Theatre Burkinabe (ATB)*, 10 years old this year, was again taking its Theater Forum on the road to promote social development in rural communities throughout this West African nation, and I was invited to join them for the weekend.

Drawing upon about 30 civil servants, teachers, and students who perform on a rotating basis, the troupe is dedicated to introducing new ideas to the rural populace through comic drama. *Atelier* has been performing entertaining and didactic pieces in the theater forum format for the past two years; this was to be the last of 14 performances commissioned by UNICEF and the Ministry of Health. The Forum is just that – a medium for discussion and exchange of ideas between actors and audience. It draws the audience into the action and verifies that the message is being understood and reinforced through peer pressure.

Setting Up

After traveling all night, we reached Gorom-Gorom in the far northern Fulfulde-speaking region at 10 the next morning. After a meeting with the local Ministry of Health officials, final arrangements were made for the play's performance in the town's open-air meeting place. Prosper Kampaore, director of

(**Morrison** *continued on page 6*)

Supported by the Bureau for Science and Technology of the U.S. Agency for International Development

Development Communication Report

In this issue. . . .

Social Marketing + Radio = Educational Success 1
On the Road with the *Atelier Theatre Burkinabe* 1
Briefly Noted 4
International Conference on Agricultural Communication . . . 4
Overcoming Impediments to Communication for Rural Development 5
Rethinking Development Support Communication 7
A Communicator's Checklist 8
On File at ERIC 9
DCR Reader Survey Report 11
A Design Studio for an Agricultural Project 13
Messages in Hand: Puppetry for Development 15
L'Utilisation D'Objectifs En Radio Educative 16

Development Communication Report, published quarterly by the Clearinghouse on Development Communication, has a circulation of over 6,000. The newsletter is available free of charge to readers in the developing world, and at a charge of US$10.00 per year to readers in the industrialized countries.

A center for materials and information on important applications of communication technology to development problems, the Clearinghouse is operated by the Academy for Educational Development, a nonprofit planning organization, and supported by the U.S. Agency for International Development, Bureau for Science and Technology, Office of Education, as part of its program in educational technology and development communication.

The views expressed in *Development Communication Report* are those of the authors and not necessarily those of its sponsors. Original material in the *Report* may be reproduced without prior permission provided that full credit is given and that two copies of the reprint are sent to the Editor.

Clearinghouse on Development Communication

1255 23rd Street, N.W.
Washington, D.C. 20037 USA
Tel. (202) 862-1900
Cable: ACADED
Telex: 197601 ACADED WASH

Judy Brace, Director
Kathleen Moran, Editor
Patricia Simons, Information Specialist
Janice Stallard, Program Assistant
ISSN0192-1312

AED

Academy for Educational Development

(**Booth** *continued from page 1*)

When *AVANCE* researchers described interactive radio instruction to teachers, they understood immediately how useful it would be in their classrooms. Nevertheless, they did not want to be put in the position of seeking community support and funding to purchase a product that would benefit teachers more than parents. They, instead, suggested that *AVANCE* sell the supplementary interactive radio materials directly to them, the teachers.

This market research led to the selection of first grade school teachers and opinion leaders such as officials in the MOE and teachers' unions' as the primary audience, and parents of first grade children as the secondary audiences.

What is the Product in Interactive Radio?

AVANCE selected mathematics as the introductory subject for interactive radio instruction because initial research showed that teachers thought it was the most difficult discipline to teach. Historically, interactive radio mathematics projects have concentrated on written practice. To facilitate this new approach, *AVANCE* developed a mental arithmetic course to complement the written exercises taught with the textbook and coordinated activities with the Ministry of Education since it was distributing new textbooks as a part of the Efficiency in Primary Education project.

Since teachers had reported to the researchers that they would welcome more formal support in their work, the "product" *AVANCE* sold was membership in the Interactive Radio System (IRS). In 1987, membership was restricted to first grade teachers in six "states" totaling 3,500 teachers for 98,481 students. It was optimistically projected that 60 percent of the market would purchase membership. IRS membership permitted teachers to participate in training sessions, meetings, and other activities that were going to be developed. Also, teachers received discounts on future educational products developed by *AVANCE*.

The "product" teachers could purchase during this pilot year was *La Familia de los Numeros (The Number Family)*, a series of interactive radio programs to teach mental arithmetic to first grade children. For US$6 a teacher (the average monthly salary of a teacher is US$300) would receive the supplemental materials necessary to use *The Number Family*. This includes four large educational posters printed on durable plastic, a Teacher's Guide which explains interactive radio and the teacher's role, and a large colorful plastic bag for carrying these and other materials. For US$45 a teacher could purchase these materials plus a General Electric radio (which was used in the Dominican Republic RADECO project and proved durable for high volume use over time) As a special introductory offer, each teacher who purchased *The Number Family* received free notebooks for each of their first grade students.

IRS membership and *The Number Family* were sold to teachers by MOE District Supervisors. This was an important decision for the success of the marketing strategy because supervisors are the MOE people with whom teachers have most direct contact. Their administrative role gave them authority over the teachers which facilitates monthly collections from teachers who decide to buy the program on installment. Moreover, by involving the supervisors, *AVANCE* enlisted the active participation of opinion leaders within teachers' unions. It also reduced the cost of distribution and sales.

Sales were made during a series of one-day "In-Service MOE Training Courses." An *AVANCE* staff member was present at most sessions as a resource person, but the interaction was basically between the supervisor and the teachers. One of the keys to successful sales was the way the sessions were conducted. Knowing that most of the teachers had already heard about *The Number Family*, *AVANCE* staff wanted the teachers to *experience* what the product could do for them and to see for themselves how children responded to an interactive program. So they brought in to each training session eight to ten first grade children who had never heard the program and played a tape of one of the broadcast lessons.

Product Positioning

An effective marketing strategy builds on product positioning. In marketing the "product position" is a clear definition of why the target audience should use the product, of what makes it better than other similar products. This positioning is then emphasized in all of the promotional materials to make them part of a cohesive marketing package. The product positioning for *The Number Family* emphasized that 1) children learn mathematics quickly and easily with the program, 2) *The Number Family* supports teachers, it does not replace them, and 3) *The Number Family* follows the official curriculum and is recognized by the Ministry of Education. Each of these points responded to the barriers to product use identified in the market research.

NOTICE
The Clearinghouse Has Moved

The Clearinghouse on Development Communication has been moved to a new location. After September 15, 1988 the address and telephone number will be:

Clearinghouse on Development Communication
1815 North Ft. Myer Drive
6th Floor
Arlington, Virginia 22209, USA
Telephone: 703-527-5546

(**Booth** *continued from page 2*)

Promotional Activities

Promotion, publicity, and public relations were also an important component of the marketing strategy. Radio, television, newspapers, and interpersonal activities were used to inform teachers, parents, and opinion leaders about the product and to create demand for its purchase. "Learning together – it's easy with *The Number Family*," the slogan reflecting the product positioning, was featured in all of the promotional materials. In addition, *The Number Family* song and jingle were played on radio and television spots and programs, and a logo personifying the numbers one through five was printed on all the program materials (see illustration).

The first promotional thrust was a radio spot recorded by the Minister of Education inviting teachers to participate in *The Number Family*. The text of the spot was featured in several newspaper advertisements published at the same time. This formal endorsement was the key to teacher acceptance. Another more lively radio spot was designed to encourage parents to support teachers' purchase and use of *The Number Family*. A third radio spot was designed to encourage departmental pride in having been selected to participate in the Interactive Radio System and *The Number Family*. These spots were recorded locally in each department to reflect departmental differences, a first in Honduran marketing. Radio spots were broadcast on two national and 17 local radio stations for three months. Other activities included a press conference, a three-minute television spot, several appearances on the most important television newscast, weekly newspaper advertisements, and constant contact and public relations with the Ministry of Education and teachers' unions' officials.

Private Sector Involvement

AVANCE was originally initiated as a mechanism to involve the private sector in education. In fact, members of the *AVANCE* Board of Directors are leaders in the business community. Indeed, the private sector had a pivotal role in the successful establishment of *The Number Family*. Possibly the most important effect of the private sector was to provide a protective umbrella of status for *AVANCE* in general and *The Number Family* specifically – protecting it from political and press criticism.

The president of the Board of Directors, the owner of Honduras' largest radio and television network, is donating air time, worth US$150,000, for the program. The product was launched on prime time national television during the announcement of the national lottery. The Teacher's Guides and plastic wallcharts were subsidized by Pepsi Cola, and the student notebooks were sponsored by CocaCola. *AVANCE* also obtained discounts on media placement, access to media reporters, and numerous appearances on the national news because of this private sector involvement.

Costa Rica Purchases *The Number Family*

In May, a delegation from the Costa Rican Ministry of Education visited Honduras to observe the radio programs in action. Ultimately, they purchased *The Number Family* for use in the Costa Rican school system. *AVANCE* will edit the programs to make them more appropriate for their educational system, and their staff is providing Costa Rica with technical assistance in planning, management, scriptwriting, radio production, and marketing.

AVANCE is now monitoring the use of *The Number Family* and in September will carry out a usage study to develop a profile of users, lapsed users, and nonpurchasers. This information will be used to plan their 1989 marketing strategy. Anecdotal feedback currently indicates that there has been some drop-off in product usage. There have been problems coordinating the radio lessons with the textbooks; some rural teachers say the programs go too fast, whereas some urban teachers feel the program delivery is too slow. *AVANCE* will also be testing secondary products such as *The Number Family Songbook*, counters, and *The Number Family* cassettes scheduled to be introduced in 1989.

Lessons Learned

Emerging from this trial combination of social marketing and interactive radio instruction are some interesting lessons learned.

1. *Interactive radio sells itself*: Interactive radio satisfies both the user (children) and the client (teachers). This is unlike most other social marketing products such as ORS, contraceptives, and even breastfeeding that may have unpleasant consequences for the user. Once users have tried interactive radio, they want to use it again . . . and again.!

The success of interactive radio instruction, including its acceptance and popularity among users, has always been the effectiveness of the interactive radio methodology itself. Beyond that, the success of IRI is, in particular, a function of production values. In this sense there is an important analogy to commercial broadcast programming; it is not the network's preseason publicity, but the audience ratings that determine the programs' success or failure. Even the best promotional strategy cannot sell a product that does not meet the needs of the consumer. On the other hand, a "good" product cannot be successfully launched in the marketplace without the proper pricing strategy, distribution system, and promotion or publicity.

2. *Interactive radio is a controversial product*: Education has been moved directly from free distribution through the public sector to marketing through the private sector. Education has always been free, thus marketing it through the private sector is a fundamental and radical departure from past experience. Therefore, political and philosophical resistance will be encountered with the sale of educational products.

3. *Secondary audiences must be included in the marketing strategy:* The support of opinion leaders is very important to product acceptance. If such leaders are not actively involved in the development and implementation of the interactive radio it will fail before reaching its primary audience of children and teachers.

4. *A high quality radio must be used for marketing success*: At first, *AVANCE* did not want to market radios because they are unwieldy and difficult to distribute. They changed their policy, however, when they observed the problems teachers encountered when less reliable radios were used that could not withstand the high volume and daily wear and tear of a classroom environment.

5. *Research is essential for marketing success*: The market research conducted with parents, teachers, opinion leaders, and children was the basis of the marketing strategy. It provided essential information about barriers and opportunities and kept *AVANCE* from making costly mistakes.

For more information about this activity, contact *AVANCE*, Apartado 2040, Tegucigalpa, Honduras. ■

Elizabeth Mills Booth is Social Marketing Adviser for the Honduras Radio Learning Project/AVANCE, which is managed by the Academy for Educational Development. She has worked primarily in Latin American countries in various capacities in the application of mass media to increase the quality and equality of education.

Dr. Jose Carleton Corrales Calix is General Manager of AVANCE. He was the director of the Honduran National Teachers College for 13 years, and a participant in the first National Committee on Educational Reform in Honduras.

Briefly Noted

by Pat Simons

• *Rapid, Low-Cost Data Collection Methods for A.I.D.* is a guide to data collection methods that require fewer resources and less time to generate data than many more rigorous and more widely used methods such as censuses, sample surveys, and detailed ethnographic descriptions. The objective of these less rigorous methods, which are sometimes referred to as "rapid reconnaissance," "rapid appraisal," or "short-cut methods," is to provide timely information with a moderate investment of time and resources.

This publication provides managers with general guidelines on the use of five rapid, low-cost data collection methods. The five methods discussed are 1) key informant interviews; 2) focus group interviews; 3) community interviews; 4) direct observation; and 5) informal surveys. Each method is described and then discussed in terms of its strengths and limitations, the situations in which its use would be appropriate, the skills and time required, and the products that should be furnished at the end of the study.

This publication (PN-AAL-100) is available in the U.S. for US$2 (plus $1.50 for postage or US$3.50 for overseas mailing) from: A.I.D. Document and Information Handling Facility, 7222 47th St., Suite 100, Chevy Chase, MD., 20815, USA

• In the publication *Pre-Census Communication Campaigns Guidelines For Census Planners,* Najib Assifi synthesizes the lessons the UNDP Asia and Pacific Programme for Development Training and Communication Planning (UNDP/DTCP) has compiled from its experiences assisting a number of Asian countries with their pre-census communication campaigns.

Included in this 17-page booklet are discussions on the objectives and strategies of a pre-census communication campaign; the place of interpersonal and mass media channels in such campaigns; the importance of conducting audience research before developing the census message; staff training requirements; and the need for including a monitoring and evaluation system in the campaign plan. It concludes with a list of planning guidelines.

It is available from the Publications Editor, UNDP/DTCP, P.O. Box 2-147, Bangkok 10200, Thailand. The cost is US$2 (via surface mail) or US$3 (via air mail). The UNDP/DTCP publications list, available free from the above address, includes a number of publications on the census communication campaigns in Afghanistan, China, and Indonesia as well as titles on project planning, management and administration; training; materials use and design; and technical cooperation.

International Conference Agricultural Communication

by Gail McClure

An international seminar on agricultural communication was held in Ilorin, Kwara State, Nigeria on June 21-24. Nearly 100 participants from Africa, Asia, and North America attended the conference, which was co-sponsored by The Agricultural and Rural Management Training Institute (ARMTI) and the Canadian International Development Agency (CIDA).

The theme of the conference was "Communication at the Grassroots." The program was divided among four main issues: 1) communication at the grass roots, 2) the role of government in agricultural communication, 3) the mass media and agricultural communication, and 4) barriers to agricultural communication that need to be transcended.

Professor Njoku Awa, Department of Communication, Cornell University, gave the keynote address, "Communication at the Grassroots: Towards a Communication Strategy for Mobilizing Human Resources for Rural Development in the Third World." (See box for summary of this paper.)

Speaking to the conference's main issues, participants presented papers on the communication of agricultural information between rural and urban areas, and from the researcher to the farmer, to women, and to nomads. Other papers discussed the collection, dissemination, and financing of agricultural communication, and the use of radio, television, and print media for agricultural communication. Echoing one of the points of Dr. Awa's address, was considerable discussion of the use of indigenous communication systems.

At the end of the seminar the delegates adopted 30 resolutions reflecting the agreed upon importance of institutionalizing and professionalizing communication in agriculture and rural development. A selection of these resolutions follows:

Issue 1. Communication at the Grassroots

1. Research should be based on actual farmers' activities so that findings can be relevant and easily adoptable.
2. Traditional methods and modes of communication should be enhanced, modernized, and utilized.
3. Farmers should be used more to teach other farmers.
4. The school system should be integrated within the agricultural communication programs.

Issue II. The Role of Government

1. Governments should formulate and enact policies of agricultural communication to be incorporated into long-term agricultural plans.

(**McClure** *continued on page 5*)

• *Small Projects' Training Manual for Administration, Community Development, Water Supply, and Sanitation,* is an excellent three-volume manual for small development projects with 20 to 40 staff members. It can be used as a classroom training guide, for individual study, or as a reference tool during the development and implementation stages of a project.

Volume 1, *Administration and Community Development* provides the most general information covering basic project administration procedures such as planning, feasibility studies, recordkeeping, budgets, meetings, and vehicle maintenance. The second half of this volume is a well-written discussion of community development and its implementation within a project.

Volumes 2 and 3 focus specifically on water supply and sanitation. The discussions and step-by-step instructions are thorough, easy to follow, and accompanied by well chosen, clearly drawn illustrations. These are practical how-to manuals dealing with technical matters related to the construction and maintenance of wells and latrines.

The manual was produced by the Munuki Water and Sanitation Project, of the Sudan Council of Churches. The volumes can be purchased separately or as a set. Volume 1 (267 pages) is DM15 or US$8. Volume 2 (515 pages) is DM29 or US$15.44, and Volume 3 (195 pages) DM11 or US$5.86. The set is DM55. Postage is DM8.40 (surface mail) to countries other than Germany. Orders should be sent to Gumberger Rudolf, Postgironkonto Nr. 34660-809, BLZ 700 100 80, Postgiroamt Munchen, West Germany. Information can also be obtained from the Publicity Office, Sudan Council of Churches, P.O. Box 469, Khartoum, Sudan.

• *My Name Is Today* by David Morley and Hermione Lovel begins by telling the reader that 12 to 18 million children under the age of five die in the world each year and that 95 to 98 percent of these deaths occur in

(**Briefly** continued on page 10)

(**McClure** *continued from page 4*)

2. Governments should strengthen linkages between research, extension services, and farmers, encourage two-way communication, and pay particular attention to the monitoring of feedback from farmers.
3. Governments should encourage an integrated, multi-disciplinary approach agricultural information generation and dissemination, particularly at the grassroots.

Issue III. Mass Media and Agricultural Communication

1. More agricultural journalists and communicators should be trained.
2. Agricultural writers and communicators should be employed by research institutes, ministries of agriculture, and all other agro-related agencies to propagate agricultural communication in a way that is easily absorbed by the end-users.
3. The mass media should endeavor to be an effective link between research and the public by regularly contacting research centers and agricultural development programs.

Issue IV. Breaking Barriers to Communication

Barriers to agricultural communication were listed under the following headings: social/cultural barriers, infrastructural barriers, political barriers, economic barriers, marketing barriers and topographical barriers. Some of the recommendations were as follows:

1. Social/cultural barriers can be addressed by 1) mass education/adult literacy programs; 2) education of women; and 3) participation of rural communities in project formulation and implementation.
2. Political barriers can be addressed by 1) encouraging grassroots representation at policy formulation levels; 2) getting rural communities organized; and, 3) removing discriminatory practices and policies, particularly against women.
3. Economic barriers can be addressed by 1) strengthening programs to ensure effective farmer cooperatives; 2) increasing credit facilities to farmers on terms acceptable to them; and 3) removal of middlemen.

Participants also testified to the need to strengthen the international network among agricultural communicators. According to Dr. O. Makinde, the conference chairman, "Participant enthusiasm was so high that plans are already underway for another communication conference to be held within the next two years, either in Africa or Asia." ■

Gail McClure is Vice President for Agricultural Programs at the Academy for Educational Development. She previously was a communication specialist at the University of the West Indies, Agricultural Extension Department, and the Associate Director of the Minnesota Extension Service at the University of Minnesota.

The following is a summary of the keynote address, "Communication at the Grassroots: Towards a Communication Strategy for Mobilizing Human Resources for Rural Development in the Third World," by Dr. Njoku E. Awa at the International Conference on Agricultural Communication and Rural Development held in Ilorin, Nigeria, June 21-24, 1988.

Overcoming Impediments to Communication for Rural Development in the Third World

Dr. Awa stated that the conference theme, "Communication at the Grassroots," acknowledged the need to explore communication strategies for rural development other than those rooted in the traditional top-down conception of communication, and he identified four impediments to development communication in agriculture and rural development. These impediments, he said, are "lack of participation in the identification, formulation, and implementation of development programs; failure to consult indigenous knowledge; considering Western media to be the only instruments of mass communication; and the benign neglect of women in rural development."

Participation

While participation is broadly recognized as a necessary strategy for intervention programs, many projects, "especially those designed by government agencies. . . continue to ignore local needs, neglect local resources, and alienate local groups." Practice, said Dr. Awa, fails to measure up to the rhetoric on participation. This is partially due to the failure to recognize that partial involvement of local people is not the same thing as participation. Participation, he continued, "requires 1) mental and emotional involvement, not just mere physical presence; 2) a motivation to contribute, which requires creative thinking and initiative; and 3) an acceptance of responsibility, which seldom occurs when solutions are imposed by outside authorities."

Also limiting true participation is the fact that government agencies too often see themselves as dispensers of aid. "Under these conditions, involvement of local people in the formulation and execution of development projects can be seen as a threat to the beneficiary role of governments and their functionaries. It would seem awkward, for example, for a development agency to go to a local community without a clear agenda, and to attempt instead to formulate an understanding of specific problems in concert with local people."

Indigenous Knowledge

Local knowledge, which is based in part on a community's interaction with its environment, is seldom, if ever, consulted in development activities, said Dr. Awa. He encouraged development communicators to look for ways to mobilize local resources and promote increased dialogue between groups with technical and scientific knowledge and those with indigenous knowledge. He said that "indigenous knowledge can be used in conjunction with scientific knowledge to improve the conceptualization of research problems and the development of instruments."

Awa pointed out that many early studies in development communication, including those based on theories of diffusion as well as some that were not, often portrayed the mass media as "mobility multipliers" and media exposure as a necessary condition of innovativeness. For instance, Daniel Lerner, writing in 1958, described urbanization, literacy, mass media, and participation as critical predictors of modernity.

While not doubting the ability of modern media to create awareness and to promote educational and other development objectives, Awa speculated that attention has been deflected from Third World participants investigating the relative effectiveness of their own traditional media. ". . . Third World countries felt that their own media, like David before Goliath, seemed inadequate for proving the promise of the mass media as the 'mobility multiplier' in national development." The effective adoption, development, and refinement of traditional media, which will truly provide communication at the grass roots level, remains a communication challenge for the nineties.

Role of Women in Development

Women account for 60 to 80 percent of the agricultural labor force in some parts of Africa. The Arusha Strategies for the Advancement of Women in Africa identify numerous obstacles to their full participation. Dr. Awa noted that women in Africa often perform a variety of tasks in the field and in the homestead, yet their contributions to agricultural production are not given adequate recognition. "In many countries women are still invisible, their enormous contributions to human, economic, and cultural development notwithstanding . . . The situation calls for greater attention to the education and training of women, both as extension agents and as leaders," said Awa.

Until these structural impediments are more adequately addressed, Dr. Awa suggested that communication in the fields of agricultural and rural development will not be fully realized. ■

Printing Industry Training

The United Nations Industrial Development Organization (UNIDO) is organizing its annual course to "further the educational qualifications of leading managers in the printing industry from developing countries."

The course aims to support the development of strong national printing industries. Topics may include these, which were covered as well in last year's three-week seminar.

- Development trends and the use of modern procedures and machines of printing technology
- Structure and principles of management of printing works
- Control, assessment, and guarantee of the quality of printed products
- Training of qualified employees and managers for the printing industry
- Development and use of modern technologies such as phototypesetting, electronic reproduction, offset printing, and efficient binding
- Planning, designing, construction, and reconstruction of printing works

Applications for the UNIDO training course are to be sent via national governmental authorities to Ms. Irene Lorenzo, Head Training Branch Division of Industrial Operations, UNIDO, Vienna International Centre, P.O. Box 300, A-1400, Vienna, Austria.

Register of Development Expertise

The *Register of Development Expertise in Asia-Pacific* contains information on 322 development experts involved in research into the broad area of economic and social development in the region. The *Register* is published jointly by the Asian and Pacific Development Centre (APDC) and the Association of Development Research and Training Institutes of Asia and the Pacific (ADIP).

The publication places special emphasis on categories such as agricultural and rural development, industrial development, public management, trade and regional cooperation, energy planning and management, human resource development, population, and women in development.

Experts are listed alphabetically and are profiled in the first section; the second section contains indexes to the experts' fields of specialization and expertise.

Priced at US$8 plus postage and 200 pages long, the *Register* can be ordered from the Executive Secretary, ADIPA Secretariat, c/o Asian and Pacific Development Centre, Periaran Duta, P.O. Box 12224, 50770 Kuala Lumpur, Malaysia.

(**Morrison** *continued from page 1*)
the *Atelier* troupe, requested some last-minute publicity and quite soon you could hear a loudspeaker blaring throughout the town, reminding the inhabitants of the not-to-be-missed performance that would take place that evening.

Every member of the troupe had an assigned task, and, within an hour, the stage and sound system were set up. The villagers began arriving at dusk and by 8 p.m. there was an audience of 300 to see *Halte à la Diarrhée* (Put a Stop to Diarrhea). The play opens with a vendor trying to sell bad goat meat at the market. Even though this vendor is chased away by the legitimate butcher, a man whose family has had no meat for some time unwisely purchases the suspect meat despite being warned by the butcher.

He proudly brings it home for his family, but when he shows it to his wife, she refuses to prepare it. Their children, a boy and a girl, eagerly beg her to cook it, but she agrees only when her husband orders her to prepare it, saying she will not eat it or feed it to their baby.

After eating the meat, the husband and children become ill. The wife begs her husband to take the children to the clinic as their diarrhea becomes more severe, but he refuses, saying it is a waste of their money. Instead he brings in a traditional healer who administers enemas to the children, but the girl soon dies of dehydration.

A medical doctor visits and scolds the man for this waste of his daughter's life. He explains how a simple solution of sugar, salt, and water could have saved her. He demonstrates by filling a sponge with water and, after squeezing it dry, drops it to the ground, likening this to the human body when fluids are lost and not replaced. This is a powerful image – one that noticeably impresses audiences with its graphic message that fluid loss through diarrhea can result in death.

The Audience Joins In

The underlying comedy in this 30-minute, five-act play has to be seen to be appreciated, but the humor is what holds the audience and brings the message home. After the play ended, the director invited spectators to come forward to give their interpretations of various roles or to assume a role and portray the character as she or he thinks it should be played. Finally, the audience is invited to come on stage, take the microphone, and answer questions on the causes of diarrhea and what can be done to help prevent dehydration and death, particularly among babies.

There was no shortage of volunteers among the children; even the men came up to recreate the role of the father. But, in this traditional Islamic community, women were reluctant to volunteer, especially since it would be to recreate a role where the wife must stand up to her husband. This situation was handled with tact and persuasion by the actors and the director (who plays the doctor); eventually a woman came forward and admitted that she always does what her husband requests, but in these circumstances she would have burnt the meat to a cinder rather than have her children eat it. And yes, she can remember the oral rehydration solution proportions, and yes, she will fix it for the next child who has diarrhea, or get an ORS (oral rehydration solution) sachet from the local clinic.

A middle-aged man from the audience recreated the role of the father, defending his decision not to take his children to the clinic by explaining how expensive and time-consuming it is. A Ministry of Health official in the audience responded by recreating the role of the doctor. A small boy volunteered to repeat the steps in preparing the oral rehydration mixture. When he gave the wrong proportions, he was corrected with yells and jeers from other boys and was immediately replaced by another eager volunteer who knew the correct proportions and added that the water needed to be boiled. He was rewarded with an ORS sachet. These exchanges lasted nearly an hour with many amusing role recreations. Traditional attitudes were dealt with, and humor was applied to several difficult situations.

As the evening wore on, the space between the audience and the actors became smaller and smaller. By the end of the evening, the children were under the actors' feet, mesmerized by the music, the performance, and the message.

The message was clearly understood and readily accepted; the medium is very popular, and the communication, in both directions, is of a high quality. The director is convinced of the value of his efforts. The next night the same play was performed in another town. We repacked the Land Rovers for the long trek home, arriving in time for the actors to return to their jobs in the civil service, at the university, or in the commercial sector in Ouagadougou

Atelier Theatre Burkinabe is on the road as many as three weekends a month. The remuneration is small, but the actors feel their contribution toward saving children's lives is their greatest compensation. Rural Burkinabe communities have benefited tremendously from this innovative, entertaining form of development communication. ■

Joy Morrison is a doctoral candidate at the School of Journalism and Mass Communications at the University of Iowa, Iowa City, Iowa, USA. She is currently working on her dissertation on the use of theater as a communications medium for rural social development in Africa.

Rethinking Development Support Communication

by Silvia Balit

Communication occupies an ever more important place in development policies and programs and is now coming into sharper focus as experience is reviewed and evaluated.

The concept of Development Support Communication (DSC) was initially promoted by several groups within the UN System. The Food and Agriculture Organization (FAO) was quick to recognize the importance of the emerging discipline, and in 1969, the Development Support Communication Branch was formed as a field oriented unit within the Information Division. It was later incorporated as a sub-program within the FAO Rural Development Program with a broad mandate to service requests from member governments for assistance in rural communications. Development Support Communication currently forms an essential component in many spheres of FAO activities including forestry, fisheries, and agriculture. An integrated approach to rural development has been applied wherein communication support also has been provided to women, population, health, nutrition, and literacy programs.

FAO's Mandate

FAO's mandate for communication in support of rural development was reinforced by the 1979 World Conference on Agrarian Reform and Rural Development (WCARRD), which placed special emphasis on the participation of the rural poor, not simply in sharing the benefits on development but also in sharing the responsibility of development decision making. The Conference concluded that "rural development strategies can realize their full potential only through the motivation, active involvement, and organization at the grass-roots level of rural people with special emphasis on the least advantaged, in conceptualizing and designing policies and programs and in creating administrative, social, and economic institutions, including cooperative and other voluntary forms of organization, for implementing and evaluating them."

In the light of such an approach, if development strategies are to be successful they must aim at engendering "understanding and awareness of the problems and opportunities of rural people at all levels and improving the interaction between development personnel and the masses through an efficient communication system." In effect, this means that no development strategy is complete unless communication policies and activities are incorporated into the diagnosis of needs, and into the design and implementation of priorities selected for a development action.

When FAO's DSC activities began, little was known about how to use communication among largely illiterate populations in developing countries for developmental purposes. The general assumption was that the mass media could have a major impact on the problems of transferring ideas and technology to rural populations in developing countries. This assumption soon proved mistaken; it was based on an over-simplification of development problems that often overlooked peoples' cultures, traditions, and values. Development communication is now seen more as a social process, designed to seek a common understanding or consensus among all the participants of a development initiative, leading to concerted action. The media are now seen as useful tools to help to bring about this process, and to assist in learning. Their use is not an end in itself, and interpersonal communication plays a major role.

> . . . the common denominator [to] successful development communication endeavors is "clear strategy and rigorous management."

The Expert Consultation

After almost 20 years of action-oriented programs, including a number of innovative and successful experiences as well as lessons learned from failures, FAO felt that there was a wealth of experience that warranted an in-depth analysis. For this reason an Expert Consultation on DSC was organized in June 1987. For the first time, 15 rural communication specialists gathered in FAO to analyze past experience and to provide guidance for future activities. They came from different backgrounds, experiences, and regions, including university professors, field practitioners, DSC specialists from within the UN System, and outside.

Yet, notwithstanding the differences in experience and approaches, a common understanding and a consensus on the best directions to take for the future emerged during the five days of hard work and discussions. A state-of-the-art background paper, describing the conceptual and historical development of DSC, and a series of case studies analyzing different methodologies and approaches as well as the impact achieved in a selected number of DSC programs, were provided to the Expert Consultation as background material.

To begin with, the meeting analyzed the role of communication in rural development today and some of its essential features. The participants felt that "the essence of involving rural people in the process of their own development lies in the sharing of knowledge. Sharing is not a one-way transfer of information; it implies, rather, an exchange between communication equals. On the one hand, technical specialists learn about peoples' needs and their techniques of production; on the other, the people learn of the techniques and proposals of the specialists."

It followed that the outcome of useful sharing of knowledge is not so much the replacement of traditional techniques by modern ones as a merging of modern and traditional systems to produce something more appropriate that suits the economic and technical capacities of the people as well as their cultural values. The ultimate purpose of knowledge-sharing is to enable rural people to take more control over their environment, and over agriculture, health, habitat, and other elements which so critically impinge upon the quality of life.

Barriers to Sharing

The problem has been that sharing of knowledge has not taken place spontaneously between development agents and rural people because neither have possessed the skills necessary to overcome certain barriers. Foremost among these barriers have been socio-cultural ones; development efforts have often been undermined by incompatible communication approaches, by a clash of differing levels of education and literacy and differing use of language. Other important barriers have been the divergent interests of the parties concerned and differing perceptions of the realities of a given situation. Communication for development is a response to the need to overcome such barriers. Communication activities set out to reinforce the cultural identity, local values, and knowledge of people as an avenue to their active participation in development.

The experts attempted to define DSC as follows: "Development Support Communication (DSC) is part science, part art, and part craft:

- It is part science because it draws heavily on social science theory, methodology, and general philosophy.
- It is part art because it incorporates artistic talents and skills such as graphics, photography, radio, video, social marketing,

(**Balit** *continued on page 12*)

A Communicator's Checklist

1 Primary Health Care: A Guide for Research in the Human Sciences, by J.O. Igene, J.O. Chikwem, B.A. Omotara, and S.A. Oyegbile, (Maiduguri/Ibadan: Universities of Maiduguri/Ibadan Presses, 1986) 198 pp.

Although primary health care (PHC) is high on the agendas and curricula of most African governments and medical schools, there are few existing documents and reference materials on this subject and still fewer relevant textbooks that focus solely on the African experience. *Primary Health Care* is a ground-breaking text that partially addresses this problem.

Acknowledging the lack of information and research on primary health care, the University of Maiduguri, in concert with the World Health Organization (WHO) and the Nigerian Federal Ministry of Health, organized a workshop on this theme. These compiled proceedings should help to motivate universities to promote and facilitate primary health care by stimulating interest in research and by emphasizing the role of the human sciences in this area.

Section one examines the role of epidemiology, biostatistics, and immunization in primary health care. It also addresses the uses of drugs and vector control in communicable endemic diseases. Section two highlights the relationship between socio-economic status and health problems, population dynamics, and maternal and child welfare in primary health care. Section three focuses on food, water supply, and sanitation, specifically tackling the issues of food storage, preservation and processing in primary health care. This section also includes presentations on nutritional requirements in health care, disease prevention, and cure. Another issue covered is the importance of environmental hygiene, clean water, and waste disposal as primary health care strategies. Health education and primary health care is the theme of Section four. The role, objectives, and methodology of health education in primary health care are critically analyzed here.

Interdisciplinary Approach

The strength of this book lies in its interdisciplinary approach to the crucial problem of primary health care in Africa. All contributors, who are for the most part experts in botany, biology, medical practice, social science, and engineering, contributed enthusiasm and innovative ideas to the workshop. As a result, readers receive a comprehensive picture of what primary health care strives to achieve from multiple vantage points.

Unlike other books where the frame of reference is Europe or the United States, the examples in this volume are gleaned solely from Africa. This makes it considerably more worthwhile and relevant to the African reader as well as other interested health and social program practitioners in developing countries.

Also welcome additions are policy option discussions at the end of each chapter. These provide sharp contrast to so many publications that present theories, descriptive passages, and criticisms but lack concrete policy options with which to replace the criticized policies.

Above all, this book is well written. It uses lucid English and avoids unnecessary jargon and technical terms that often characterize books in this field.

What is Missing?

Two flaws of this book, however, are the absence of a section devoted to communication and the inadequate number of graphic illustrations. Communication and primary health care are inextricably interwoven; indeed, the communication component is crucial to the success of PHC.

Its second shortcoming, a paucity of illustrative graphs, diagrams, and pictures, is equally regrettable. With a topic as fundamental and adaptable to illustration as is primary health care, more space and effort should have been devoted to presenting the statistical information in a way that would have better highlighted noteworthy facts and figures.

Criticisms notwithstanding, *Primary Health Care* is a pioneer publication with great utility to Africans as well as to other interested observers of the African health scene. It will be helpful not only to medical practitioners, students, teachers, and policy makers, but also to the person whose survival under harsh environmental conditions depends upon maintaining good health. ■

This book is available in hardcover for 30 Nigerian Naira (US$6) and in softcover for 19 Nigerian Naira from the University of Maiduguri Bookshop, PMB 1069, Borno State, Nigeria, or from Northern Nigerian Publishing Company, N.N.P.C., Kaduna, Nigeria.

Jerry Komia Domatob is a lecturer and Acting Head of the Mass Communication Department at the University of Maiduguri. He has worked as a free-lance journalist with Radio Canada International and as a translator. He is currently working on two books.

2 Communication, Development and the Third World by Robert L. Stevenson, (White Plains: Longman Inc., 1988)

The history and background of the New World Information and Communications Order (NWICO) is set forth and partially documented by Robert L. Stevenson in *Communication, Development and the Third World.*

It is an important history, not only because of the role the debate on NWICO played in the U.S. withdrawal from Unesco, but also because it provides the underpinnings for current efforts in telecommunications development. Many lessons learned during NWICO's beginnings should serve as guides for policymakers dealing with communications technology in the developing world during the 1990s.

NWICO's 30-year history started with Wilbur Schramm at Stanford University and Daniel Lerner at Massachusetts Institute of Technology, who pioneered the concept and launched programs to use media as a tool for development. As a student of Schramm's in 1960 and in 1963 as a Peace Corps staff member working on the Colombia educational television project, I recall what Stevenson repeatedly refers to as Schramm's optimistic scenario of mass media as "multipliers of knowledge, experience, and inspiration." I remain optimistic about mass media's potential, but I find Stevenson's book helpful in identifying the many pitfalls along the way toward realization of that potential.

Schramm greatly influenced the thinking within Unesco through the years, and, as Stevenson points out, development communication has come full circle with the creation of the International Program for the Development of Communication (IPDC) 20 years after Schramm's *Mass Media and National Development* appeared in 1964. The early promise gave way to disappointment and then to radical alternatives before returning to the reality of lingering Third World needs and enlarging gaps between these countries and the West. While the technology had changed, costs had plummeted, and developing countries could theoretically assemble whatever communications structure they wanted, "the important difference between communication development in the hopeful 1960s and the skeptical 1980s was not technology so much as the purposes to which the technology would be put."

Stevenson traces the mood swings of politicians and practitioners during the 60s, 70s, and 80s. He probes the role of mass media and the fierce debates around NWICO and development theory. Anecdotes provide

useful insights about the MacBride Commission report (an assessment of the political issues of international communication in the 1970s) and the outcomes of the report's recommendations. A brief record of communications development is followed by a review of developing nations' news agencies, the state of the media in these nations, and the press freedom issue.

There was a significant focus in NWICO on the role played by the Western press in developing countries. Stevenson's description of the global news "networks" and their efforts to encourage "news for development" is an important contribution to the literature and to our understanding of this phenomenon. In 1987 I taught a graduate course on these issues and had to search through old files and interview eyewitnesses to prepare course materials; I even assigned the MacBride report as a text – difficult reading for the uninitiated. *Communication, Development and the Third World* will make an ideal textbook for such a course.

In the final chapter Stevenson reasseses communication development by describing the contributions and failures of Unesco including the collapse of the radical alternative advocated by NWICO. He goes on to summarize lessons learned during this "first generation," among them the recognition that 1) hitching rapid national development to the locomotive of communication does not work if supportive government policies do not exist; 2) grand designs to shift the financial or information resources of the West to the developing world were politically unrealistic and misguided; and 3) Third World development needs an increase in both wealth and information more than a reshuffling of that which already exists. Addressing some of the needs of developing countries, the author suggests that governments practice greater honesty and public accountability for what they do and do not do to promote freedom of information. Furthermore, Stevenson observes, it will be increasingly harder to keep out unwanted information and to maintain a monopoly over its flow as people have greater access to inexpensive ways of obtaining and disseminating information.

Turning in the end to the responsibility of the West, Stevenson believes that, particularly in the United States, the media has been appallingly inadequate in its coverage of Third World affairs, flying in the face of an identified desire among the U.S. population for more news, especially nondisruptive, nonexceptional coverage of the lives of three-quarters of the world's population. He also suggests that the West, both its government and its media, needs to expand its still meager development aid programs so that Third World countries can benefit from the rapid developments of technology.

In conclusion, Stevenson suggests that "communication has the potential to contribute constructively if modestly to Third World development, and those in the West with the responsibility and authority to shape policy can influence constructively if modestly the size and direction of the contribution."

With this book, Longman Press and the Annenberg School of Communications have added another important contribution to their list of works on communication. Robert Stevenson has done a commendable job of sharing the results of his monitoring and observations of the NWICO history. Its value is further multiplied by the use of no fewer than 31 pages for sources and bibliographic references.

This book is available for US$35.95 (hardcover only) plus shipping and handling from Longman Inc., 95 Church Street, White Plains, New York 10601-1505, USA. ■

Lynn Gallagher is president of Telecom/ Telematique International, a telecommunications consulting and education firm.

On File at ERIC

by Barbara Minor

Documents recently entered in the ERIC (Educational Resources Information Center) files include papers and reports on satellite communications in developing nations; distance learning systems, structures, and projects; and computer education for developing countries. All five of these documents are available in microfiche and two are available in paper copy as well from the ERIC Document Reproduction Service (EDRS), 3900 Wheeler Ave., Alexandria, Virginia, 22304 U.S.A. Be sure to include the ED number and payment in U.S. funds for the price listed plus shipping. (VISA and MASTERCARD charges are accepted by EDRS.) U.S. requesters should calculate postage as follows: 3 microfiche = 1 ounce; 75 microfiche = 1 lb.; and 75 pages of paper = 1 lb. Paper copies of APEID publications are usually available through UNIPUB, 4611-7 Assembly Drive, Lanham, Maryland 20706-4391, USA. **The ERIC Clearinghouse on Information Resources cannot fill orders for these documents.**

● Pelton, Joseph N. *A New Era Begins: Satellite Communications and Development.* 1987, 19pp. (ED 289 457)

This overview of changes in the field of telecommunications development produced by satellite communications over the last 15 years focuses on applications of satellite systems for educational and health purposes in developing countries. Satellite communications development from 1974 to 1986 is identified as the first stage of telecommunications in developing countries, which was generally a trunking network restricted to large cities and beginning with lease or purchase of equipment from INTELSAT. Such projects in Algeria and Brazil are briefly described. A second stage of satellite communications development, which has rural service as an important part of the planning objectives, is also identified and the following topics are addressed in this context: 1) rural satellite communications systems in China and India; 2) new services and low-cost options available through INTELSAT; 3) major studies on the extension of telecommunications systems into rural and remote areas; 4) new digital compression techniques; and 5) cost/benefits of communications development. Guidelines for assessing the level of communications development are suggested. Attachments include lists of countries with INTELSAT leases and purchases; countries with dedicated communications satellite systems; and regional satellite systems. Also attached is a status report for Project SHARE which lists 14 projects together with their sponsors, the participating countries, the type of transmission, and content. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● Bates, A.W. *Satellites for Education and Training. IET Paper No. 258. Report on Visit to India, November 28-December 13, 1986.* 1986 6pp.(ED 285 575)

This paper briefly reports on a visit to India to gather information on the INSAT-B satellite project for the purpose of identifying the main issues involved in using satellites for education and teaching purposes, with respect to potential Open University of Great Britain involvement. Organizations visited and individuals interviewed are identified, and a 33-item list of documentation on the Indian satellite experience collected during the visit or through desk research is provided. Available from EDRS in microfiche for 82¢ or in paper copy for $1.94.

● *Distance Learning Systems and Structures: Training Manual. Volume II. Report of a Sub-Regional Training Workshop (Colombo, Sri Lanka, July 5-18, 1984.)* 1987, 106pp. (ED 288 499)

Directed toward the training needs of distance education systems which are in a mixed stage of development, this three-part manual sets out training modules for an assortment of specialists currently contributing to distance learning systems. The first part discusses basic principles, including the aims of training, who should be trained, what they will be trained in, who will train them, how they will be trained, and where and for how long distance educators will be trained. Tasks and training needs as proposed in a report of an earlier APEID (Asia and the Pacific Programme of Educational Innovation for Development) regional seminar are

(**Minor** continued on page 10)

(**Minor** continued from page 9)
appended to this section. The second section describes the training modules and how they are used, and provides exemplary modules designed for the training of personnel involved in system administration, the production of correspondence materials, or the writing of scripts for educational radio or television. Orientation materials for distance learners and their families are also provided. The third section contains examples of training modules and materials that can be used to supplement the workshop programs, including bulletins, newsletters, journals, conferences, a mid-career training program for distance education personnel, and preservice and broadcast study programs. A glossary of 17 distance education terms concludes the manual. Available from EDRS in microfiche only for 82¢.

● *Evaluation of Distance Education Projects under APEID. Report of a Study Group Meeting (Nanjing, China, August 16-25, 1986).* 1987, 58pp. (ED 288 500)

This report documents the work of a study group that reviewed the distance education activities undertaken during the Third Cycle of the Asia and Pacific Programme of Educational Innovation for Development (APEID) as a basis for the further development and utilization of distance learning systems and structures. Reports on distance education development and the contributions of APEID during the Third Programme Cycle are also reviewed in terms of program areas, objectives, activities, and outcomes. A synthesis of the resulting summaries is presented in two parts – regional and subregional meetings, and national workshops. On the basis of these summaries, it was concluded that substantial progress has been achieved on the distance education projects that resulted from regional/subregional and national activities initiated by APEID, particularly with respect to: 1) distance education systems and structures; 2) training of distance educators; 3) course and study materials design and development; and 4) the use of distance education as an infrastructure for other developments. A discussion of future directions for distance education during the fourth programming cycle of APEID concludes the report. The agenda, a list of participants, and a list of working documents are appended. Available from EDRS in microfiche only for 82¢.

● Harper, Dennis O. *Computer Education for Developing Nations.* 1985, 51pp. (ED 290 465)

This report describes a project in Malaysia which provided three pilot courses using computer-assisted instruction (CAI) for both inservice and preservice teachers. Two courses for secondary teachers introduced the use of CAI in the secondary classroom and Logo for secondary mathematics, and primary teachers were shown how to introduce their students to CAI. The numerous factors that influenced the outcomes of this project are discussed, including problems with administration, transportation, "red tape," facilities, equipment repair, language of instruction, staff development, and time allotments. Other findings were that: 1) inexpensive microcomputers can be reliable; 2) the teachers who participated in the course come away with more optimistic attitudes toward computer use in education; 3) the majority of teachers learned to program and could produce CAI and Logo programs in the Malaysian language; and 4) the only background differences that significantly affected the final examination scores were English listening skills. A discussion of the possible implications of the study for educational planners in developing nations concluded the report, and a 68-item reference list is provided. Available from EDRS in microfiche only for 82¢, or in paper copy from the International Council for Computers in Education, University of Oregon, 1787 Agate Street, Eugene, Oregon 97403-1923, U.S.A. for $10.00 prepaid.

For information on how to order a majority of these documents, please see the first paragraph of this column. ■

Barbara B. Minor, Publications Coordinator, Eric Clearinghouse on Information Resources, 030 Huntington Hall, Syracuse University, Syracuse, New York, U.S.A.

(**Briefly** *continued from page 4*)
developing countries. The surviving children in these countries often suffer from malnutrition, disease, a lack of clothing or shelter, and limited educational opportunities. The book goes on to present a variety of facts, statistics, and observations on the conditions of child and family health and nutrition in developing countries, and the kinds of measures that are needed to promote good health and growth for children everywhere.

What makes this book distinctive is the generous array of illustrations, charts, graphs, and drawings that accompany the authors' discussion, providing a graphic reinforcement of the information being presented. Through this combination of written and illustrative commentary the book effectively fulfills its stated objective of bringing up-to-date information on child health to people working in health and development. It would be extremely useful not only to those needing the written discussions but also for those seeking illustrative materials pertaining to information on child survival in developing countries.

The book is available from Macmillan Publishers Ltd., Houndsmills, Basingstoke, Hampshire RG21 2XS, U.K. or from TALC, P.O. Box 49, St. Albans, Hertfordshire AL1 4AX, U.K. The cost is US$3.25 in the U.K. and US$1.65 elsewhere.

A Selection of Resources for Health, Agriculture, and Training Materials.

1. **Teaching Aids at Low Cost (TALC)** provides low-cost appropriate teaching materials to health workers in developing countries. Publications are available on mother and child care, nutrition and child growth, disability and appropriate technology, health care services, health education and communication, and medicine. Accessories include medical slides from the Institute of Child Health of the University of London, a child weighing kit, child health charts, height-for-weight charts, and sugar and salt measures. Materials are available in English, Spanish, French, Arabic, Portuguese, and Chinese. For more information and a list of materials write to TALC, P.O. Box 49, St. Albans, Hertfordshire AL14 AX, United Kingdom.

2. The **Appropriate Health Resources and Technologies Action Group (AHRTAG)** has published the *AHRTAG Resource List: Free International Newsletters*, a list of 73 free newsletters that discuss topics and issues related to primary health care. The list would be a useful resource for library and information centers and for health workers involved in training, clinical, or community work. It is available free from AHRTAG, 85 Marylebone High Street, London W1M 3DE, U.K.

3. **World Neighbors** has recently sent out a new and updated *Training Materials Catalog*. **World Neighbors** produces teaching materials in the areas of community development, water and sanitation, health and nutrition, family planning, agriculture, and small animal raising. Materials include a wide variety of filmstrips, books and booklets, flipcharts, photo series, newsletters, and projection equipment. The latter includes lightweight, inexpensive projectors, and electric and solar battery chargers. For a free catalog write to World Neighbors, 5116 North Portland Ave., Oklahoma City, Oklahoma 73112, USA.

4. In May of this year the **Information Centre for Low External Input Agriculture (ILEIA)** published a bibliography of abstracts, periodicals, organizations, and books related to sustainable agriculture. It includes abstracts of 45 major books, a list of 32 periodicals, 34 information centers, 5 international networks, 15 international institutions and a bibliography of an additional 254 publications. Individual citations are listed alphabetically, indexed by subject, and include an address for further information. This useful reference is available by subscribing to the *ILEIA Newsletter* for DFL 40. (US$20/year). Free subscriptions are available in developing countries. Write to ILEIA, P.O. Box 64, 3830 AB Leusden, The Netherlands. ■

Pat Simons is the Information Specialist in the Clearinghouse.

1988 DCR Reader Survey Results

by Sharon Smith Elsayed

Only five months after the 1988 *DCR* Reader Survey was distributed to its 6,125 subscribers, the Clearinghouse has received nearly ten percent of them back. We are very pleased with this response rate knowing that nearly 3/4 of our readers are in developing countries and mail delivery is usually quite slow. Approximately 32 percent of the responses were from subscribers conducting most of their work in the Asia/Pacific region, followed by 29 percent whose work is primarily in African countries. Those working primarily in South and Central America, the Caribbean, and Mexico comprised another 22 percent of respondents, with the remaining 17 percent working in the Middle East, Europe, the United States, and Canada. The following is a summary of the results obtained from the survey, reflecting the views and insights of this widely diverse and dispersed readership.

The extensive comments and actual numbers from the survey demonstrate clearly that the *DCR* serves as a valuable resource in development communication technologies, reaching beyond subscribers' desks right into the field. Nearly 54 percent of respondents have used one or more specific ideas presented in the newsletter, with 55 percent reporting that they read the *DCR* thoroughly. Pretesting of materials, radio and video technologies, computers in development, comics and photonovels, social marketing, visuals in teaching, and survey/evaluation techniques were among the most frequently used ideas. Readers indicated a desire to see more information about communication applications in environmental education, agricultural technology, AIDS, and other health concerns.

Results of the survey indicate that the 6,125 subscribers to DCR reflect only a small percentage of the actual number of readers. Based on estimates of how many people read a single issue of the newsletter, other than the subscriber, **there are an average of seven readers for each subscriber**, bringing the actual readership to approximately 42,875.

Survey Results

(Note: Respondents were instructed to check the number of boxes indicated for each question.)

- Most of my communication work is in the field of: (one box only)

Population	(5%)	Nutrition	(5%)
Agriculture	(21%)	Telecommunications	(4%)
Health	(22%)	Other	(14%)
Education	(29%)		

- The professional position which best describes me is: (one box only)

Project Staff	(15%)	Information Manager	(14%)
Consultant	(17%)	U.S.A.I.D. Staff	(2%)
Academic	(26%)	Government Official	(12%)
Other	(14%)		

- Most of my work is conducted in: (check as many as appropriate)

Africa	(29%)	Middle East	(4%)
Asia/Pacific	(32%)	Caribbean/ S.America	(14%)
Mexico/Cent. America	(8%)	Europe	(4%)
USA/Canada	(3%)		

- I read the *DCR*: (one box only)

Thoroughly	(55%)
Selectively	(37%)
Add to a collection for others	(8%)

- I find the English in the *DCR*:

Quite easy to understand	(92%)
Somewhat difficult to understand	(7%)
Very difficult to understand	(1%)

- In addition to myself, the following numbers of people read my *DCR*: (one box only)

none	(13%)
1 - 5	(65%)
6 - 10	(9%)
11 - 20	(5%)
Over 20	(8%)

- I have used the *DCR* in the following ways: (check as many as appropriate)

Project design & evaluation	(13%)
Teaching & research	(28%)
Prepare for professional meetings/ conferences	(22%)
Ordering publications/ requesting information	(26%)
Reprinting articles	(8%)
Other	(3%)

- I have used a specific idea from the *DCR* or suggested an idea to someone who used it: (check one box)

Yes	(54%)	No	(46%)

- I would like to see the *DCR*: (check as many as appropriate)

Continue to provide articles on specific communication strategies	(25%)
Continue to cover technology applications	(20%)
Alert readers to new communication issues	(22%)
Be expanded	(8%)
Have more pictures/graphics	(9%)

Comments

In contrast to the 1984 reader survey, use of the *DCR* for education and research has increased significantly. Particularly in Africa and the Asia/Pacific region, academicians in agriculture, health, and education appear to be using *DCR* in their teaching and research. The *DCR* is also being used by a significant number of project staff, consultants, as well as academicians to prepare for professional meetings and conferences, and frequently to order publications or to request further information.

Perhaps the most revealing and rewarding aspect of the survey responses were the answers to open-ended questions and the extensive comments, ideas, and suggestions received from more than 80 percent of the respondents. Some suggestions contradicted the numerical evidence of the survey. For example, some suggested simplifying the language used in the *DCR*, whereas 92 percent of respondents find the English quite easy to read. However, requests to provide translations to Spanish, French, and Urdu were received from quite a few readers. As testament to the usefulness of the *DCR*, one reader commented that he uses many ideas from the publication and "hoped that we didn't mind him adapting the survey for his own use, with full recognition to the *DCR*, of course."

The apparent commitment of a diverse network of professionals was reflected in the wide variety of applications for ideas and technologies presented in the *DCR*. The Clearinghouse staff in Washington would like to thank all respondents for their cooperation and for sharing their concerns, suggestions, and gratitude with us.

A complete report of the findings from the survey may be obtained by writing to: Sharon Smith Elsayed, 8648 Ridge Road, Ellicott City, Maryland 21043, U.S.A. ■

Sharon Smith Elsayed assisted the Clearinghouse in designing the DCR Reader Survey. She is currently working at Biospherics, Inc. in Greenbelt, Maryland, and was a health communication planner with the PRITECH Project, managed by Management Sciences for Health.

(**Balit** *continued from page 7*)

structural design, and the like.

- It is part craft because it employs a wide variety of aids and equipment such as cameras, projectors, typesetters, computers, and broadcasting and telecommunitions paraphernalia, for preparing, projecting, and disseminating messages."

After analyzing the case studies and experience to date, the participants in the meeting thought the following were fundamental common factors in determining success:

1. As in all development activities, communication, it is to be successful, must be based on the perspectives of the rural people.
2. Communication for development must be incorporated in the planning and programming stage of projects. It helps to determine the areas of common need and interest among governments, rural people, development workers, and donor agencies. This leads to projects that are viable and sustainable because of the converging interest of all sectors involved.
3. The duration of components in development projects, and of communication projects themselves, must be sufficiently long to demonstrate their value and to create an institutional base. A duration of four to five years should be considered a normal minimum for most projects.
4. For a given development activity, there will be a critical mass of communication staff, resources, and equipment below which little or no impact can be expected. Hence, the dimension of the communication input must be carefully tailored to the needs of the development action. It must not be a token input, as it so often is, irrespective of the scope and importance of the communication task to be performed.
5. Particularly among the poorest of the poor, a holistic approach is essential, covering the multifaceted aspects of life in rural areas, and therefore dealing not only with agricultural production but covering also such matters as health, habitat, and nutrition.

The Right Environment

It also emerged that there are certain essentials at the national level for the successful use of communication for development. They are as follows:

1. A strategic use of communication for development requires a policy decision in its favor, followed by sustained government support.
2. A decision by government in favor of broad-based communication support for rural development, using all of the media infrastructures available to it in an orchestrated fashion, will usually give better results than concentration on one medium, such as radio broadcasting for example.
3. The issue of national staff is critical, and there are three criteria for determining the personnel requirements for carrying out communication for development activities. These are quantity of staff, quality of staff, and the permanency of their assignments to the task.

Even when all the above factors have been taken into account, the experts believed that the common denominator that remains in successful development communication endeavors is "clear strategy and rigorous management."

The Consultation made a number of recommendations to FAO and its Member Governments to improve the planning and implementation of DSC activities. These will serve as guidelines for re-orienting the work of the DSC Branch, and its assistance to Member Governments.

To governments, the Consultation recommended that they recognize more fully that development is largely based on voluntary change by people and that communication can lead to the proper situation analysis, research, and participative testing necessary to ensure that activities be people oriented, responding to real needs. Governments were requested to consider establishing functional DSC units for rural development and, in the light of the crucial role played by communication in social and economic transformation of rural societies, the Consultation recommended that governments consider allotting suitable budgets for development communication.

Recommendations to FAO

The recommendations to FAO included the need to provide more orientation and briefing on communication for development to field programming staff and missions, to ensure that it is incorporated into the programming cycle from the inception of projects and throughout implementation. The DSC Branch should pay more attention to the planning and development of integrated rural communication systems and strategies, as opposed to the individual media approaches applied in the past. The need for training in communication of national staff at all levels was underlined, and the meeting recommended that the DSC Branch re-orient its activities to strengthen its training functions. National training institutions should be approached to build up their curricula in the area of development communication planning and management. In the field of research and evaluation, the Branch should continue to document successful and unsuccessful experiences, especially of an innovative nature, and make the results available to governments to assist with future planning and management of DSC activities.

Apart from serving as a basis for re-thinking FAO's directions in development support communication, the conclusions of the Expert Consultation have already aroused considerable interest on the part of governments, national institutions and international organizations concerned with rural communications. The findings of the Rome meeting are thus contributing to a better definition of the role of communication in rural development as well as providing guidelines to improve communication policies and programs. ■

Silvia Balit is Chief of Development Support Communication Branch, Information Division, at the FAO in Rome, Italy.

Project Access for Surplus Satellite Space

Introducing the benefits of satellite technology to residents of rural and remote parts of developing countries is the goal of Project Access, sponsored by the International Telecommunications Satellite Organization (Intelsat).

Access succeeds Project Share, which provided free satellite surplus space for 40 health- and education-related projects affecting 65 nations, Intelsat has announced that it will limit the Access program to about 10 projects annually, with strong emphasis on the ability to convert each program to sustained commercial service.

Intelsat recommends the following steps in planning a Project Access program:

- identify a target group that can benefit from Project Access;
- identify the type and content of the information to be transferred under the program and the communication media needed to transfer the information (voice, printed data); and estimate the starting time, ending time, frequency, and duration of the transmissions. (The applicant may contact Intelsat for a preliminary evaluation of its proposal.)
- send a signed application form to Intelsat headquarters.

Intelsat will examine each proposal and either approve it, conditionally approve it subject to revisions, or disapprove it. Once an application is approved, the applicant, signatories, and Intelsat will finalize the schedule for the project.

For more information or for an application, either contact your country's Director of Telecommunications or write to: Project Access, Director of Service Assistance and Development, Intelsat, 3400 International Boulevard N.W., Washington, D.C. 20008, U.S.A.

A Design Studio for an Agricultural Project

A full-length version of this article appeared in the March 1986 issue of Media in Education and Development. The Clearinghouse would like to thank editor George Grimmett for permitting DCR *to reprint a condensed version.*

by Cliff Morris

Cliff Morris of the University of Reading's Department of Typography and Graphic Communications was invited to visit the Kano State Agricultural Development Project in Nigeria to help organize a design studio and to train staff. This article describes his experience and offers guidance to those who find themselves in a similar situation.

The Kano State Agricultural Development Authority (KNARDA), is one of a number of Agricultural Development and Research centers located throughout Nigeria. KNARDA has a large program devoted to helping farmers produce more, better, and varied crops. A Media Centre consisting of a video and photographic unit and a printing department was established to support this program. The video unit is responsible for producing instructional videos and transparencies. It also maintains video equipment that has been installed in vehicles used for teaching in remote areas of Kano.

The printing unit designs and produces instructional and information materials such as handbooks, newsletters, posters, etc. for the entire Agricultural Development Authority. Experts prepare the teaching materials and send them to the printing unit for production. Posters usually are created in the design studio and, if accepted by the Chief Training Officer, go forward to production either within the unit or, if the format is too large for the machines, to a local printer.

My task was to train the design studio staff and to establish cooperative working relationships with other parts of the Media Centre.

Staffing

It is difficult to lay down rigid guidelines on the number of designers needed in such an organization. Obviously, this depends on the amount of projected work. It is possible, however, to define the skills that a designer will need to work in such a center.

The designer must be capable of handling a wide variety of typographic formats. This includes the ability to place words and lines of type on a page in an aesthetic manner while at the same time drawing attention to important points by using combinations of the various graphic techniques. He must also know how to produce forms, leaflets, and miscellaneous graphic documents that are easy to understand and to use.

Manuscripts often require illustrations, and writers usually cannot prepare their own. A designer should be able to understand writers' needs and know how to prepare illustrations that are acceptable to them, as well as easy to understand and are not too difficult to produce.

The designer may also be called upon to prepare interior and exterior signs (such as lettering on vehicles and boards for experimental farming plots) and to create lettering and illustrations for videos and transparencies.

It seems quite clear that a paragon is called for, not just a designer, to fill all of these roles! In reality, at least two people are needed – each with different skills that will complement the other. One should have had typographic training. The other should not only be skilled at illustrating but also be able to assist the typographer when necessary.

It is difficult to find people with typographic training in most developing countries. College-level art and design courses seem to focus their training on art, textile design, etc., but offer nothing on the design of printed materials.

There are other ways for designers to get these skills; a specialist could be brought in to do on-site training or a designer could be released for at least three months (preferably nine) for off-site training. Also, one of the senior management staff could attend a course in typographic design and then pass on this training to technicians in the graphic design unit.

Working Environment

A graphic design unit, although a part of a printing department, does not necessarily have to be housed within it. Essentially, what is needed is a self-contained, well-lit room with sufficient space for equipment and storage. Running water should be nearby, not only for personal cleanliness, but also to clean technical pens and other design equipment as well. Sufficient power must be available for the electrical equipment that will be used in this department, including extra illumination.

A small darkroom will be needed. Along with film development, this room will be needed to hold a process camera used to reduce and enlarge artwork and other copy for paste-up purposes. The darkroom should be easily accessible to the design staff, thus preferably located adjacent to the main studio. If possible, the use of this darkroom should be limited to the design staff, but realistically, it may also be needed to process and print photographic work for other departments. In this case, it is essential that these two functions be isolated so both activities can proceed simultaneously. This calls for a room within a room, each having light-trap entrances, so staff can move from studio to darkroom and from one darkroom to another without allowing light to enter and ruin light-sensitive materials.

Equipment and Materials

Each designer should have a large drafting desk with adequate storage space at his or her main work station. A light table capable of parallel motion and equipped with a vertical rule will be needed for paste-up and film stripping, and possibly for checking print proofs. If there are more than two designers in this unit, more than one light table may be needed.

Space will be needed to appropriately store camera supplies. In addition, the studio will need space for items such as a series of architect's drawers to store large sheets of paper, for finished work, and for work in progress.

Smaller items of equipment such as technical pens, pencils, set squares, lettering stencils, scalpels, etc. will be needed by each designer. If properly used and cared for, these should last for some time.

Expendable materials such as various weights of paper and cardstock and adhesives for paste-up, transfer lettering, and tracing paper will be used almost daily. Most of these items are difficult to find locally, so must be ordered either from large cities or from outside the country. It is essential, therefore, that an adequate re-ordering system be established immediately.

Transfer lettering poses a more difficult problem. There is such a variety of typefaces and sizes available that errors in ordering can easily occur. It is advisable to study the catalogue and order a large supply of a limited number of typefaces in several sizes at one time so that adequate supplies are always on hand.

Organization and Management

It is important that the working area be carefully planned. Maximum use must be made of floor space and natural light. Desks should be positioned as near to windows as possible, but light tables can be placed in the darker areas since they have their own light source. A flat surface will be needed beside the light tables to hold tools and materials for paste-up. These tops should be covered with special cutting mats to prevent damaging other surfaces and to prolong the life of scalpel blades.

The daily management of the design studio presents problems to the small unit. Work requests from other departments will have to be sorted out by a design unit administrator.

(**Morris** *continued on page 14*)

(**Morris** continued from page 13)
One way to solve conflicting demands on designers' time is to set aside certain time blocks to work with specified departments.

Paperwork will consist of having to keep job sheets, progress sheets, specification forms, etc. all of which will have to be developed for the special needs of a particular design studio.

The administrator is responsible for ordering supplies and acting as the liaison between other units in the center. Talking with clients, typesetters, and printers is also an administrator's job.

It should be made clear to other departments in the center that all printing jobs, including reprint work, must go to the design studio first. The design staff are in this way responsible for designing the job or passing it through to the printer. This prevents problems later on when copy must be fit into a selected format.

Cooperation Between Units

Most newly-developed media centers have the technology to produce instructional videos. Such a video can be considerably enhanced by careful attention to the graphics used in its titles and captions or descriptive passages. Designing graphics for still shots on a video is not difficult, but any movement of the graphic on the video calls for special handling and equipment if the end product is to look professional. Good communication is required between a video crew and the design staff to achieve a satisfactory final product.

Close cooperation will also be necessary between designers and photographers. The designer may suggest the selection of materials and models, but the photographer is responsible for technical decisions based upon discussions with the designer.

Liaison will also be needed with instructors who request special visual aids or slides for their lectures. For example, a designer accompanied by a photographer may visit a farm or research institute to prepare illustrations or take pictures of crops, animals, or farmsteads for instructional purposes.

And finally, in a well-managed design studio each person knows what is required of him or her; regular meetings are held to discuss new jobs and to review the progress of ongoing assignments. Jobs are more likely to be completed on time and satisfactorily with regular monitoring. Furthermore, the positive feedback from well-done work will maintain a high morale in the unit. ■

Correspondence can be addressed to Cliff Morris, Department of Typography and Graphic Communication, University of Reading, 2 Earley Gate, Whiteknights, Reading RG6 2AU, U.K.

(**Puppetry** *continued from page 15*)
- the audience correctly perceived the various "roles" the puppet characters exemplified.

Training Workshops

The production and creative staff of the NMPC Puppet Theater have been fully equipped to train interested community organizations who want to establish local-level puppet theater groups. The staff conducts workshops on puppet production including puppet design and execution, props production, direction, stage construction, and puppet manipulation. To improve their training techniques, four members of the theater group received further formal training in puppetry in Czechoslovakia in 1982.

The group also assists the Communication Foundation for Asia in conducting sessions on "Puppeteering as a Tool for Development" during periodic seminar/workshops.

Training activities are monitored and evaluated as a matter of standard practice by the National Media Production Center. These evaluations are conducted to assess the effectiveness of the training program in conveying the knowledge and skills necessary to mount a puppet production, as well as to evaluate the mechanics, methodology, course content, and trainers of the puppet training workshops. Evaluations show that many of the participants felt the training sessions had given them the type of production skills they needed to use puppetry for development messages.

Conclusion

The NMPC Puppet Theater experience has shown that puppet theater projects are effective in fostering community identity and in communicating development and social messages. One of its main strengths is its easy replicability – script development, production design, and staging can easily become a community undertaking. ■

This book is available from Asian Mass Communication Research and Information Centre (AMIC), 39 Newton Road, Singapore 1130, Republic of Singapore, for US$10 (in Asia), US$8 (elsewhere).

(**French** *continued from page 16*)

e. *Cinquième*: elle définit le critère de succès. Si, dans le cas d'engrais, nous voulons que leur utilization augmente de 5 pour cent, le critère est 5 pour cent. Ceci nous explique *dans quelle mesure* l'auditeur doit faire quelque chose pour que notre objectif soit atteint.

Application

Comment utiliser des objectifs en radio éducative:

Les animateurs de radio éducative doivent utiliser des objectifs comme première étape de la planification des émissions. Les objectifs contiennent les éléments-clés à mettre en valeur et à enseigner, et représentent les connaissances à présenter clairement et sur lesquelles insister dans le cadre du programme.

Au stade d'élaboration de l'émission, les objectifs sont utiles, car ils fournissent l'ordre de base. Le contenu s'enchaînera selon les objectifs si ceux-ci sont ordonnés correctement, et s'ils passent des concepts simples aux plus compliqués.

Les objectifs peuvent aussi être donnés à l'etudiant, soit dans l'émission, soit dans un dossier accompagnant l'émission. Leur valeur ici est comparable à la valeur des notes destinées à l'enseignant. Ils mettent en lumiére les points importants à étudier. Les objectifs de chaque leçon peuvent être définis a l'intention de l'enseignant (et en fin de compte a l'intention de l'étudiant) dans les notes de l'enseignant. En les lui donnant, on lui fournit des informations sur les points-clés de la leçon, et ainsi vous, producteur, permettez en fait – a l'enseignant de faire partie de *votre* équipe. Votre émission sera mieux comprise et mieux utilisée si l'enseignant est integré à votre équipe. Il en devient membre en soulignant les points-clés (les objectifs) au tableau et/ou en développant les sujets en question après audition de l'émission.

A ne pas oublier:
- Une production efficace commence par la planification.
- La question-clé à poser au moment de la planification est:
  "Où est-ce que je veux aller?"
- Un bon objectif est formulé clairement et spécifiquement.
- Les objectifs s'ordonnent étape par étape, du plus facile au plus difficile.
- Les buts sont moins spécifiques, plus généraux que les objectifs
- Des objectifs bien formulés contiennent cinq composantes. Elles définissent:
  1. Qui
  2. Fait quoi
  3. A quoi
  4. Dans quelles conditions
  5. Avec quel succès
- Les Objectifs peuvent être utilisés en radio pour:
  1. La production d'émissions
  2. La définition des points sur lesquels l'enseignment insistera
  3. La facilité d'apprentissage de l'étudiant et
  4. La facilité d'enseignement de l'enseignant. ■

Messages in Hand: Puppetry for Development

This article has been adapted from Chapter Three of Philippine Folk Media in Development Communication. *The Clearinghouse would like to thank the Asian Mass Communication Research and Information Centre and Dr. Victor Valbuena, the author, for kindly granting us permission to reprint portions of this chapter.*

Among the many forms of folk media, puppetry has caught the attention of communication and development planners. The great potential of puppetry as a channel for socialization and education communication was recognized by many Asian development and communication planners attending the Literacy, Population, and Family Planning Education Workshop held in New Delhi in 1970. Since then, a number of Asian countries have tapped the liveliness of this medium for their various education and communication programs.

The Philippines has used its own form of puppets – shadow puppets, called *carillo*, since the mid-eighteenth century. Since the mid-1970s, there has been a renaissance of puppetry in the Philippines where many groups emerged to actively use this format for entertainment, education, dissemination of development information, and even for commercial purposes. The repertoire of these puppet theater groups today ranges from legends and folk tales, Biblical dramas with moral lessons, comic situations, and dramas on development-oriented themes including nutrition, dental health, family planning, environmental sanitation, and land reform.

Evolution of A Puppet Theater

In February 1975, the National Media Production Center (NMPC), established its Nutrition Communication Office (NCO) to produce and disseminate information and education materials for the Philippine Nutrition Program. The use of puppet theater for nutrition education purposes was developed out of a desire on the part of NMPC to experiment with the use of popular, folk, and low-cost media for development communication. In a "Concept Paper on Puppet Theater," the NCO explained the objectives of the theater project:

- encourage children's participation in government programs to improve nutrition;
- demonstrate by way of an entertainment medium the values of proper nutrition;
- encourage children to accept the positive values, beliefs, and practices of proper nutrition;

While the primary goal of the puppet theater project was to create awareness of proper nutrition among children, the NCO also viewed the project as a vehicle for increasing adult popular participation in development processes.

To meet these objectives, the NCO

- tested the viability of puppet theater for nutrition education by staging initial presentations in schools, day care centers, community halls, etc.;
- conducted training workshops on puppet theater for interested community organizations and subsequently established a community-based Nutrition Puppet Theater Group on the municipal level;
- presented and performed puppet shows in the respective communities by these organizations; and
- continued to monitor and evaluate the project with assistance from the partner community organizations.

In July 1978, a puppetry workshop was held to train and equip the would-be puppeteers. The script developed during the workshop contained messages on proper nutrition geared to a young audience. The final product was the puppet show *Kainan Na (Time to Eat)*, a performance which included entertainment, drama, and a quiz.

For entertainment, a song and dance are performed by puppets that have been modeled after popular Filipino entertainers.

Drama is achieved through the development of a story about *Kapitan Munggo* (Captain Mung Beans), an ordinary boy who assumes the personality of a fantastic magical hero and who attributes his strength to eating vegetables and drinking milk.

A concluding quiz is hosted by two puppets who ask questions about nutrition. The audience contestants who answer the questions correctly receive prizes. Since its first performance before a girl's school in metro Manila, the puppet theater group has been constantly kept busy by requests from other schools, government agencies, and even private groups and individuals asking them to stage puppet dramas or variety shows.

Since 1978, the NMPC Puppet Theater has introduced into their shows themes on population, agrarian reform, developing childrens' values, the role of rural women in development, and proper health habits. The group has developed and staged several hundred shows throughout the Philippines, in other Asian countries, and in Europe. The NMPC Puppet Theater has, in fact, become a separate theater unit within the National Media Production Center and in 1984, was rechristened "The Black Theater of Manila."

"What accounts for the Theater Group's popularity," Ms. Lolita Aquino, head of the Puppet Theater Group, explains, "is that more and more agencies are trying to find new ways of making education more interesting and appealing; and puppet shows are an effective medium for making this possible."

NMPC Puppet Theater Repertoire

The NMPC Puppet Theater uses a range of topics and approaches. Some of its shows were initiated and developed by the theater group on its own; others were co-production ventures. Some are original works; others are adaptations. The group's repertoire includes

Kapitan Munggo Series: This series was an outgrowth of *Kapitan Munggo*, the magical hero of NMPC's first production mentioned above. The series acts out the different adventures of *Kapitan Munggo* as he fights off the enemies of proper nutrition like *Halimaw na Kendi* (Sugar Candy Monster).

Smile Ato Series: A co-production between a dental health foundation, a school of public health, and a toothpaste manufacturer, this series depicts the troubles of a people whose supply of fluoride and toothbrushes were stolen by a ruthless old witch and her wards. The people are saved by *Smile Ato* (Smiling Boy), the guardian of proper dental health.

Kids on the Block – Filipino Version: This is an adapted play that recreates conversations about disability between disabled and non-disabled puppets. A local civic organization and the National Commission Concerning Disabled Persons co-produced this play.

Integration with the Mass Media

The live puppet stage has not been the only venue for performances of the NMPC Puppet Theater. In 1980, the Communication Foundation of Asia requested the theater to produce 21 half-hour television episodes containing educational and social development themes for children. Three years later, two of the theater's puppet characters were co-hosts on a weekly television variety show. In 1984, the NMPC Puppet Theater developed, co-produced, and directed another television series on Filipino values that was interwoven into a fantasy tour of the country.

Evaluating Productions

Regular feedback gathered from theater audiences indicates that the health messages were being accurately recalled. For instance, a 1978 post-test performed by the NMPC Research Office of school children who had seen the *Kapitan Munggo* performance showed that:

- puppetry had been effective in projecting nutrition messages to its target audience;
- forty-two out of the forty-three children interviewed understood the messages about eating the right kind of food;
- thirty-six out of forty-three respondents approved of the form of message delivery; and

(**Puppetry** *continued on page 14*)

L'Utilisation d'Objectifs en Radio Educative

Nous avons choisi pour nos lecteurs un chapitre d'une publication qui mérite d'être retenue. L'édition originale publiée par Asian-Pacific Institute for Broadcasting Development sous le titre de "Educational Broadcasting: Radio" a été traduite et publiée en français sous le titre de: "Communiquer grâce à la radio: Manuel" par l'Organisation des Nations Unies pour l'alimentation et l'agriculture.

La publication dont a été tiré le présent chapitre, "Communiquer grâce a la radio: Manuel" peut être obtenue auprès de L'ONUAG, Via delle Terme di Caracalla, 00100 Rome, Italie.

Le producteur d'émissions éducatives n'est pas isolé quand il travaille, au contraire c'est en tant que membre de l'équipe de radio éducative qu'il les produit. Il planifie des émissions qui répondront aux critères définis par le gouvernement, par le ministére ou par l'organisme de radiodiffusion. Si on crée une émission éducative dans le vide, sans qu'existe le lien voulu avec un texte existant, ou un projet, il y a peu de chances qu'elle soit significative ou utilisée à bon escient. Grâce à une bonne planification, on produira de bonnes émissions et le degré d'utilisation sera élevé.

En accord avec des spécialistes de l'éducation, le producteur doit décider des changements en matière de connaissances, d'attitude ou de performance que le(s) émission(s) contribuera(ont) à induire dans le public.

Developpement

En jargon éducatif, il existe un nom pour ce que nous voulons que les gens fassent, ou apprennent; nous l'appelons *objectif*.

> Un objectif définit clairement et simplement ce que nous espérons réaliser *ou* le point ou nous espérons arriver à la fin d'une activité.

Nous pouvons avoir des objectifs éducatifs, des objectifs de développement national, des objectifs de gestion, tout comme des objectifs de radio. Cela dépend entièrement de ce sur quoi est centrée l'activité à entreprendre.

Pour la plupart des activités, l'étape critique est celle de l'identification du(des) objectifs(s) réel(s). En tant que producteurs de radio éducative, il peut arriver que les objectifs d'émissions nous soient donnés par des spécialistes en la matière, des créateurs de programmes scolaires, la direction de la radio ou l'équipe de production. Dans tous les cas, il est essentiel d'examiner ces objectifs et de déterminer s'ils sont réalistes par rapport au moyen de communication, s'ils sont adaptés à la situation et s'ils sont réalisables dans le cadre de l'émission, ou de la série, à produire.

Un problème commun aux objectifs est qu'ils sont souvent exprimés en termes trop généraux et pompeux, ce qui rend leur réalisation impossible en un seul projet ou une seule tâche. Un second problème commun est que souvent ils sont trop simples pour traiter véritablement d'une question dans sa totalité.

Buts et Objectifs: Quelle est la Différence?

En général, un but n'est pas exactement interchangeable avec un objectif. Il peut falloir un certain nombre d'objectifs pour atteindre un but, comme dans l'exemple suivant. Autrement dit, les buts sont plus généraux que les objectifis.

Exemple:

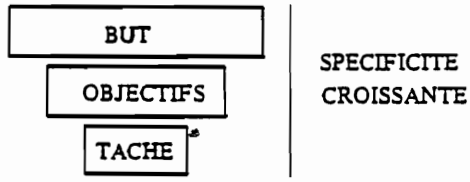
But: L'étudiant apprendra des concepts d'éducation en matière de population.

Objectif 1: L'étudiant sera capable d'établir un graphique de la croissance et de la distribution de la population.

Objectif 2: L'étudiant sera capable de discuter des causes et des conséquences de la croissance rapide de la population.

Objectif 3: L'étudiant pourra établir les rapports entre dimension de la famille et: santé de la mère et de l'enfant, possibilites d'éducation pour les membres de la famille, productivité agricole.

Dans les exemples ci-dessus, nous sommes passés d'un but général à des objectifs plus spécifiques. A partir de là, nous pouvons continuer à décomposer les objectifs en tâches encore plus précises. Quand nous passons des buts aux objectifs puis aux tâches, nous devenons plus spécifiques, en définissant plus clairement ce que doit être fait.



Les objectifs doivent indiquer spécifiquement ce qu'il faut enseigner. Il ne suffit pas de dire simplement que "l'étudiant apprendra des concepts d'éducation en matière de population." C'est une formulation trop générale. Quand saurons-nous que "les concepts" ont été étudiés? Qu'est-ce qu'un concept?

Soyez specifique. Dans l'exemple ci-dessus, l'enseignant ou le producteur doit analyser la formulation afin de définir quels points spécifiques de l'éducation en matière de population l'étudiant doit étudier, en attendant de la connaître à fond. En organisant les objectifs, vous *organisez l'apprentissage en étapes et en stades.* Cette organisation tient compte de la progression logique de l'étudiant suivie (on peut l'espérer) de sa compréhension logique, grâce auxquelles l'apprentissage progresse facilement du simple au complexe et d'un point à un autre.

Comment Rédiger les Objectifs

Un bon objectif doit définir cinq caractéristiques ou composantes importantes. Il s'agit de:

a. Qui (Le Sujet)
b. Fait quoi (L'Action)
c. A quoi (Le Contenu de l'Action)
d. Dans quelles conditions (La Condition)
e. Avec quel succès (Le Critère)

Qu'est-ce que cela signifie?

a. *Première composante*: elle définit le public visé. Ceci signifie que vous devez vous concentrer sur votre auditeur, et non pas sur vous-même ou sur de vagues buts concernant l'émission. Vous faites des émissions de radio dans l'intérêt des auditeurs, pour les aider à évoluer. Il peut s'agir d'une évolution du comportement ou bien d'une évolution du niveau des connaissances.

b. *Deuxième*: elle définit un *comportement observable explicite.* Pour ce faire, vous devez définir une action concrète, observable, que vous désirez stimuler, comme par exemple l'utilisation des engrais ou la participation à une reunion. Quand vous énoncez ces objectifs, choisissez soigneusement vos verbes. Servez-vous de mots tels que:

utiliser	dresser la liste
écrire	discuter
suivre	construire

Evitez les *termes vagues* ou les actions qui peuvent être difficiles à évaluer, tels que:

connaître	vouloir
comprendre	apprécier

c. *Troisième*: elle définit le contenu de l'action voulue. Ceci signifie qu'elle définit ce qui doit être fait. Si vous voulez augmenter la participation à une réunion, ne manquez pas de dire "à une réunion." Formulez l'objectif de façon à ce qu'une autre personne le comprenne aussi bien que vous.

d. *Quatrième*: elle définit les conditions. Ceci signifie définir les circonstances dans lesquelles quelque chose se produit: où et quand? Par exemple, augmenter la participation à la réunion mensuelle des adeptes du planning familial. Dans ce cas, ce qui est souligné dans l'énoncé de l'objectif définit les conditions ou la situation. Cela indique le lieu.

(**French** *continued on page 14*)