

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

FOR AID USE ONLY
BATCH 61

| | | |
|---------------------------|----------------------------|-----------|
| 1. SUBJECT CLASSIFICATION | A. PRIMARY B. SECONDARY | TEMPORARY |
|---------------------------|----------------------------|-----------|

2. TITLE AND SUBTITLE
Evaluation of analytical services relating communication technology to development

3. AUTHOR(S)
(100) Barkenbus, J.N.; Heitmann, Khatanga; Margolin, Victor; Miller, George; Molenda, Michael; Sprague, D.M.; (101) ATAC

| | | |
|--------------------------|-----------------------------|----------------------|
| 4. DOCUMENT DATE 1972 | 5. NUMBER OF PAGES 118p. | 6. ARC NUMBER ARC |
|--------------------------|-----------------------------|----------------------|

7. REFERENCE ORGANIZATION NAME AND ADDRESS
ATAC

8. SUPPLEMENTARY NOTES (Sponsoring Organization, Publishers, Availability)

9. ABSTRACT
(COMMUNICATION R&D)
(EDUCATION R&D)

| | |
|---|---|
| 10. CONTROL NUMBER PN-AAD-837 | 11. PRICE OF DOCUMENT |
| 12. DESCRIPTORS | 13. PROJECT NUMBER |
| | 14. CONTRACT NUMBER CSD-3376 Res. |
| | 15. TYPE OF DOCUMENT |

MASTER

F-2

**EVALUATION
OF ANALYTICAL SERVICES
RELATING COMMUNICATION TECHNOLOGY
TO DEVELOPMENT**

November 1972



AMERICAN TECHNICAL ASSISTANCE CORPORATION

1730 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20036

MASTER

EVALUATION OF ANALYTICAL SERVICES RELATING
COMMUNICATION TECHNOLOGY TO DEVELOPMENT

NOVEMBER, 1972

Prepared by:

Jack Barkenbus
Khatanga Heitmann
Victor Margolin
George Miller
Michael Molenda
David Sprague

for:

Agency for International Development

Under Contract No: AID/csd 3376

ACKNOWLEDGMENTS

The role of nonformal education in less developed countries has only recently begun to gain its share of educational planners' attention. As a result the amount of material written about this field as opposed to formal education is relatively sparse. For those planning projects in nonformal education, this lack of information places even greater importance on personal contact with the few experts intimately connected with nonformal education's problems and needs.

We feel very fortunate to have held discussions with a number of these people during the course of this contract, and we would like to acknowledge our gratitude to them. Within AID, this group includes Lloyd Florio, Charles Blackman, Stanley Applegate, Charles Ladenheim, and Steen McCull. Seminars were also held with people outside the Agency, including Bernard Wilder, of Michigan State University; Philip Coombs, of the International Council for Educational Development; C. Ray Carpenter, of the University of Georgia; Joseph Margolin and the Educational Policy Group of George Washington University; and Bert Cowlan, of the Institute of Public Administration.

Although the information and knowledge of these people in many respects made this report possible, the responsibility for its contents is totally attributable to the research group.

CONTENTS

| | |
|--|-----|
| INTRODUCTION | 1 |
| PROTOTYPES | |
| Radio Dialogue Series | 12 |
| Media Forums | 23 |
| Market Communication Center | 33 |
| Urban Community Center | 47 |
| Central Radio Broadcasting Plus Mobile Unit | 59 |
| Dyads | 72 |
| CONCLUSION | 90 |
| BIBLIOGRAPHY | 102 |
| FIGURES | |
| 1. Communication Patterns | 7 |
| 2. Paradigm of the Innovations Decision Process | 10 |
| 3. Communications Flow | 22 |
| 4. Diagram of the Central Broadcasting Prototype's Activities | 64 |
| 5. Flow Chart of the Prototype's Activities. | 69 |

INTRODUCTION

During the summer of 1972, AID contracted with a group of six specialists to work on a project entitled the "Evaluation of Analytic Services Relating Communication Technology to Development." The purpose of this contract was to produce (1) a professional analysis and evaluation of the strategy studies completed by George Washington University and Abt Associates under a contract with the Academy of Educational Development and (2) an analysis of the policy and program implications of these studies, including specific suggestions for pilot projects, future research and development, training, institutional development, and other program activities. The critiques of the George Washington and Abt studies are contained in separate reports. What follows here is the result of the second phase of the project.

It was understood that the second product under the contract would concentrate on the design of possible nonformal education prototypes utilizing communications technology to provide information and develop life supportive skills among the people of less developed countries. The prototypes were designed with the aim of reaching large numbers of people and directed toward the sectors of health, nutrition, agriculture, and family planning.

To achieve these objectives the contractor gathered together an interdisciplinary study team of six specialists to conduct a three-month study on new strategies for educational communications. The group was composed of:

Jack Barkenbus, a former Peace Corps Volunteer to Turkey who is currently completing his Ph.D. dissertation on the role of the United States in educational technology. His background consists of work in international studies at the University of Denver with emphasis on political science and the Middle East.

Victor Margolin, a communications consultant with a background in film and television production, social research, and media utilization. He has worked for such organizations as NBC, WETA, the White House Conference on Children, and the National Institutes of Health.

Khatanga Heitmann, an urban applied anthropologist with a background in education and communications media. She has traveled and worked in such areas as Latin America, Africa, the South Pacific, and Alaska. She is completing her Ph.D. at Catholic University of America concentrating on the application of anthropology to the field of media technology and communication processes.

David Sprague, an educational technologist who specializes in the systematic development of the learning environment. He has worked at Florida State University's Center for Educational Technology concentrating on the development of cost-effective pilot projects in several educational systems in Latin America.

George Miller, an educational psychologist who specializes in early childhood education. For the past three years he was the on-site evaluator for the Appalachia Educational Laboratory's early childhood education project.

Michael Molenda, an educational media specialist who has served as a consultant to the National Education Association, UNESCO, and other agencies

on educational technology projects. An assistant professor at Indiana University, his primary concern is with the use of educational media in systematic ways to produce behavioral change.

The group utilized four complementary approaches in the development of the second phase of the project. They reviewed available literature relating to nonformal education projects in less developed countries as well as the research on innovation diffusion by Everett Rogers. Second, they met with various people within AID who were responsible for the areas mentioned in the contract. Third, they availed themselves as much as possible of experts outside AID who were concerned with this area of communications and behavioral change in less developed countries. This approach resulted in group conferences with people from George Washington University, Michigan State University, and the International Council for Educational Development. Individual members of the group met with other knowledgeable specialists as well. Finally, the group spent a great deal of time in discussion among themselves relying on the information gained through the other approaches and their own diversity of backgrounds to give balance and depth to their discussions.

Perhaps an extra word should be mentioned about this diversity, since it provided a unique dimension to the group's work. The members of the group, despite their varying backgrounds, were capable of discussing critically and objectively all the topics that arose during the summer. This ability resulted not only in stimulating discussions for the group but also in a more complete and well-rounded final product for the contractor. Judging from this interdisciplinary experience, this type of arrangement is recommended for such study teams in the future.

All written reports emanating from this project are truly group efforts because nothing was written by an individual that was not critiqued in writing by the other individuals and then discussed in a group meeting before it was rewritten for the final edition. As a result, the group members feel comfortable in stating that the credit and/or criticism for the ideas contained in this report should be attributed to the group collectively.

One of the first tasks facing the group was to define for themselves what constitutes "nonformal education." Any term that is labeled as the negation of something else is not easily defined. Both Cole Brembeck and Ted Ward from Michigan State University have wrestled with this problem and reverted to rather broad categories to explain the difference between formal and nonformal education. As Brembeck says, "the fundamental task is to analyze more precisely the structural properties of each, to determine the potential of each for contributing to particular kinds of educational goals"; and Ward remarks, "usually nonformal education focuses on improvement of social and personal living, occupational capability and vocational competency." Both agree that nonformal does not mean without form but rather some type of nonschool system.

For the purposes of this study, the term "nonformal" is used to refer to education projects that are not included in the formal school system, that are directed to anyone who can change or adopt innovations, that are appropriate for literates and illiterates alike, and that focus primarily on quality-of-life information and skills in the sectors of health, nutrition, family planning, and agriculture.

We are also painfully aware that the terms "educational technology" and "communications technology" have nearly as many meanings as they have users. For the purposes of this study we have construed "technology" not as a hardware system but as any technique for applying scientific methods to practical affairs. Thus, programmed instruction is an example of educational technology, and a "t-group" may be seen as a "technologized" form of communication.

Although we took as broad a definition of "communications media" as possible, we focused primarily on media that could cover large distances since the mandate for the project was to devise systems that reach large numbers of people.

In order to focus our efforts on the development of prototypes, we designed a model to represent different communications patterns (see Figure 1). It consists of configurations of a central communications source and the various agents that typically intervene between message source and receivers. These communication flows are distinguished on the basis of the relationship between agent (if any) and receiver--i.e., one-to-one exchange (dyads), group comes to the agent (center), materials go to the group (mobile unit).

Although the spokes on the wheel seem to fit one-step or two-step configurations, we realize that any sizable communication project will inevitably involve a multistep flow of information. Consequently, although we discuss this diagram and the following prototypes as if the spokes could exist in isolation, in reality a combination of many and perhaps nearly all of them will be found in any one project.

In Figure 1, A represents direct home broadcast from a central broadcasting source. B is the same configuration except that the audience is an informal group that could be located in someone's home, the market, or any convenient place. C is the direct broadcast to a specially gathered group under the supervision of a change agent. The arrow goes both ways to signify the potential for feedback from the change agent to the central broadcasting source. D represents a change agent in the field who is in contact with the central source and who is accessible to the people who come to him. E describes the type of change agent who maintains contact with the central source and feeds information back to it but who is mobile and able to visit any place where groups of people can meet. F represents the face-to-face interaction of two individuals.

The model of communication patterns was not designed to be all inclusive, but it does provide the framework for the prototypes contained in this report. An initial overview shows that the relationships depicted in A and B are exemplified by the Radio Dialogue Series (pp. 7); C is reflected by the Media Forum prototype (pp. 7); D is the basis for both the Urban Community Centers (pp. 7) and Market Communication Centers (pp. 7); E forms the basis of the Central Radio Broadcasting plus Mobile Unit prototype (pp. 7); and F is the foundation of the Dyads paradigm (pp. 7).

In designing our prototypes we worked within some constraints, made some assumptions, and relied on some generalizations, all of which should be made explicit for a full understanding of the studies that follow.

The biggest constraint was the group's lack of extensive project

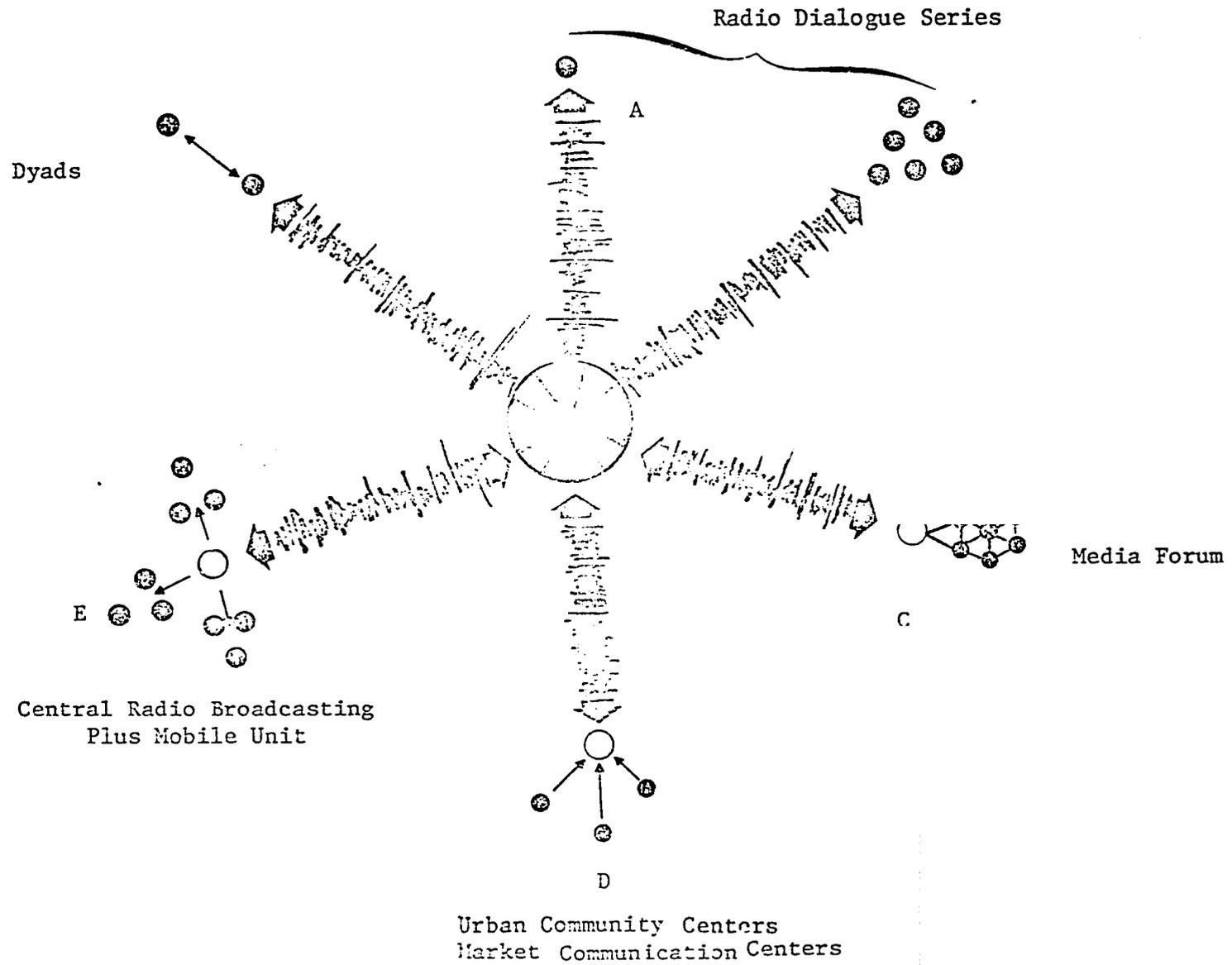


Figure 1: COMMUNICATION PATTERNS

experience in less developed countries and the inability, under the present contract, to conduct firsthand research. Although nearly all members of the group have traveled to one or several less developed countries only a few have actually stayed long enough to become intimately involved in the problems of the people. Consequently we often had to rely on information from secondary sources about actual conditions in less developed countries. A second major constraint was the fact that the whole study was necessarily solution oriented rather than problem oriented. To some extent, therefore, the nature of the problems to be investigated was determined by the assumption that communications technology would be used on a rather large scale.

The most fundamental assumption made by the group was that the people living in the less developed countries want to "improve" the conditions in which they are now living. It was also assumed that sufficient local talent and leadership exist in the less developed countries, if trained, to operate any project discussed in this report.

Some of the following prototypes deal with specific sectors in order to provide sufficient illustrative detail. It should be emphasized, however, that the prototypes primarily exemplify approaches we feel to be valid across sectors when one is attempting to elicit behavior changes using communications technology.

While cost-effectiveness is a legitimate and essential concern of the project programmer, the group concurred that an extensive cost analysis was not applicable to the level of project development with which we were concerned. The prototypes are simply elaborated communication patterns

on which specific projects can be built and later subjected to a thorough cost-effective analysis. On the basis of previous research, however, we can make a few generalizations concerning relative economic dimensions in using communications media to affect behavior change.

Numerous social science researchers have found that the decision to accept or reject an innovation, thereby altering behavior, should be viewed as a process which takes place in stages. Everett Rogers, as an example, categorizes four major stages in the adoption process: knowledge, persuasion, decision, and confirmation (see Figure 2). In stage I (knowledge), the individual becomes aware of the innovation and learns something about it. In stage II (persuasion), the individual forms a favorable or unfavorable attitude toward the innovation based on his perception of it. Stage III (decision) involves practical application or testing by the recipient, which leads to the adoption or rejection of the innovation. Stage IV (confirmation) involves the individual's continuous and often long-term evaluation of the innovation to confirm or reverse the decision made in stage III. The prototypes in this report aim toward the creation of projects that would span these four stages.

The mass media can play a particularly important role in stage I, by providing knowledge and information to large numbers of people; such information works to create a "climate for change" necessary for eventual adoption. Researchers have discovered, however, that interpersonal face-to-face communication has thus far been necessary for the large-scale adoption of innovations in the sectors of concern. Hence, while the mass media are powerful instruments in terms of stage I, their influence in affecting the subsequent stages (persuasion, decision, and confirmation) has to this date been less potent.

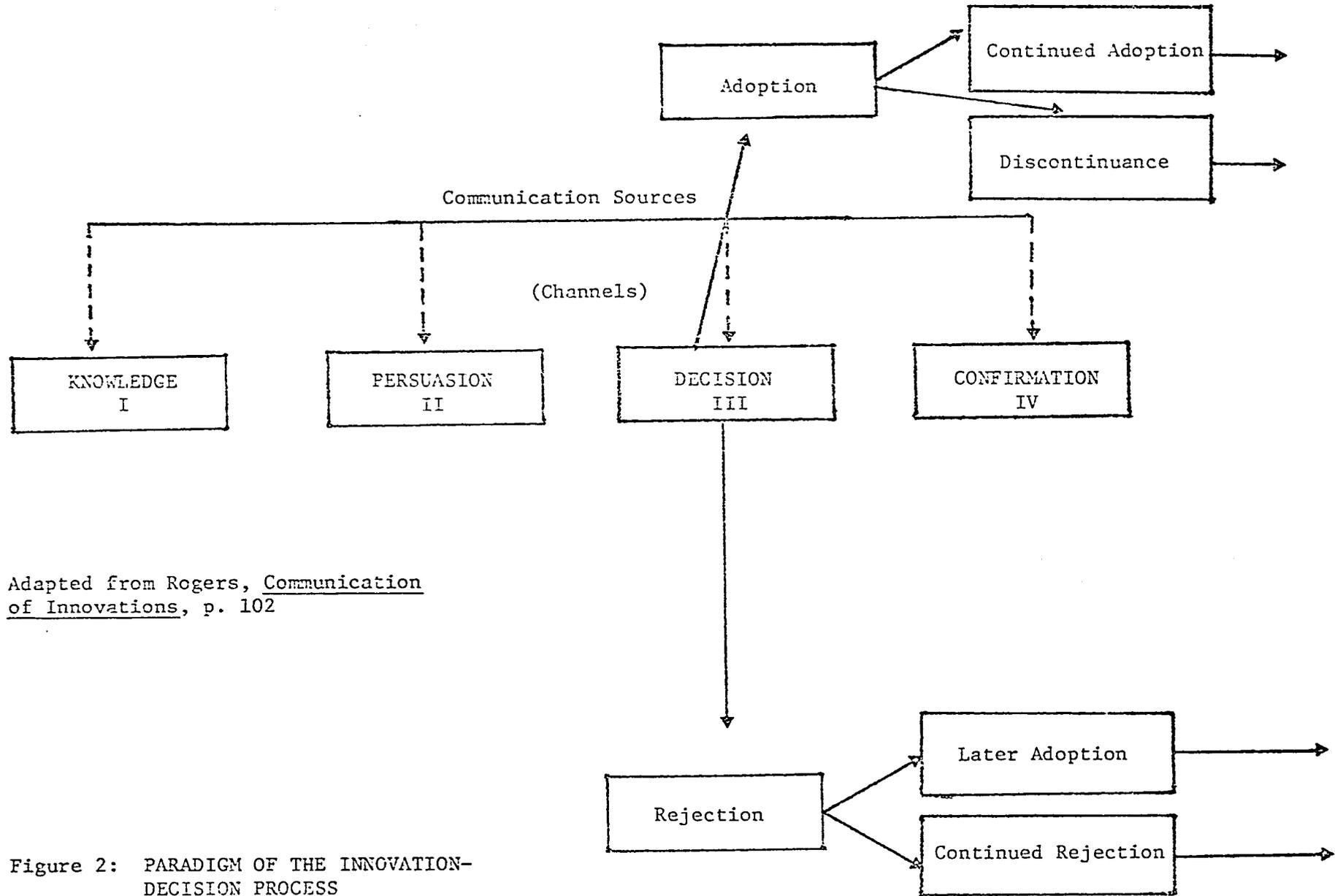


Figure 2: PARADIGM OF THE INNOVATION-DECISION PROCESS

The findings have significant economic implications. If a project's objective is simply to lay the base or create a climate for large-scale innovation adoption or behavior change, the mass media (with a minimum of interpersonal contact) can, through imaginative programming of information and new ideas, fulfill this objective at a relatively low cost--assuming that a degree of infrastructure already exists. If, however, a project's objective is to produce large-scale behavior change over a relatively short period of time, considerably more expense should be anticipated, because of the need for change agents and the administrative and training efforts that must accompany extensive face-to-face communication.

It should now be apparent that economic costs, at least in theory, will be directly related to the stage or stages of the innovation-adoption process to which any individual project's objectives are directed.

We hope that the prototypes and principles on which they are based comprise a distinctive step in providing information that would serve as a catalyst for further investigation on possible courses of action. The direction for development of the prototypes and principles should eventually be determined by actual on-site investigation in specific countries.

RADIO DIALOGUE SERIES

PROBLEM

Many villagers in less developed countries are beset by conditions of poverty, poor health and malnutrition, and large families they cannot properly care for. Some of these conditions might be more easily changed if the villagers could become participants in finding solutions rather than merely the recipients of solutions devised and executed by government authorities. Means are needed by which villagers can express their views and feelings about their own life situations and exchange ideas with the officials who develop programs for them.

OBJECTIVES

The prime objective of the village dialogue series is to increase village interest and participation in the consideration of alternatives for change. Communications researchers have pointed out that face-to-face encounters are more important than mass media broadcasts for the adoption of certain innovations. Although mass media broadcasts cannot replace face-to-face encounters, they can approximate these encounters to some degree by providing a setting for personal interchange using two-way communication. Such a setting would, it is hoped, create a "climate for modernization," which Everett Rogers says, in his paper "Communication in Development," is the "knowledge, attitudes and beliefs, and behavior that constitute an individual's generally favorable mental set toward change."

GENERAL DESCRIPTION AND JUSTIFICATION

Several years ago, the National Film Board of Canada, through its "Challenge for Change" program, began a pioneering venture in the use of film and video tape as stimuli for social change. The Board sent a film

crew to Fogo Island, Newfoundland, where several groups of residents, who had not previously been communicating with each other, were filmed as they discussed a variety of issues of concern to them. Included were fishing methods and processing, education, welfare, local government, and cooperatives. Extensive discussion followed the first showings of the films about a month later, and a growing feeling of community began to break down the isolation of the villagers. Groups that normally wouldn't enter into a dialogue with each other could see one another on film and better understand the other's point of view. Some of the films were shown as well to members of the provincial Cabinet. Among the results of this communication process were the formation of a boat-building cooperative and the construction of a consolidated high school to serve families accustomed to education segregated by religious denominations. The Canadian Film Board is well aware that the films alone did not create the change, but they were acknowledged to be a catalyst that helped local residents break down long-held patterns of noncommunication and misunderstanding and shake off the apathy that had prevented them from taking a greater interest in their own community development.

After Fogo Island, the Canadian Film Board decided on one-half inch video tape for its next communication projects in such diverse communities as St. Jacques, a low-income neighborhood in Montreal; Rosedale, a little village in a disaffected mining area; and Fort Hope, an Ojibway Indian Reserve in northern Ontario. The use of media in all these communities was instrumental in stimulating residents to participate actively in improving local conditions. The Canadian International Development Agency has followed these projects with interest and talked of proposing an

International Challenge for Change Program to the United Nations.

A similar process of interaction to stimulate social change could be initiated at a lower cost in less developed countries using radio instead of film or video tape. A number of radio projects using modified forms of personal interaction have been tried in less developed countries, but none went as far as the Canadian projects in involving local residents in the change process. Radio Sutatenza in Colombia answers questions sent in by listeners, as did the All-India Radio rural broadcasts and several derivatives of the Indian model in West Africa. The Radio educative in Senegal included recordings made in the villages of dialogues between experts and villagers. But all these broadcasts have used predominantly a one-way flow of communication with the villager in the role of listener or receiver rather than a participant.

The proposed radio dialogue series would generate a dialogue at a regional or district level on important personal and community development issues including health, nutrition, family planning, and agriculture. Officials representing the government's planning sector and village representatives would meet in a studio to discuss various topics. These discussions would be followed by comments from village listening groups and individuals via two-way radio or audio tape. Immediate feedback would be provided via two-way radio, but taped reactions would be broadcast the following week (see Figure 3). Listening groups and individuals would be interviewed and asked to express their views on whatever was bothering them. True feelings about life situations are often repressed but would, it is hoped, emerge as people become more conscious of them through the dialogue process. Taboos may be challenged and long-accepted practices questioned.

Resistance to change may be loosened and a rationale for accepting innovations provided.

In addition to the dialogue, performances by local cultural figures such as storytellers, musicians, and singers would be taped in their villages, and their stories, music, or songs would be broadcast on each program to sustain the interest of the villagers in the series.

The radio dialogue planning process should begin with the formation of a regional or district broadcast council to discuss the aim and purpose of the series. The council would consist of the broadcasters who are responsible for putting the programs on the air, local government officials, and village representatives. Some previous producers of rural broadcasts made the mistake of excluding village representatives from the planning committee. The committee that convened in Ghana in 1964 to plan a rural broadcast series consisted of Ministry officials and national organization representatives only.

The council would discuss the general topics to be covered, the number of programs to be broadcast, and their frequency. Further questions for consideration would include the following:

Who should be brought to the studio to talk with village representatives?

How should discussions of the broadcasts be organized at the village level?

Should two-way radio or taping be used?

How should listening groups be selected for radio broadcasting or taping?

Once the council had developed some initial ideas about the series, a survey of selected villages should be made to find out what villagers would expect from such a dialogue. Plans should also be made with the local government to make available, to the extent possible, goods and services that might be requested as a result of the dialogue. An accepted axiom of mass communication is that aroused and unfulfilled expectations can only result in frustrations.

If the radio dialogue is envisioned as part of a larger communication process, a variety of follow-up activities can be considered. These would build on the momentum generated by the dialogue and offer people further means of exchanging experiences and information. A newsletter could be published for literate participants. It would offer an additional forum for the exchange of experiences and information. Community services such as extension programs and health, nutrition, and family planning centers could be listed. Brief articles might cover such topics as new seeds, birth control devices, or recipes using nutritious foods. A cassette version of the newsletter could be provided for illiterates at community information centers.

Another kind of follow-up activity would be the instructional broadcast aimed at a specific audience--farmers, mothers at home, or young people. These broadcasts would cover in detail topics of specific interest to those groups.

The radio dialogue series would cut across the health, family planning, agricultural, and nutritional sectors and range along the entire continuum of quality-of-life problems. This integrated approach would, it is hoped, make the participants more conscious of how their attitudes and habits affect all aspects of their personal lives.

AUDIENCE

Anyone who is a potential adopter of innovations could participate in the dialogues. Broadcasts would be in the major language of the district or region, and participation would not depend on literacy. The programs would be heard both by individuals and small groups at home and by listening groups in public places. The makeup of the listening groups would be determined by local customs, habits, and inhibitions. Ideally several groups would be formed comprising a cross-section of the population--men and women, old and young, and representing different occupations. The groups would choose their own leaders who would serve as liaisons with the radio station field service coordinator.

Another important audience for the broadcasts would be the district or regional government officials who must allocate funds for social change programs. Listening to the radio dialogues would give the planners a better understanding of how the villagers perceive their problems and what the most effective ways of solving them might be.

OPERATION OF THE PROJECT

Equipment and Facilities

The largest broadcasting facility in the area should be used. Before the project is planned, surveys should be made to provide exact information concerning the coverage of the transmitters, the strength of the signals in particular districts at different times of day, the availability of reception facilities and repair services, problems of power, etc. Radio sets could be sold at a low price to individuals and either lent to listening groups or bought by them through contributions from their members. Roving maintenance personnel, equipped with necessary spare parts, should

visit the villages frequently to ensure adequate maintenance of the receivers.

If direct feedback is used, five or six two-way radios would be needed for rotation among the different villages each week. Someone from the production staff could bring the radio to the village, ensure that it is working, and take it with him when the program is over. Five or six high quality tape recorders with sensitive microphones would also be required. These would be taken by the field staff to different villages to tape listening group discussions, individual interviews, and entertainment by local cultural figures for subsequent broadcasts.

Staff

The radio dialogue series should be produced at the region or district level so that the problems discussed would be directly relevant to the participants. A producer/director would be in charge of the project at the broadcast station. Working with the producer/director would be several research or production assistants to gather background material for the programs, line up the studio participants, and provide general assistance. A field crew of five or six people would fan out to different villages each week with tape recorders and/or two-way radios. A field coordinator would keep in touch with a representative of each official listening group to find out which groups would like to be taped or use the two-way radios. The coordinator's job, generally, would be to act as a liaison between the broadcast station and the villages. Since communication would be coming from many different sources, close coordination would be essential. An evaluation staff, responsible for both the ongoing and final evaluation of the series, would work closely with the field coordinator.

Software Development

The production job would consist of editing live and taped segments rather than preparing a script. A general outline of topics would be developed at the outset of the planning process, but the producer should have a flexible format to allow the dialogue to shape itself as much as possible.

Each program would include different segments put together with some kind of continuity by the producer/director. Among the different segments that could be used for the radio dialogue are the following:

1. Studio Broadcast: Planners exchanging ideas with village representatives in a studio setting
2. Listening Groups: Village listening groups reacting to the studio broadcasts and commenting on local problems. Two-way radio would be used to provide immediate feedback, or taped reactions to a discussion would be broadcast the following week.
3. Individual Interviews: Conversations with individual villagers would be taped in the field and used like the listening group tapes for future broadcasts.
4. Cultural Figures: Performances by local storytellers, singers, and musicians would be taped, and their stories, music, etc., would be broadcast each week as an inducement to listen to the program.

Manpower and Training

The production staff should be trained by someone who has had experience with the dialogue process. A representative or representatives from the Canadian Film Board would be helpful even though their experience has been with film and video tape rather than radio. It is most important

that the staff understand the dialogue process. Some initial sessions on the use of feedback in broadcasting should be held, followed by specific training in editing dialogue broadcasts, field recording, and evaluation. Listening group leaders could be trained through special in-service broadcasts and literature.

EVALUATION

Two kinds of evaluation would be useful for the dialogue series. First, some form of formative or on-going evaluation would be necessary to help the producer shape the future broadcasts. Periodic surveys would be made to determine the impact of the series in the villages. The results would be fed back to the producer so that future programs could reflect the opinions and feelings of the villagers about the series. Second, a survey should be made at the end of the series to see if the programs had an influence on the villagers' attitudes or behavior.

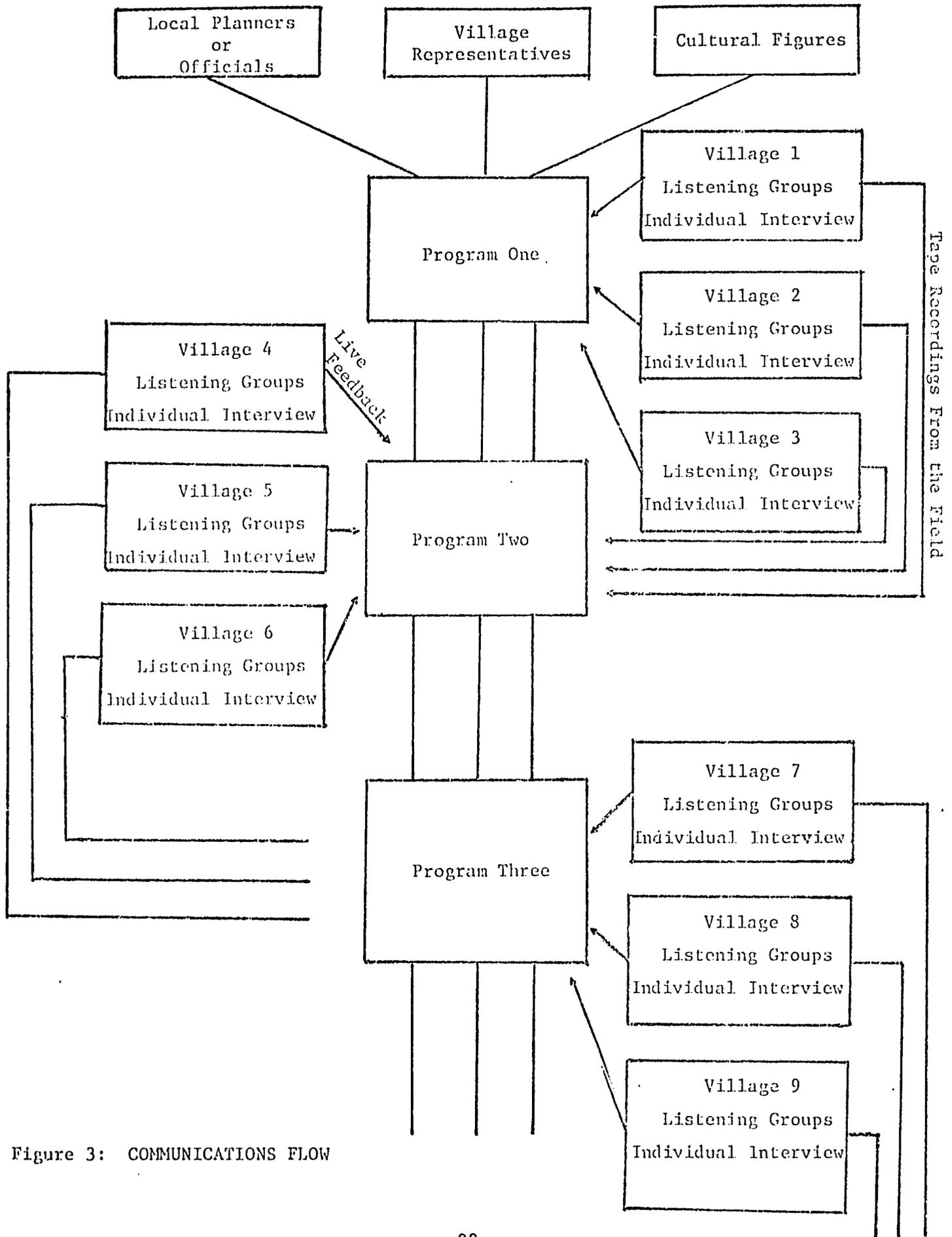


Figure 3: COMMUNICATIONS FLOW

MEDIA FORUMS

PROBLEM DEFINED

1. A general lack of information within the rural areas of the less developed countries concerning modern agricultural and health practices.

2. The lack of resources--both human and economic--to provide this information through the conventional extension worker approach.

OBJECTIVES

1. To introduce ideas, information, and techniques into the village environment through innovative media forums for the purpose of upgrading agricultural and health practices. The foremost objective of the program is to put newly gained knowledge into practice.

2. To attempt, through group discussion and decision making, to create a sense of cooperation and common cause within villages and to instill among villagers a feeling of control over their own destiny.

GENERAL DESCRIPTION AND JUSTIFICATION

To meet the aforementioned objectives, two forum variants are proposed: (a) an agricultural forum to deal with perceived agricultural needs and new techniques to meet the needs and (b) a health forum to deal with perceived health concerns, covering such areas as child care, nutrition, and even family planning if desired. A media forum is an organized small group of individuals who meet regularly to receive a mass media program and discuss its contents. Many less developed countries have experimented with pilot media forum programs using radio, television, or printed materials, but only India has attempted a large-scale national program.

The agricultural forum will deal only with the agricultural sector. Studies have shown that health or family planning programs introduced

within agricultural forums have been the least successful programs in terms of audience interest and knowledge retained.

A more integrated approach can probably be taken in regard to a health forum. How successful this will be depends on the interests and needs of the audience, which should be ascertained before the forum begins. .

AUDIENCE

We can say, in general, that the more homogeneous the audience in terms of sex, interests, and socioeconomic level, the greater the chance of forum success in generating discussion and the adoption of innovations. In agricultural forums, audience selection should take particular cognizance of similar interests (in terms of agricultural crops, for example) and socioeconomic level (obviously you would not put sharecroppers with large landowners). Economic gain from increased agricultural production and sale is likely to be the incentive that will attract villagers to an agricultural forum.

The health forum is designed to reach a village audience that will not only utilize certain health information for itself but pass information and practices along to future generations. In many cultures the forum would include only women participants, whose primary task is child rearing. The purpose of a forum for women alone would be to create an atmosphere in which women would feel free to discuss health concerns without the restraints that might occur in a mixed male and female forum (India now has forums for women, and women's tele-clubs have been operating in both Japan and Senegal). In other cultures, however, where both men

and women participate extensively in child rearing, participation in the forum should not be based on sex. Incentives for forum participation should be weighed by each country individually. Consideration might also be given to the acceptability and appropriateness of a health forum within an urban environment.

However, forums should not be used in cultures where discussion is regarded as simply a game or a chance to sharpen one's wit, or a place to show one's dominance over others.

OPERATIONS

At least a year prior to the actual operation of forums, program development and organizational planning should begin. Planning would be based on a field survey of villages that appear likely candidates for a forum program. This intensive survey should identify potential discussion group participants and discern the perceived needs and interests of the villages (in relation to the government's ability to fulfill such needs) as well as the traditions and systems of values. It is essential that the field survey team include media programmers and forum organizers, among others, to help them understand the environment to which the programs will be broadcast. On the basis of the survey, a relatively small number of villages will be chosen to participate in the first year's operations. Selection will depend on local village political support for a forum and the existence of a functioning extension service, able to provide necessary resources and services to support the forum. Expansion of the operation should proceed gradually, so that administrative needs do not surpass administrative capabilities (as was the case in India).

Radio has been the basic media component in most forums, although some countries (Japan, France, and Italy, for example) have used television. China, on the other hand, has used magazines and newspapers in its discussion groups. Radio appears to be a sufficient medium for carrying the main message to the audience, but its use should be supplemented by print and/or film materials to present a visual element in the demonstration of new practices or techniques. These instructional materials should be simple enough for discussion leaders to handle and explain and could be used following the radio broadcast as a catalyst for discussion. Programmers should insist, however, that time allotted for instruction be brief and, by all means, not a substitute for discussion. In actuality, therefore, we are really speaking of multimedia forums, with the various media elements complementing and reinforcing one another (as they do in Colombia's multimedia rural Accion Cultural Popular [ACPO]).

The multimedia approach is designed to complement the use of radio, but the imaginative use of radio, itself, holds the promise of facilitating administrative matters, upgrading expertise, and increasing program effectiveness. The discussion leader can be linked directly with program producers through the use of either (a) two-way radios or (b) in-service broadcasts through conventional radio receivers.

The use of two-way radios would provide for a great deal of flexibility in program development and response, by allowing instant communication between the audience and the message source. Discussion leaders could provide immediate feedback to program producers. This feedback, in turn, would help to coordinate program planning with the pace and interests of the villagers. In addition, forum participants

could ask (as well as answer) questions of the program producers, getting an immediate response and creating a dialogue situation. In effect, the two-way radio would eliminate the usual long delay involved in communicating through the mail.

In-service broadcasts to discussion leaders through conventional or two-way receivers could provide the leader additional expertise and training without removing him from the village. (In-service broadcasting to school teachers is already taking place in parts of Samoa and Brazil.) This direct communication, accomplished in weekly sessions of one-half hour or one hour, would also reduce the need and expense for frequent extension agent visits to the villages. The purchase of radio receivers explicitly for forum use could be subsidized either partly or totally by the government.

Another key component of the multimedia forum is its localization. Too often, in the past, forum production has been centered in the capital city and, as a result, has not dealt with problems in a manner or language) credible to the village audience. Broadcasting should, therefore, originate at district or regional levels. In addition, program production should as much as possible take place in villages, with opportunities for local people to participate in programs and even originate much of the material themselves.

In sum, the use of various media, innovative use of the radio, and the localization of programming should help eliminate many of the factors that have diluted the effects of the forum pattern. Our purpose is not to change the forum format--which is universally praised as a means of providing knowledge and affecting behavior--but to ensure its successful operation.

The standard forum pattern should be followed: approximately 10 people in the discussion group; forums meeting once weekly at an appropriate time of the day; programs of approximately one-half hour duration (20 minutes for the topic of the day and 10 minutes or more for answering specific questions from forum members, preferably more if two-way radios are used), and a discussion period of at least 30 minutes following the broadcast; varying the type of programs, using dramatic forms, panel discussions, talks, interviews, etc.; and, for the agricultural forum, a broadcast schedule designed according to the seasonal needs of the farmers.

It may prove valuable to discontinue the forums for a period of three to six months of the year, for a number of reasons:

1. Forum attendance may fall off if the broadcasts proceed indefinitely and become too routine.
2. The recess allows time for further program development.
3. It provides time to supply the forum villages with printed and film materials to complement the coming year's broadcast.
4. It permits retraining of leaders, if felt necessary.
5. It allows time for an evaluative study and review in terms of the effectiveness of broadcasts and discussion leaders.

We do not recommend the establishment of the forum as an independent organization, isolated from rural service organizations. Instead, it should be integrated within the existing extension service and coordinated with a larger design for socioeconomic development. This will entail close cooperation between program producer and extension agents, in both program production and program follow-up. Planning officials, therefore,

have assurance that the forums will not be "action units" in and by themselves but will receive resources and services from the extension service on the basis of individual or group decisions made within the forums. Schramm states, "Nothing is more discouraging to an action program than to decide to introduce fertilizer, and then be unable to obtain fertilizer; or to decide to try a supposedly more efficient method of paddy culture, and then not be able to obtain instruction in the new method." Forums, therefore, constitute only a starting point from which will spring a variety of activities, supported by existing institutions. Such support should also include adequate arrangements for set repair and the supply of spare parts such as batteries.

Selection of forum participants should be the responsibility of local officials, although forum organizers will present the officials with a fairly rigorous series of guidelines to be used in the selection process. The participants, in turn, will elect the discussion leader from the group. To act as an incentive for carrying out his duties, the discussion leader should receive a small stipend.

The discussion leader is a key element in the successful operation of a forum. Without enthusiastic and competent leadership, the forum is likely to fail, regardless of other organizational soundness. Unfortunately, little guidance exists concerning the selection of the right discussion leaders and their position within the community. We do not know, for example, whether the discussion leader should be a village political leader, a schoolteacher, an informal opinion leader, or other village notable. An important component of the evaluation, therefore,

should be to identify the appropriate position and character of the successful discussion leader.

TRAINING

Training sessions of relatively short duration should be held for the following:

1. Discussion leaders. A two-week regional conference, preceding the forum, will center on how to lead group discussion, using in-service broadcasting training, subject area competence, and the correct method of imparting feedback. Retraining during the recess may be necessary for some discussion leaders, but it is hoped that the in-service training broadcasts will reduce the necessity for bringing the discussion leaders together frequently at a central location.

2. A field survey team, including a forum programmer, an organizer, and a group of social scientists. Sessions will be held on conducting survey research in a rural environment.

3. Program producers. Emphasis will be placed on the production of programs in a village setting that are credible to a village audience. At least a few programmers with a village background will be selected for the training.

EVALUATION

After completion of the initial field survey, which is intended to perceive needs and identify villages that might be appropriate for forum, forum members will be selected, and information will be gathered, measuring such variables as a member's knowledge of certain practices or innovations, his formal education, socioeconomic level, and his intra- and inter-village communication patterns. Using this benchmark survey, a follow-up representative evaluation should be conducted after each year's

operations, testing such things as:

1. Programs felt by the audience to be the most interesting, profitable, or pleasant
2. Overall attendance patterns
3. Communication of the programs' content with those outside the forum (to measure the "contamination effect")
4. Knowledge about certain innovations gained since the beginning of the forum
5. Action programs begun as a direct result of the forum

Evaluation findings should, of course, be incorporated into the subsequent year's programming.

MARKET COMMUNICATION CENTER

STATEMENT OF THE PROBLEM

A major problem common to many rural areas of less developed countries is the lack of a localized mass communications network, which is a drawback to adequate communication and information exchange.

Although newspapers are one form of mass communication, they do not always print information considered useful or relevant to local people. But most important, they provide little or no information for those who cannot read; and in less developed countries this group constitutes a significant percentage of the total rural population.

Radio, if present, frequently broadcasts from a central source, such as a capital city, often using a dialect the rural audience may not understand. At times, radio, as well as newspapers, lacks credibility, and the rural audience, so dependent on tradition, ignores radio information. Television and FM radio require complex transmitting systems that are not yet available in most of the less developed countries.

Telephones are often nonexistent in rural areas, and line installations are an expensive undertaking where funds are necessarily directed to alleviate more immediate problems. The net effect is that quite often the most efficient, reliable, and best understood transfer of relevant information is through local face-to-face contact. Transmission of information from village to village might take days on foot or with draft animals and pass through many people. However, it is credible information couched in the terms the culture will completely understand and will be more motivated to utilize than if it came from an anonymous radio announcer or newspaper writer.

Nevertheless the slowness of face-to-face verbal communication can compound a problem especially in a crisis when time is very important, for example, when a nurse or midwife is needed.

This situation can be summed up by indicating two problems that will be addressed:

1. The lack of dissemination of much needed information on the local level in places where communication systems do exist but are not adapted to the local people's needs.

2. The incredibility of information that reaches rural areas through mass communication channels and its inconsistency with local values or beliefs.

OBJECTIVES

The Market Communication Center is a project organized to provide a localized communications center complete with a broadcast radio, video tape, and tape recorders that can be used by local people to broadcast messages to areas now reached only by foot, draft animals, or bicycles. It represents communication pattern D on the communication wheel (Figure 1), which incorporates the people-to-change-agent communication process. The program's success will be measured by the extent to which the people to whom the communication is directed are motivated to use the facilities and participate in the program. It is hoped that their need to transmit and receive personal messages will provide enough motivation to use the facilities.

In addition to the communication and the transfer of information, the facility can also be used to feed in sector information on health, nutrition, agriculture, and family planning programs.

The Market Communication Center will fulfill the following functions:

1. It will serve as an extension of an already existing traditional marketplace information exchange, expanding on it through the use of radio, video tape, and audio cassette tapes.
2. It will unite villages through a common radio network originating in the center but organized and run on the local level to maximize inter-village cooperation.
3. It will provide a common communication facility easily and openly used by all villagers to communicate with others by means of radio messages.

The main objective of the Market Communication Center is to provide a mass communication system to accelerate information transference between individuals and groups who normally experience long time lags in communicating with each other. An extension of this objective is that the market communications system would be used to feed in information for an audience already motivated to listen. It is hoped that education and subsequent attitude and behavioral change in the sectors of nutrition, health, agriculture, and family planning will thus be achieved.

The aim is to develop a prototype involving both nonformal education strategies and the use of media in an effort to raise the credibility and accessibility of information at the local village level. This is embodied in the Market Communication Center, a communication network physically located in the market or plaza area of a larger town or district center on which rural villages depend economically, socially, and for information.

ADVANTAGES OF A MARKETPLACE LOCATION

The larger town and the market center are becoming increasingly important as steps in the urbanization process. Villagers in most countries

do not look toward the capital or large cities for the communication of ideas, transmission of information, or the exchange of goods or services. They look to the larger towns in which they trade or go for short periods of work. These larger towns or districts are the centers of already existing communication networks for the surrounding villages.

The explicit assumption is that a program that utilizes indigenous modes of communication and ideas will be more successful in transmitting information than a program that disregards this base. Building on an indigenous informational and educational network found in the marketplace will insure optimal motivation for watching and listening to programs. It is hypothesized that it will also provide the best milieu for producing behavioral change.

The marketplace provides the optimal planning base for preparing relevant program material and utilizing local people. When planning for the dissemination of information, it is essential to consider not only the cultural values but how information is communicated and at what time, and how linguistic differences might vary from village to village. This information can be supplied only by local planners.

Placing the Market Communication Center within or next to a market or plaza area will increase the credibility and relevance of the project because this location is the matrix of an already established communication network with all the modes and nuances of communication known in that culture. It also provides an opportunity for a general exchange of information and the recording of audience comments and local news which would be broadcast by radio to other villages.

DESCRIPTION OF THE DISTRICT CENTER

The most important factor in the definition of a village is the extent to which it is isolated from the main network of transportation and communication in the geographic area in which it is located. Village population may range from one hundred to more than a thousand people.

The Market Communication Center is most adaptable to villages that cluster around a district center. The district center is the hub of transportation and communication for the surrounding villages. The population of the center may vary from several hundred to several thousand people. District centers have a long history of being in the center or at the crossroads of innovations as villagers go to district centers for trade, ideas, and general information. The capital city depends on district centers to collect taxes and enforce national laws.

This project assumes that the district centers have electricity, but not necessarily the villages. It also assumes that there are transmitters in or near the center.

In most of the less developed countries, travel from villages to centers is by foot, although the bicycle is becoming a common means of transportation. Draft animals, such as the donkey and water buffalo, are still used by those who can afford them.

BUILDINGS

The center must consist of at least one small building (at least 20 by 30 feet) to house the equipment, preferably with a larger building adjacent to it where groups can meet for discussion and to pass on information. If the latter building is unavailable, people can meet in front of the equipment building on pleasant days. One must remember, however,

that the less developed countries have varied climatic conditions, even though they might be located between the Tropics of Capricorn and Cancer.

The buildings comprise the physical aspects of the center and should be located in the central market area. The equipment building will house the radio station, audio-tape equipment, bulletin boards, video-tape equipment, and literature to accompany audio and visual presentations. Radio transmission and video-tape interviews could be done in the building or outside where market goers could watch. The television sets (monitors), which would carry the video-taped programs, should be located inside the building and carried outside for people to watch.

Radio should be beamed into villages. Villagers could use battery-run video tape and tape recorders. Battery-run monitors are now in the development stage and in the near future could be used in villages that lack electricity.

Bulletin boards may be located either inside or outside the building for individuals to put up their own signs and announcements. A literature center in the building could provide materials for literates. Health, nutritional, family planning, and agricultural experts from the major city or cities could be interviewed in the center, participate in forums, and leave literature. Since interviews and forums would be videotaped, they could be played back at any time to the same or other audiences. Playback is essential for nonliterates who cannot rely on written material to supplement audio and video presentations.

EQUIPMENT

Central to the development of the system is the utilization of media that are easy to operate, portable (so that they can be sent to a larger

center for repairs), and easily adapted to changing local uses. Equipment will include a one-way and a two-way radio system, cassette tape recorders, a loud speaker, a video tape system, and bulletin boards.

The radio system is the most essential medium for information transmission. It was selected because it is the most extensively used medium in areas without telephone service and with infrequent newspapers. The video tape system provides a visual dimension. Since video tapes are presented on a monitor or television screen, the audience would understand and follow instructions with less misinterpretation than with radio. Demonstrable tasks such as sewing, planting, etc., are most easily grasped when televised. TV also offers a measure of credibility. The audience not only hears but sees. Video taping and audio taping recording mean that any interview, forum, or program can be kept for future use, a vital need where literature is scarce and most people do not read.

The radio system should be located in the market area. It would be manned by local people from villages, who plan, broadcast, and maintain the equipment, coordinating it with the use of video tape. Radio could feasibly operate on a one-way or two-way system. A one-way system would broadcast from a marketplace station and be received by the village audience in the market centers as well as in the villages. This would provide the most rapid dissemination of information.

However, a radio system with a built-in two-way component provides for immediate feedback and is far superior as a medium for transmitting information directed toward behavioral change. In one-way broadcasting the communicator does not know whether the material has been interpreted as presented. For example, the communicator does not know whether the instructions given in teaching people how to boil water for medical

purposes are interpreted correctly unless a two-way radio system is maintained or field workers are used.

Cassette taping equipment is quite useful to record ideas and opinions both in the field and in the market communication centers. The recorders are small and run on batteries as well as electricity. They could be used to augment the video-tape system. One of the most essential uses, however, would be to record personal messages (in villagers' own voices) to be communicated to other villages at stated periods in the day. Alaska radio, for example, sends out personal messages all over its transmitting area.

The video-tape system easily lends itself to village as well as district center use. Getting accurate feedback from villagers has been difficult because this depends on oral interviewing and uniting key points. A video port-a-pack can overcome this problem. It consists of a video-tape recorder, which can be slung over the shoulder in its own carrying case; a hand-held camera, which can also be mounted for stability; and a monitor, which is a television, transmits the recording. The video-tape system can be run on batteries, and programs can be taped in outposts where there is no electricity. (The monitor available at this time requires electricity.) Since the images can be erased and reused, there is no problem with film processing. Also video-tape equipment can withstand harsh weathering as well as temperature extremes.

The loudspeaker is quite often a part of the existing matrix of a communication network in a village. If villagers already use one to transmit music and announcements, it is usually located in a marketplace or plaza. Its use should be continued. It could be used to announce

video-taped and village radio programs. It could also announce when a special visitor would be interviewed, such as a health nurse or agricultural expert who was visiting the village.

If a loudspeaker is used, care should be exercised in evaluating its usefulness and the villagers' acceptance of it. It has quite a penetrating quality and could easily intrude on what the culture considers a private area of sound within the village domain.

Bulletin boards are extremely useful for literates but could also be used for illiterates if pictures and maps were used.

OPERATION OF THE SYSTEM

Local Control

The people-to-change-agent program essentially means that the major input of the market communication system depends directly on village and district decisions. Local people would organize and run the program. Audience participation would be extensive, and program development itself should facilitate local input.

The infrastructure should also facilitate intervillage coordination. It is suggested that the villages, in concert with the larger district town where the communications network will be located, have direct control over their equipment and the network. How this should be accomplished would vary from country to country, however, depending on national and local codes and legal restrictions on the ownership and operation of equipment. However, it is suggested that the cooperative model might be most facilitative to this system. Money for a cooperative organization could be derived from a loan or grant. The cooperative could then establish a board of directors, select officers, and control hiring and management

practices. The programming and use of communication resources would have to be decided on later in light of local conditions.

Advantages of Two-Way Communication System

Although this project is primarily oriented to one-way communication, a two-way communication module could be built to provide a constant feedback system. In the one-way system, the radio transmits the message and the audience receives the information. In the two-way system, there is a two-way radio hookup between the district and the villager, with immediate feedback indicating whether information was transferred correctly and received as transferred. In a two-way transmission system a component could be advantageously inserted for educational purposes. This unit could be used to determine whether information was received as it was thought to be transmitted. Care must be taken, however, to determine whether behavioral change has actually taken place, even though the message was received and understood. Suppose that a program explained how to clean dishes with soap and water and the listeners reported on the two-way radio that the information was understood and repeated how it was done, then they would have demonstrated verbal understanding of the information. However, this does not mean that the information would necessarily be incorporated as an intrinsic activity in their daily life. The aim is to develop mass communication strategies that might do this.

Sector Programming

The center can be the vehicle for specific projects in sectors of nutrition, health, family planning, and agriculture that have as their objective changing behavior in certain areas of life and increasing the overall quality of life. Sector programs will have to be integrated into

the mass communications program as priorities determine. Success of the market communication system does not imply that sector programs will be successful or that people will be motivated to listen to new ideas. The educational components will need accompanying strategies to ensure the best possible effectiveness. This is the work of sector analysis planners and should be approached with one serious caution. Sectors must be planned in accordance with the traditional culture's values. Planners must also take into account the effects of modernization and the resulting status and roles.

Data used for planning sector programs need not be statistical. Demonstrable data are adequate. What do the villagers do? If they could change their status, whom would they want to pattern their life after? What are the changing values between men and women? Sector information is easily accessible; audiences will usually talk about crops, medical problems, etc., unless the culture prohibits them from doing so. (Traditional conversational taboos may preclude subject areas that are discussed freely elsewhere.) Villagers are specialists in their own life style and can be taught to analyze it to provide the necessary information to develop programs for behavior change.

MANPOWER

Priority needs will dictate the manpower allocation, which will fluctuate with the use of the system.

One-way communication of information from a central point need not be labor intensive. It would require program planners, producers, and broadcasters, and a small labor force to maintain the equipment. Central, of course, is the radio and video-tape communication. Intensive training

is not necessary for the software (broadcasting, program planning) aspects since they will be localized. Equipment operators, however, will need intensive training in the fundamental operation of the equipment. Repair should be done by experts.

Labor intensiveness should be decided on the basis of evaluation needs: How could the program be improved, and at what points would specific person-to-person contact be most essential for bringing about optimal behavioral change, given the educational facilities available?

TRAINING

For the overall understanding of the market communication system, and to illustrate the benefits to the villagers, demonstrating the equipment and what it can do is probably the best inducement. However, additional training is needed in program planning and especially the use of the equipment. Equipment repair is such a difficult and complex procedure requiring many assumptions about electrical systems, etc., that the equipment should be sent to a specialized factory when it needs to be fixed. Using small portable equipment facilitates this.

IMPLICATIONS

The value of the project will vary from locale to locale and cannot be ascertained at this point. However, an initial benefit will be the provision of a communication base for getting information from one point (village) to another in the fastest possible manner. This service should motivate people to use their communication system, providing an optimal base for inserting sector information about nutrition, agriculture, health, and family planning, designed to improve the quality of life.

As long-run benefit, the market communication system might provide

the basis for establishing other organizational systems that involve similar decisions about time, money, and planning. Cooperative ventures such as an agricultural cooperative or rural electric cooperative might grow from this intervillage cooperation.

URBAN COMMUNITY CENTER

PROBLEM

There is a continuing influx of people from the rural villages to the cities in less developed countries. The migrants are suddenly faced with having to learn new ways of life connected with city living, which pose problems either more apparent or more severe than in the villages. Some of these problems are concerned with finding employment, supplementing food sources, and obtaining medical help.

OBJECTIVES

Urban community centers should be located in the neighborhoods in which recent migrants settle. The centers would serve to coordinate public and private resources on problems that individuals and families encounter when they move from rural areas. They would also facilitate socialization to an urban life style.

An urban center may have many objectives depending on the circumstances. One function would be to coordinate the efforts of all governmental agencies serving destitute urban dwellers. In practice, the urban centers should probably begin with a few very important objectives--important as viewed by the clients. Below is a list of broad objectives that appear relevant to the nature of an urban center:

1. Provide access to family planning information and supplies
2. Increase the number and use of sanitation facilities
3. Locate employment and/or skill training opportunities
4. Provide adult and child literacy training
5. Increase the use of health practices
6. Improve nutrition
7. Stimulate the formation of self-help and discussion groups

Depending on circumstances in the urban area, especially the cultural characteristics, specific objectives may vary. Attitudes toward the use of birth control techniques may imply encouraging greater use of the rhythm method in some areas but the use of birth control pills and sterilization in others. In still other areas the objective may be a reduction of deaths due to amateur abortions.

PROGRAM DESCRIPTION

The program is composed of four components: (1) leased or purchased reception centers, (2) monitors, (3) production and coordination team, and (4) evaluation. The first three components are described below; and evaluation is described later under that heading.

Reception Centers

Centers, located in areas of high concentrations of clients will be leased, bought, or built. They will be inexpensively but comfortably furnished with ample space and sufficient seats for the area to be served. Depending on the center's size, one or more television sets will be installed in such a manner as to permit easy viewing and discourage theft.

The centers will contain free literature (picture books for non-readers) on such topics as family planning, getting a job, education, nutrition, and training programs. A message board will be provided to facilitate the exchange of goods and provide notification of job openings, rental information, and other governmental services. Small areas for discussion and private consultation will also be provided.

The center provides a facility that will, in terms of use, consolidate all governmental services in a more personal manner than now exists.

Further, this coordination of services will permit more individual flexibility and thus increase their effectiveness.

Monitors

The monitors will be men and women selected from the potential clients by the program directors and trained for the position. They will be available at the centers during peak attendance periods to:

1. Answer questions
2. Make referrals
3. Dispense materials
4. Lead discussion groups
5. Gather data regarding attendance, use of materials and personnel, and attitudes

During times when the center is not being heavily used, the monitor may tutor clients, counsel, and, upon request, visit homes to assess problems and make recommendations about sources of assistance.

The number of clients served by the center will influence the extent to which the monitors engage in these various activities. If the popularity of a center justifies several monitors, duties may be divided or less trained people may be employed to take care of the simpler data collection tasks and referrals. The monitors need not be specialists in each service provided by the government. Instead, they will evaluate the total problems of individuals, make appropriate referrals, generate action and interest, and provide information.

The Production and Coordination Team

This group will be responsible for obtaining or producing television programs of varying lengths and substituting them for commercial programs

on the receivers in the centers. They will also coordinate these programs with the materials (which they may also produce) available in the centers and with the activities of the monitors.

These efforts will begin in a very limited way, probably by leasing studios at inexpensive times and producing a limited number of tapes. During the first several weeks of operation, only commercial programs will be shown. An assessment will be made of the popularity of the various programs and of the times when men, women, and children are most likely to attend alone or with spouses or family. This information will be used to schedule programs on such topics as job hunting, skill training, health, nutrition, family planning, returning to rural areas, etc.

Programs and commercials broadcast immediately before the most popular programs will be replaced by programs designed to help the clients with their most pressing problems. Some of these will be live announcements, other can be produced at leased studios, and others can be previously produced film or slide shows. Considerable effort should be made to involve members of the potential audience in the production of these shows and announcements.

Two primary methods may be used in the centers to substitute special programs for commercial programs or advertising spots. One is to set up a closed-circuit system, permitting the substitution of many kinds of media programs including films, video tape, slides, and live programs. This system's cost can probably be justified only by the existence of a large number of centers.

The other method is to provide video tape players (perhaps cassette

players) at each center. Programs would be produced, duplicated, and distributed to each of the centers. This would provide more flexibility since schedules could be adapted to best suit individual centers. The addition of a camera would provide the capability for local participation in discussion shows.

AUDIENCE

The potential clients are people of all ages living in low income areas of cities. Many of them are likely to be from rural areas and to have recently migrated to urban areas in search of a better life.

The center will concentrate initially on the most pressing problems of the clients as viewed by them--probably employment and health problems. It will gradually expand either directly or in cooperation with other agencies to encompass most of the usual sectors: family planning, sanitation, education, skill learning, nutrition, etc.

OPERATION OF THE PROJECT

Equipment and Facilities

Following is a list of necessary equipment and facilities:

1. Leased, bought or built rooms located in areas with heavy concentrations of potential clients.
2. Access to studios and production equipment
3. Television receivers
4. Capability to substitute project-oriented programs for regular programs on the receivers in the centers.
5. Small data processing center with a desk top computer (\$2500)
6. Tape recorders and access to portable video-tape equipment
7. Trucks and repair equipment

8. Seats, tables, and movable chairs

9. Audio-visual equipment

Software Development

Software here refers to video tapes, films, slides, and printed materials to be used on television or placed in the centers. The program will initially rely on existing materials and gradually build a supply of recorded and printed material of its own. This should be a slow and deliberate process, incorporating knowledge of the interests, needs, attitudes, and cultural characteristics of the potential clients and maintaining high standards of quality.

The exception to the above would be programs that involve client discussions. In these programs the emphasis should be on finding or training a moderator who can successfully encourage full client participation, help them organize and summarize their ideas, and relate one participant's ideas to those of another.

Infrastructure

The programs should be supported by funds delegated to the neighborhoods. Initially specialists should be hired by the neighborhood entities to develop, implement, and evaluate programs with localized participation. Decisions on reworking or redirecting programs should be based on formative evaluation, which will increasingly crystallize the extent to which the programs meet neighborhood needs (which are continually being redefined by local people in concert with the program planning specialists). The input from formative evaluation will increasingly lead programs to be more intimately tied to local needs and decision making, with final transfer of the programs to the local neighborhoods.

Manpower and Training

The production team will require a well-trained staff of capable innovative personnel. Every effort should be made to include local people on this team or to train locals on the job to assume the most crucial roles. Using recent immigrants from rural areas might increase interest and credibility. An adequate number of well-qualified technicians should be employed to keep the receivers and audio-visual equipment functioning well in the centers.

Each center should employ a male and a female monitor on at least a part-time basis. They should be selected from the neighborhood being served by the center. The program will require at least one well-trained evaluation specialist and several assistants which he may train. The actual number will depend on the number of centers and the number of clients.

Since cooperation between the components is essential to the success of this type of operation, all employees should participate in both the preservice and in-service training for the purpose of developing social interactive skills. The monitors need these skills to work with clients both in group situations and individually. The evaluators need them in order to effectively carry on formative evaluation efforts without alienating members of the production team or the monitors. The production team needs these experiences to understand their own defense mechanism with regard to accepting criticism and to develop and maintain a spirit of self-inquiry.

The training will consist essentially of role-playing exercises designed to increase awareness of what actually happens when two people communicate and to develop certain essential skills such as the following:

1. Learning to use judgmental types of praise (I like that; it is good, right, etc.) only when it is explained.
2. Avoiding negative feedback (ignoring, criticism, sarcasm) and the use of rhetorical questions.
3. Reinforcing by using (restating, summarizing, elaborating) the statements made by the discussant.
4. Effectively using transitions between open and closed questions.
5. Using selective verbal reinforcement (see item 3) to manipulate the discussion to keep it on the topic and to avoid personality clashes between discussants.
6. Relating the ideas of one discussant to those of another.
7. Reversing questions so that the asker must seek his own solution (although with help).
8. Limiting the percentage of time the discussion leader talks.
9. Conveying acceptance of feeling.
10. Maintaining a gradual increase in the level of abstraction.
11. Learning to listen and to make sure that what you conveyed was what you meant to convey.
12. Conveying respect.

EVALUATION

Although evaluation is usually divided into "formative" and "summative" when applied to developmental programs, this particular program

will essentially be concerned with formative evaluation because it will always be developmental. The formative evaluation continues throughout the project, serving to refine project planning and implementation. The needs of the clients, though always existing, will be constantly changing as will the individuals being served. The media approach that is effective with the aggregate of clients today can be inappropriate for the aggregate of tomorrow. Thus the role of evaluation is to (1) determine the existing needs, (2) identify the relevant attitudes and interests, (3) assess the effectiveness of the components in meeting those needs, and (4) suggest modifications to improve effectiveness based on objective systematic observational techniques and other objective techniques.

Existing Needs

Most of the existing needs can be determined in a census-taking fashion, combining the culture's perceived needs with agency-defined problems. Nutrition can be shown by quantifying the usual daily intake of food. Prevalence of disease resulting from sanitation problems can be obtained from the same type of data collection as can unemployment and the number of people in the area by age, sex, religion, and any other relevant criteria.

Attitudes and Interests

Attitudes and interests can best be determined by observing the clients as they watch various programs. Verbal and nonverbal reactions to certain aspects of programs or merely attendance at certain types of programs should, if collected carefully and objectively, provide a good indication of the types of programming that would generate the most appeal.

Component Effectiveness

Attendance data by age, sex, etc., over time will provide one indication of the quality of the programming. Depending on the age of the viewers and their disposition to overtly express their attitudes toward a television program while viewing it, simplified observational systems can be devised to assess production techniques. The number of booklets and materials taken, the number of discussion groups held, and the number of different people involved will also provide indications of the appeal of the components.

Evaluators can help the monitors improve their skills by coding their behavior live or from tapes using modifications of interaction analysis techniques. These systems would permit the analysis of particular problems and the effectiveness of changes in techniques by the monitors. Thus the monitors constantly improve their skills in real-life situations while being confronted with real-life problems.

The ultimate index of effectiveness is actual (not reported) change in behavior. This can probably best be determined by making home visits periodically and taking census-type information coupled with observation for such things as pregnancies, malnutrition, diseases, and sanitary practices. The time periods between visits will need to be short enough to permit the evaluators to determine where people have moved and to make at least one follow-up visit. The frequent (perhaps every 6 months) visits by evaluators are themselves a confounding variable since personal contact tends to encourage people to act in perceived desired ways. Thus the program must result in substantial changes in order to be deemed effective, and the rate of changes, using new inhabitants

in the area serviced by the center, should show a steady increase.

The formative evaluation procedures will provide an accurate objective assessment of what each component is doing. Hence, when the effectiveness of several centers is compared, it will be possible to determine quite precisely what aspect of what component is responsible for the greatest amount of difference in effectiveness between centers.

Daily assessment of program attendance and the possible use of systematic observational techniques will indicate attractiveness and quality of programs and perhaps segments of programs. The use of interaction analysis techniques will permit the evaluation and improvement of the interactive skills employed by the monitors. Questionnaires, interviews, and simple counts will provide indications of the acceptability of materials. A periodic census of births, deaths, and diseases in the neighborhood will provide indications of the ultimate effectiveness of the program.

CENTRAL RADIO BROADCASTING
PLUS MOBILE UNIT

INTRODUCTION

The situation described below is hypothetical because it is not drawn from any one location. However, the elements of the problem are real and the communication system discussed in this project is based on those real elements.

PROBLEM.

This particular communication system would operate in the configuration of one large city equipped with central radio broadcasting facilities and surrounded at some distance by rural villages that for all but the most extreme circumstances are cut off from the life of the city.

The people in these villages have no programs organized to attack their immediate problems. They lack qualified people and resources and cannot see readily acceptable solutions because they are not sufficiently aware of the causes of their problems. At the same time they are handicapped by sickness, physical weakness due to malnutrition, scarcity of food, and an inability to share in the developments taking place in the city.

A system of roads connects the villages to each other and to the main city, but the relative distance to the city is such as to make the trip almost a once-in-a-lifetime event. Consequently the village people continue to live as they have traditionally, unaware of the practical information available in the areas of health, nutrition, family planning, and agriculture even within their own section of the country.

OBJECTIVES

The purposes of this communication system are to:

1. Give the people a deeper understanding of the problems that exist in their villages.

2. Make the people aware of the alternatives that exist for improving their situation.
3. Motivate the people to want to improve their general living conditions.
4. Provide the opportunity for people to learn specific skills in the basic areas of nutrition, health, family planning, and agriculture.
5. Provide the resources and qualified personnel who can help them learn the necessary skills.

The decision on which skills to teach first will depend on an initial survey that will investigate the greatest felt needs of the villagers. This survey should be conducted on a village-to-village basis involving as many of the people who will develop the programs as possible. The survey format will depend on the local situation. Interviews with identifiable authority figures, group discussions, and door-to-door canvassing are all possibilities to be chosen from as the local situation requires.

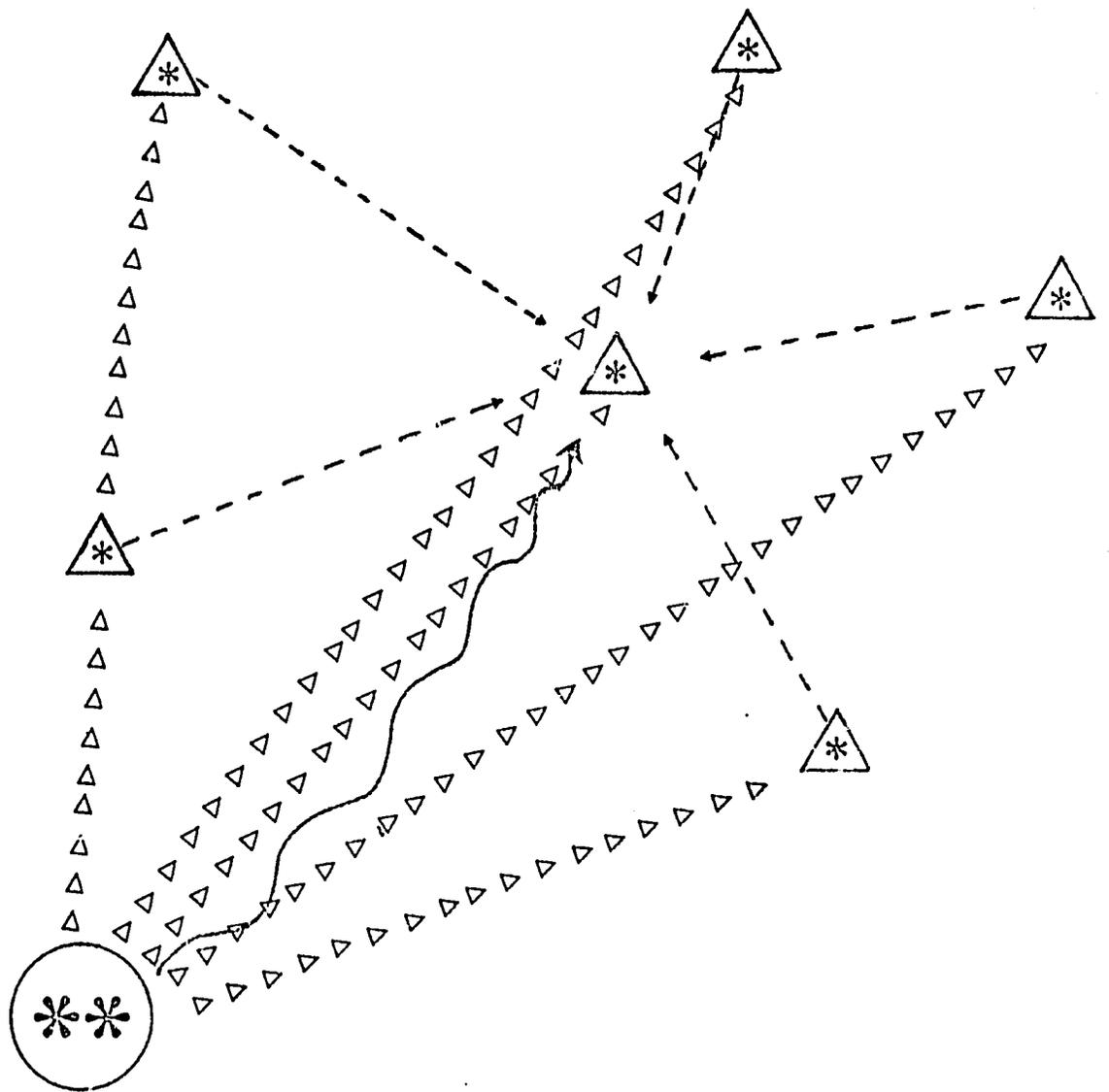
Working from that survey forward, the objectives of the program will develop as the improvements in one sector lead naturally to another sector of concern.

GENERAL DESCRIPTION

The components of this project are a central broadcasting facility, which will convey information by radio; a mobile unit, which will travel to selected areas equipped with the necessary teaching devices to instruct the local village representatives and also supply any instructional material accompanying the broadcasts; and a trained staff that is capable of

instructing the representatives in the skills indicated by the broadcasts and feeding back to the central broadcasting unit the results of the program on a regular basis.

The central broadcasting unit will further the purpose of making large numbers of people aware of the need for change. These broadcasts will reach thousands of people simultaneously who might otherwise never know what exists outside their particular section of the country. There is little evidence, however, to support the implementation of a project intended to produce behavioral changes by using mass media alone. The human element appears to be a necessity. Since in this situation, each village does not have the qualified personnel to follow up the radio broadcasts with individual or group instruction, the trained staff in the mobile unit will fulfill that function. Also, since such large numbers of people are involved and so many villages must be reached, the mobile unit will meet in a preannounced village to conduct a training session for representatives from surrounding villages lasting no longer than one week, so that the effect of the trained mobile unit group will extend to the widest possible area on each of its stops (see Figure 4). The number of representatives trained in one session will depend on many variables, but the group should be large enough to give the members a feeling of mutual confidence and support. These trained representatives will provide the needed human contact for their fellow villagers. The method of selecting the representatives will vary according to the local situation and the area of concentration. The selection will probably necessitate another trip to the villages while the program is being developed, but the procedure may be no more elaborate than asking the villagers or village officials which person is best at the skills to be



Central Broadcasting



Local Villages



Mobile Unit



Representatives



Central Broadcasting
Message

Figure 4: DIAGRAM OF THE CENTRAL BROADCASTING PROTOTYPE'S ACTIVITIES

learned. The representative will have to be given some reinforcement, probably financial, for taking part in the training program.

Mobile vans are not new to the rural education scene. Mobile trade training units have been used in Thailand since 1960 to develop agricultural and industrial skills in out-of-school rural adults and youth who have had at least four years of compulsory schooling. Nearly 54 self-contained units are now traveling the countrysides offering courses that extend from one month to two years. Also, in Colombia the Servicio Nacional de Aprendizaje (SENA) made use of mobile units in its Promoción Profesional Popular-Rural programs (PPP-R). In 1970, the PPP-R program enrolled 125,500 trainees in agricultural and rural nonagricultural training courses. The mobile unit there, which carries a single instructor, is a fully equipped instructional vehicle with a prefabricated classroom-living unit. It travels from one rural area to another depending on the needs of the people.

In the late 1960's, the Republic of Korea was operating 18 mobile units in its family planning project. These trucks were equipped to provide information and clinical follow-up services in the remote rural areas.

Although the mobile units reported here have been some type of truck or van, there is no reason why a boat or airplane or any other means of transportation could not be used if it would be more feasible.

None of the programs in other countries using mobile units have combined them with a central broadcasting component. They have always been self-contained, although dependent on a central source for written program material. (The preschool program developed by the Appalachian

Educational Laboratory here in the US has successfully combined these two components in its efforts to reach the rural youngsters of West Virginia.)

It is hoped that this project will cut across sectors as the needs of the people direct. This integrated approach will require flexibility in the staffing of the mobile unit and possibly demand different representatives from the villages as the area of concern changes. Since the radio programs will have to mesh with the local training efforts, the switch from one sector to the next should be planned well in advance. This flexibility should not be interpreted as meandering from one area to another or switching so rapidly that the audience is left confused about the intent of the project. A concerted effort involving a series of programs would be devoted to each objective before moving to the next area of concern.

AUDIENCE

Once again, although the general audience is the rural villagers, the specific audience will vary as the programs vary. If breast feeding is the topic, the obvious target is the woman, and the representative from the village will be a woman. When the program concentrates on planting a different crop, another member of the family may be more concerned, and the representative will shift accordingly. Programs in family planning could be geared to both husband and wife, and perhaps the representatives would be a team. Both the topic and the audience would determine the time of the broadcasts.

OPERATION OF THE PROJECT

As mentioned earlier, the initial action of this project will be to survey existing needs in the villages where the programs will be

received. Certain fundamental problems in each area can be identified and their relative importance determined, so that work can begin on developing the most needed programs first. The purpose here is to work first on what the people want most, so that motivation will not be a problem initially. The people will be told well in advance when a program is to be broadcast as well as when and where to have their representative for the follow-up training session.

The primary purpose of the broadcast is to create a climate for change. If the producers of the broadcasts are capable of developing broadcasts in a programmed format and if they can devise accompanying materials the local representative could distribute and the people use, then the possibility of actually developing skills from the broadcasts alone could be greatly enhanced. The logistics of getting the material out to the people and back to the mobile unit and eventually reporting the results back to the city can pose an even greater difficulty to this operation than the development of materials. Indeed, the mobile units in Thailand reported that the logistical problem of supplying their vans with materials was one of the greatest obstacles to their success.

This project will have two broadcasts a week for the first few weeks, before the representatives receive their one week of training, to acquaint the people with the program and make them aware of its objectives. The programs would be reduced to one a week when the representatives have returned to their villages. For example, if the problem was infection due to rubbing mud on cuts instead of cleaning them with water, then the first few programs would dramatize the consequences of this common practice. The audience would become aware of the fact that

rubbing mud in their cuts was actually causing them harm and had been the source of many of their problems in the past and that cleaning them with water was a much better solution. The start of the explanations on how to remedy this situation would coincide with the return of the trained local village representative who would follow up on the broadcast programs with practical demonstrations either in group settings or on a one-to-one basis.

The frequency with which the van returns to the area will depend on the number of vans, the area each has to cover, the ability of the representatives to work on their own, the need for feedback by the central programming unit, the degree of success of the representatives, the desire to change the program and thus train new representatives, the length of the project, and the number of programs.

The mobile van unit will tape sections of the training and play them back during a subsequent broadcast along with endorsements by the local representatives. These broadcasts will lend status and credibility to the representatives; however, they should be brief enough not to detract from the continuity of the programs.

If possible, the representatives will plan to meet as a group on a regular basis to exchange ideas and share experiences. If each representative brings along one fellow villager, then the number of people connected to the program and reinforced by this social interaction could be doubled.

Some type of reward system should be built into the whole structure of this project. Besides being trained in reinforcement practices, the representatives should themselves be reinforced for the accomplishments

they make during the course of their training. A total atmosphere and commitment to reinforcing positive behavior should be established from the beginning.

Since the representatives are the means of feedback to the mobile unit and then ultimately to the central source, the unit must return to each area often to maintain as close a connection as possible with these people. If accompanying material has been used and collected, then critical performance data could be given to the programmers after each meeting. The form of transmitting these data back to the city will vary depending on the technological sophistication of the country. A computer terminal in each van hooked up to a central computer would be the ideal. Regardless of the form of the feedback, the channel for it must be set up and information must flow through it (see figure 5).

Equipment and Facilities

The central broadcasting unit must have the capability of reaching all the targeted villages by means of radio.

Each village must have the required number of radios to permit at least one large listening group. The radios could be small transistors, which would cut down on the expense.

The mobile unit must be capable of housing the instructional team. Also, provision must be made to house the representatives while they are in training.

Software Development

A crucial part of any mass media communication program is the development of the broadcast programs and any material the learner will use. Although technical competence is important in designing and constructing

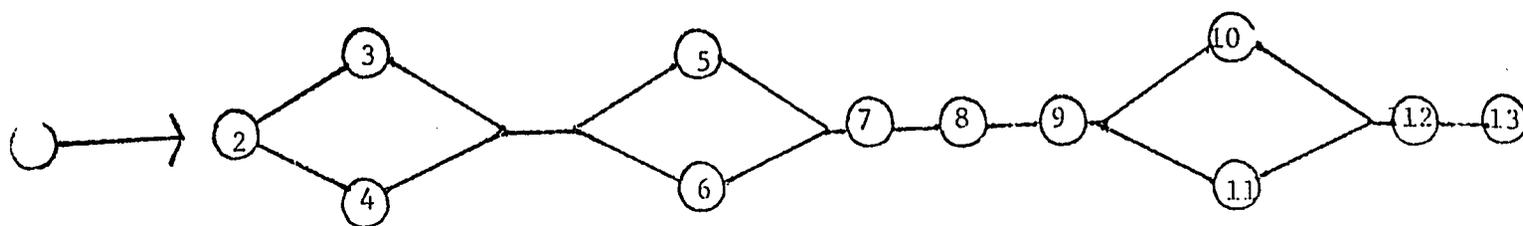


Figure 5: FLOW CHART OF THE PROTOTYPE'S ACTIVITIES

1. Selection of survey team
2. Initial survey of needs
3. Development of radio programs
4. Development of accompanying materials
5. Selection of representatives
6. Distribution of radios
7. Broadcasting of initial radio programs
8. On-site training of representatives
9. Return of representatives to their villages
10. Continuation of radio programs
11. Distribution of accompanying materials
12. Feedback by representatives to mobile unit
13. Feedback of results to radio broadcasting unit

this material, it is essential that local people be included in the process as much as possible. It does no good to be technically sound and yet miss the wave length of the people entirely. There is no need to provide the listener with written materials if he can't read. Listeners could indicate their selections through punch-outs, drawing pictures, or other methods of showing their responses. What is essential is that the audience activity be connected with the objectives of the broadcast so that what people do during the broadcast will help produce the desired behavior change. These materials should be field-tested with people similar to the target audiences until they elicit the desired responses.

Manpower and Training

The group that functions as the central broadcasting unit must be trained in the development of radio programs that will be interesting, motivating, and informative. They must also be adept at designing programs geared toward specific objectives and be capable of revising these programs based on results reported from the field. As much as possible, local talent should be trained and utilized in the development of these programs.

Even more so, the crew of the mobile unit should be composed of members of the local villages. They should be trained in specific skills initially and continue to learn new and varied skills as the project continues. The continuity of personnel would be helpful. However, there should be no hesitation in replacing people if more competence becomes available. The selection and training of teachers has been a major difficulty in other mobile unit projects.

A member of the mobile crew should be skilled at driving the vehicle, making minor mechanical repairs, fixing the instructional equipment, and analyzing results from the field and reporting them back to the central broadcasters.

EVALUATION

In many respects the evaluation component is the most crucial component of the project. It determines whether the objectives are being met and supplies the necessary data to make ongoing decisions.

The factual information about how many programs are developed, how often they are broadcast, how many receivers are in the villages, how many people listen to the programs, how many representatives are trained, and how many return for follow-up sessions is important and vital. This type of information must be collected and recorded. However, it is not the most important type of information for maintaining and improving this project. The crucial questions still remain unanswered: Were the people more aware of their problems? Were they more aware of possible solutions and were they willing to take an active part in changing their living conditions accordingly? Did they implement the skills they learned from their local representative? These are questions that supplementary materials that demand an overt response could answer in part. Observation and recording by the observer could answer the rest. Unless the representative is trained for this task and its importance is emphasized, it will never get done. Also, an evaluation design must be established to provide the decision makers with information while the project is in progress as well as summary data at the conclusion.

DYADS

The three project descriptions that follow are based on the communication pattern in which two individuals are engaged in face-to-face interaction. More specifically, attention is focused on dyads--two-person groups that are formed more or less purposefully, involve a rather intense level sharing, and persist over some length of time.

It has long been recognized that the one-to-one linkage between change agent and client is at the heart of most directed social change programs. The most commonly accepted model of the communication process implies that in most cases the mass communication message results in action only after being relayed through one or more opinion leaders in face-to-face encounters. The activities of the agricultural extension agent in the US and other countries are based on this model.

Dyads, of course, are a very natural type of human grouping. Monogamous marriage, partnerships, and friendships are simply everyday examples of dyads. It is obvious that dyad partners can wield great influence over each other. Unlike larger groups, the dyadic group ceases to exist if one of its members withdraws. Reaching agreement is essential to continuance of the relationship; thus the potential for persuasion is high.

As far as learning is concerned, the dyad also seems to be a promising instructional unit. The recent emphasis on individualized instruction has carried with it an unnecessary overemphasis on independent study. Study need not be carried out in lonely isolation in order to be individualized. It is usually granted in fact that the ideal individualized learning mode is the tutorial. But hiring a professional teacher for each student is economically infeasible; the usually accepted alternative

is to replace the tutor with some sort of programmed printed materials. These materials at least require some sort of active participation from the learner and, theoretically, can be adapted to his individual rate and style of learning. The tradeoff is that the program responds only to certain anticipated learner responses, and those responses must be made in a written or digital form.

The great advantage of the tutorial mode is that a human tutor can react to vocal--or even unconscious nonverbal--responses; he can adapt his approach spontaneously; he can take in unanticipated creative responses; and, most important, he can provide the continuous social reinforcement that is crucial to lasting behavior-changing learning. Further, the dyad is a type of learning configuration well adapted to use outside the traditional school structure.

It is proposed, therefore, that governments interested in bringing about behavior change and seeking alternatives to the high costs of electronic media or highly trained teachers look carefully at the potentials of the dyad for fulfilling these objectives. Three project ideas follow, illustrating dyads.

DYAD PROJECT 1: OUT-OF-SCHOOL TUTORING FOR BASIC EDUCATION

Problem

Universal primary education is an as yet attained goal in most less developed countries. It appears unlikely that the current system of formal schooling can be expanded rapidly enough to keep pace with population growth; the general slowness of economic growth dims prospects for devoting proportionately larger shares of the national wealth to education. Even if formal education could be expanded, there are those

such as Illich and Reimer who argue that formal school mechanisms are counterproductive, because they emphasize credentials instead of learning.

The challenge is to multiply and extend the society's thin layer of educational resources, preferably in a manner that requires less trained manpower and less direct costs and incorporates more responsive patterns of human interaction than the typical large group lecture mode does. Ideally, such a system should also be set up to operate outside the formal school framework.

Objectives

1. To extend a basic primary education to a greater proportion of the country's youth.
2. To provide extended educational opportunities without a significant increase in the numbers or existing skills of current teachers or a great expansion of school facilities.
3. To provide learners with more one-to-one interaction in an active and cooperative (as opposed to competitive) setting.
4. Where appropriate, to reduce the heavy costs of providing places for grade repeaters by offering remedial instruction through peer-age tutors.
5. To begin to build a career ladder for the teaching vocation by allowing children to play the role of teacher as a regular part of their educational experience.
6. To broaden and deepen children's knowledge of the basic subject matter through the review and explication that would be required of them as tutors.

Program Description

The basic concept is that more advanced students be enlisted to serve as tutors to the less advanced. The exact implementation of this concept would have to be adapted to the particular needs and available resources of particular localities.

Although the notion of children learning from other children can be traced back to ancient times in the Roman and Hindu cultures, only within the past half-dozen years have American educators begun to reexamine its potential. The new impetus comes from the humanistic "T-group" school of social psychology. Since the mid-1960's names such as Lippitt and Thelen have become associated with youth tutoring projects. A seminar program, called Youth Tutoring Youth (YTY), has been a Neighborhood Youth Corps program in Newark and Philadelphia since 1967. In the YTY program the tutors were both economically and educationally disadvantaged; they were paid \$1.25 an hour for 22 hours each week to work after school with tutees recruited by a community committee. By 1970 the number of similar programs had risen to over 200.

Tutees have been found to profit from the YTY program in having a private tutor, working with him in an informal atmosphere, receiving individual correction and drill, using tutor-designed materials--usually more relevant to his real life than school materials are, and simply having an older child around to model himself after.

It is notable, though, that research to date indicates that even greater benefits accrue to the tutor. This is not just an unintended side effect; it is usually a primary objective of a tutoring program. The YTY program described above:

...is based upon a powerful respect for the unutilized inner

resources of disadvantaged youngsters...by placing the under-achieving adolescent in the role of the helper...his own power can be developed and released, his image of himself changed..The tutoring role itself, by the very nature of the relationship between the tutor and tutee, brings forth a new responsibility. Unlike the "responsibility" given in school for erasing the blackboard, the tutor is placed in a position of being responsible for the learning of another. (Gartner et al)

Tutors learn through teaching and frequently find a new motivation for pursuing further learning.

Audience

The most obvious application of this technique would be in the area of basic education, especially for school age children and youth. However, it could also be adapted to use with older groups in any skill area. Although its principal advantage is seen as its ability to carry learning opportunities to out-of-school learners, in actual practice it would be most efficient to connect the project to an ongoing school wherever possible. The school is a logical source of potential tutors. Its teachers might serve as supervisors and curriculum developers, and, importantly, the incentive system associated with the school could provide vital motivation for both tutors and tutees. Such an arrangement parallels the extension service, using students as agents to extend learning beyond the walls of the classroom.

In a country such as Brazil, with a burdensome problem of primary school repeaters, the program might be shaped to place would-be repeaters under the tutelage of volunteer older children outside the actual school setting.

In a country such as Upper Volta, with a serious shortage of qualified teachers, facilities, and funds, each student who had progressed beyond the most basic level could be called on as part of his regular school assignment to spend several hours a day acting as a teacher to a small group of out-of-school younger children.

Bernard Wilder of Michigan State University reported that in Ethiopia a Boy Scout must provide evidence that he has taught another person to read in order to attain the rank of First Class Scout. Certainly, for totally nonschool programs the planner's challenge is to structure incentives for both tutors and tutees.

Operation of Project

The operational specifics depend on the nature of the problem to which the tutoring concept is applied. Several configurations have been mentioned in the previous section. Some other possibilities are:

- . One tutor with several tutees consecutively
- . One student acting as teacher to a small group or an entire class
- . A student acting as a "big brother" to a younger student
- . A student acting as leader of an interest group or club
- . An adult tutor with one or more adult tutees
- . Youths or adults being put into contact with peers by means of a "learning exchange"

The two latter items are related to the alternative education proposals advanced by Illich, who refers to "skill exchanges" and "peer-matching networks," and Reimer, who refers to "networks of people." One such operation, the Free Learning Exchange, Inc., is already in existence in

New York City; others are in the planning stages. In the US and the other developed countries, this sort of information interchange is relatively abundant and easy to set in motion. In the less developed countries mechanisms need to be developed on which such exchanges could be grafted. Some of the other concepts mentioned in this report, such as the Market Communication Center, might serve as the appropriate structure.

Less developed countries might well take note that a children-teaching-children system was widely adopted in England and the US in the late eighteenth century while both countries were undergoing their Industrial Revolution. In 1818, Joseph Lancaster, an English Quaker who later emigrated to the US devised a system in which advanced students served as "monitors," teaching small groups of younger students; the monitors were, in turn, supervised by another echelon of more advanced students. The idea was based on the factory model, and it appears to have worked with surprising effectiveness, as well as great economic efficiency, in scores of large school districts. The system withered away as affluence spread to the educational sector and as a corps of qualified teachers became available. But Lancaster's monitorial plan might still be a viable model for some less developed countries.

No special equipment or facilities are required, no matter what the direction of the particular program. Space is needed, though, to provide a modicum of quiet and privacy; schoolrooms may be used after normal school hours. For non-school-oriented programs, other community places might be more appropriate: shops, churchyards, parks, etc.

The extent to which special materials are necessary depends on the objectives of the particular program. The YTY program allows tutors

to prepare their own materials, encouraging them to get more deeply involved in the helping role and assuring the avoidance of pedantic, often sterile, school materials.

On the other hand, in situations in which the mastery of cognitive objectives is to be emphasized, it would be desirable to provide tutors with carefully prepared instructional materials and training in their use. In cases where radio transmissions are available it may be possible to provide some "inservice training" to tutors via radio and perhaps even to transmit instructional materials that would be recorded by tutors on audio cassettes and played back later to their tutees.

However, the cost factor dictates that software would ordinarily consist of printed materials distributed by the adult supervisors (e.g., Scout leaders, teachers). These printed materials might well be written in something of a programmed format to ensure active participation on the part of the learner. An existing model, the Structured Tutoring system expounded by Grant von Harrison, proposes a systematically developed series of materials devised in accordance with the principles of programmed instruction. His objective is to emphasize learning effectiveness on the part of the tutee: hence his system requires elaborate design and management procedures to provide pretests, validated sequenced programmed materials, preestablished behavioral objectives, individual prescriptions, etc.

The degree of preservice tutor training depends on the extent to which the program desires to stress "naturalness" and spontaneity. It has been found that tutors can be overtrained to the point where they feel their role is mechanical and highly restricted, thus greatly lowering morale. The YTY group places emphasis on tutor creativity and recommends

that the preservice training of tutors be short and not overly directive. The same authors also call attention to several other youth tutoring programs that have successfully used highly structured and programmed training procedures lasting two weeks and more.

One area of agreement, though, is that tutors need to be exposed to a variety of instructional strategies and materials so that their own repertoire extends beyond the authoritarian pedantic lecturing that may have typified their own experience as learners. In addition, a regular, perhaps weekly, schedule of in-service training is desirable to deal with problems as they emerge, to keep up morale, and to encourage communication among tutors.

As a final training issue, if the program is related to a school setting, the classroom teachers will need at least an orientation to the aims and procedures of the tutoring project. In many cases it may be desirable to limit the teachers' involvement to just such an orientation, leaving the day-to-day supervision of the tutors to a paraprofessional person or even a "senior tutor."

Evaluation

The variety of possible goals for tutoring projects makes it difficult to generalize about evaluation. The first step is to specify the objectives of the program; these should be stated in terms of the goals for the tutors, those for the tutees, and those for the organization in which the program is operating.

The second breakdown might be according to the cognitive, affective, and action objectives of the program. The cognitive domain might be measured by means of conventional achievement tests if academic learning is the core of the program; in any event, a pretest on the particular skill

would be useful both as a means of prescribing initial placement and as a benchmark for charting progress.

In the affective domain, one would be primarily interested in determining the learner's (and tutor's) satisfaction with the tutoring experience and with his desire to seek further self-directed learning along the same lines. Other affective facets may be of importance to a particular program. Gartner et. al. discuss such factors as self-concept, social acceptability, and discipline and suggest means of measuring these dimensions.

Simple and unobtrusive measures such as attendance reports, third-party observations of interactions, and tutors' diaries might be additional methods of gathering data on which to base future modifications of the program.

DYAD PROJECT 2: PEER LEARNING THROUGH GAMES

Problem

This project is addressed to the very general problem of diffusing modernizing ideas and skills throughout a technologically underdeveloped area. Where mass communications are limited in reach and content, where formal schooling reaches only a minority and only to a rudimentary level, where literary rates are low, and where contact with cosmopolite outsiders is infrequent, every available communication channel must be examined to assess its possibilities for carrying modernizing messages.

It is proposed here that games be used as the means for bringing peers together for mutual learning experiences.

Objectives

1. To specify realistic cognitive and affective objectives that are of high priority (in terms of economic development, quality of life, or

whatever) and that could feasibly be achieved through the playing of a two-person game

2. To design and validate simple games that develop the specified abilities

3. To provide a system of incentives that will encourage widespread playing of the game among the target audience

4. The end objective: to disseminate a cognitive or affective capability that fits into a wider campaign of developing modernizing attitudes throughout the society. The objective is to shape general orientations toward change, not specific skills or knowledge.

Program Description

The intention is to explore the potential of the dyad not for a teacher-pupil relationship as outlined in Project 1, but for a cooperative learning experience. A game would be the vehicle for this mutually rewarding educational encounter.

Arnold contends that virtually every historical or contemporary culture has played some sort of strategic game. He provides examples of games that recur in modified form in a number of widely separated cultures. One example is known to the Arizona Indians as "Coyote and Chicken," to the Spanish as "Catch the Hare," and to the Japanese as "Soldiers' Eight-Way Hunt."

These examples fall into the general pattern of a board divided into grids over which counters are moved to simulate the movements of some animal or person who is being pursued. Whether such games deal with cows or leopards or soldiers they share in common an underlying strategy that somehow mirrors the realities of life for that particular people. The problem for planners is that traditional games mirror traditional folkways and

traditional values; these are the attitudes passed down to generation after generation of players. If a new variant could be introduced it could serve as one "wedge" of a multifaceted overall plan for reshaping societal values along new paths.

The use of simulations and games as a technology of education has developed rapidly over the past dozen years, partly as a result of Pentagon interest in designing increasingly realistic "war games" of global conflict. Proponents such as Clark C. Abt see games as a means for "reuniting action and thought," while James S. Coleman acclaims that "near universal success has rather been in motivation and general enthusiasm of students and teachers.. In any event, scores of educational games are on the market, several serious journals have sprung up to document the progress of this new movement, and ever greater adoption appears assured throughout the US. In short, the concept of nonformal education through game playing seems to be an idea whose time has come---one that has matured to the point where less developed countries can realistically expect some tangible payoff from a research and development (R&D) project in this area.

Audience

One great advantage of this instructional medium is that it does not necessarily carry any class or age connotations with it. In most societies, games are considered appropriate activities for the youngest through the oldest. The target audience would depend wholly on the priority chosen by the local agency.

In the same way, games could be designed to change attitudes or behavior in virtually any sector: health, nutrition (UNESCO now markets a children's multilingual game called "Lingo," which is similar to Bingo

and deals with foods used by the peoples of the world), family planning, entrepreneurial activity, basic education, etc.

It is recommended, though, that attention be given to the development of general psychological characteristics rather than specific knowledge related to a given sector. The works of McClelland and Lerner on the psychological correlates of modernization hint that an important contribution can be made by devising exercises in which receivers "try on" new behaviors. They indicate that certain psychological traits underlie technological development, such as empathy and achievement need, and that these traits can be developed through practice. Game playing provides a safe arena to try on new roles.

In practice, the whole thrust of games(s) to be designed would depend on the general drift to be encouraged in a given culture, that is, most games are based on a competitive model, where one player wins and the other loses (a zero-sum game). But others being developed are not zero-sum games---they require cooperation among the players in order to reach a mutually satisfying goal. The latter type of game might be better suited to a country such as Tanzania where every possible communication channel needs to be employed to spread the spirit of "ujamaa." In other societies it might be judged that entrepreneurial activity might be spurred by honing the competitive instincts of the society.

Operation of Project

The first step would be to undertake an intensive anthropological investigation of the status of game playing in the given culture and to determine the nature of strategic games commonly played. Second, a specification must be made of the particular societal values, attitudes, or skills

that are to be affected by games as part of an integrated modernization campaign.

Probably the most difficult step would be to design either a new game or a variant of a traditional game that will both be accepted by the culture and be able to inculcate the desired traits. At the present state of the art, this would require an R&D effort that would probably be highly expensive in terms of time, cost, and sophistication of manpower required. An external funding source would be mandatory for any less developed country.

Assuming that a suitable game could be developed, it would have to be pretested on a target population, both in terms of its effectiveness in achieving the desired behavior and in terms of its acceptability to the audience.

Next, marketing mechanisms would be needed to achieve a wide distribution of the game. It is assumed that the design of the game would be simple enough that if the concept were accepted, individuals would be able to construct their own software, based on widely distributed prototypes.

In addition to an advertising-marketing campaign to motivate receivers to try the game, a major effort would be needed to provide continuing incentives to play it. Of course, the primary incentive would be the inherent attractiveness of participating in a pleasurable activity. But any game would encounter well-entrenched competition from other types of pastimes. It is recommended that a system of competitions be arranged, beginning at the local level, progressing through the district and regional levels, and culminating in a highly publicized national tournament. Winners at each level would be rewarded with appropriate public status and with material

prizes. Clubs, similar to chess clubs and rugby clubs, could be set up to institutionalize the game into the culture and to provide a continuous means of recruiting and training new players.

It is assumed that the game would require no special equipment or facilities other than game pieces that could be shaped from indigenous materials and made by hand by individuals.

The great manpower costs would be involved in the initial R&D effort and to some extent in ongoing formative evaluation of the effectiveness of the program. Once the program was operating, the mutual reinforcement provided by the players to each other would sustain the project without further need for professional manpower.

Evaluation

Evaluating the cost effectiveness of games is discussed thoroughly by Abt in Chapter VII of Serious Games. This section merely summarizes some of Abt's major points.

First, the costs of an educational game are the time, energy, and intellectual efforts required of the designers and the players. The time and effort expended by the players must be weighed against the costs of achieving the same results by other methods. The great problem in the case of games developed for less developed countries is that their objectives may be rather general and of an inherently long-range nature: e.g., to improve the decision-making capabilities of rural youth. It may take ten years, a generation, or longer for the results to begin to be displayed. And, of course, even if the desired results were clearly detected they could not necessarily be attributed to the game alone.

In the end, evaluators might have to settle for measuring certain types of face validity: the acceptance of the game; its apparent success in depicting reality; its playability in terms of materials, space, time, and complexity of rules; etc.

DYAD PROJECT 3: LINKING ADOPTERS OF INNOVATIONS

Rather than describe a full-blown separate project, this section merely discusses a function that might be worth considering as a part of many other types of directed social change programs.

Problem

Oftentimes innovations are discontinued because the adopter lacks external reinforcement and/or the internal sense of self-confidence needed to continue the behavior in the face of adverse results or an unreceptive social milieu.

Objective

To provide a continuing source of social reinforcement in the form of communication with a near-peer who shares an interest in adopting and continuing an innovation.

Program Description

The change agent, if he is consciously acting in this role, can act to put one client into communication with another adopter. Ideally, these two should be "homophilous" or near-peers in regard to age, social class, ethnic group, and skill level. Communications are easiest and most persuasive among such homophilous dyads.

The agent would, for instance, introduce to each other two women whom he had convinced to can garden produce. These "home canners," by

comparing notes periodically, would be reassuring each other as to the social acceptability of their innovative activity. Such social reinforcement would be a strong deterrent against discontinuance, particularly if the two were homophilous. The advantage of this arrangement is that it replaces one of the most repetitive functions played by the change agent, freeing the professional extension worker, for instance, to spend his time in other functions.

CONCLUSION

The prototypes just described are intended to be indicative, not exhaustive, of the types of projects that possess the potential for reaching and affecting large masses of people relative to the sectors of agriculture, nutrition, health, and family planning. Undoubtedly, further analysis could produce different media configurations that might demonstrate equal or even greater potential for producing large-scale behavioral change. What may be especially significant about these prototypes, however, are the common principles or axioms running throughout them, which evolved from our meetings with experts, discussions, and investigation during the course of the contract, and which we believe should be a part of further prototype development or the generation of country-specific programmatic pilot projects. Indeed, we feel that our most valuable contribution to future planning in nonformal education, as defined earlier, may be to make these principles explicit and to highlight their importance.

Principle 1: A combination of communications media and interpersonal communication appears necessary to produce large-scale behavioral change in the areas of agriculture, nutrition, health, and family planning.

Social science research indicates that the mass media can create a "climate for change," which is a necessary precursor of behavioral change, but by themselves these media cannot--or have not to this date--directly cause changes in strongly held attitudes and beliefs that often accompany agricultural, health, nutritional, or family planning practices. This is not meant to underestimate the power and importance of the media's ability to reach people, quickly, with information not available through other means of communication. The mass media obviously can also have long-term influence

on the self-concepts, cultural values, and shared mythology of the audience. Nevertheless, interpersonal communication (involving face-to-face message transfer), for reasons primarily of message credibility and human responsiveness, appears to be an essential complementary component of any planned media project designed to instill new practices or encourage the adoption of a product related to our sectors of concern.

This need not mean that highly trained or highly educated change agents are a necessary element in a media project attempting to produce change. There are, in fact, compelling factors such as economic cost and agent-client heterophily, that would preclude the massive use of highly trained change agents. Our vision, instead, is to develop and utilize the potential human leadership and skills that lie dormant at local levels because of the lack of incentives or motivation for action. The development and implementation of many of our prototypes would create a small core or paraprofessionals, who would complement and reinforce the media message in terms relevant to the learning clientele. These paraprofessionals may include those who already have status within the community, such as midwives, opinion leaders, or even local political leaders. Or it may include those who currently lack status and who perceive service within a communications media project as a means of obtaining it. Whatever the case may be, we feel that interpersonal contact is a necessary element in a media project, and the use of paraprofessionals, whose training would be brief and monetary rewards minimal, should not make such a project prohibitively expensive.

In sum, the prototypes presented in this study are designed to produce complementary roles for both interpersonal and media channels, drawing on what each can do best and thereby creating a system that multiplies the impact of both.

Principle 2: The use of communications media to reach vast audiences must not inhibit or prevent the localization of activities that encourage active participation in all phases of the communications process.

The localization of nonformal education projects using media can be accomplished in numerous ways, for example:

- a. Recruiting paraprofessionals from villages to which nonformal educational programs are being broadcast (discussed under principle 1).
- b. Holding short training sessions for paraprofessionals at village, district, or regional levels, excluding capital cities.
- c. Broadcasting from the most local level possible, while still reaching a significantly large portion of the population.
- d. Involving the local audience, itself, in program planning and production.

The rationale for localization is based, in part, on the axiom that people will be more interested and motivated to weigh information and new ideas broadcast over the communications media if they feel they are indeed active participants in the media process and not simply a passive audience targeted, by others, for whatever purpose. Our prototypes encourage an active audience by asking for their perceived needs, by seeking their participation in actual programming, and by basing the revision of the program in part on their feedback to evaluators. Our desire is to blur the role distinctions, which are too prevalent today, between a media message source and its audience. While a degree of "professionalism" may be served by retaining these distinctions, a valuable sense of participation is lost and often with it the credibility of the message.

The mass media often suffer from a lack of credibility or trustworthiness in the eyes of their mass audience. Reasons for the lack of credibility

are several: governments often use the media as propaganda tools; media programs have in the past been directed toward a relatively small elite audience, located in major urban areas, and hence use program material that is generally irrelevant to the information needs of the vast rural audience; since mass media operations are normally based in major urban centers, communicators often speak in dialects, or even languages, that are foreign to their rural audiences.

Localization is a means by which mass media credibility can be built. The use of village inhabitants as paraprofessionals supporting the mass media message was suggested not simply for economic reasons but because villagers are more likely to trust the advice of those who are similar to themselves, in terms of sharing common cultures, experiences, and language. The purpose of conducting training sessions at local levels is to ensure that the leaders remain similar to the people with whom they are intended to interact. In short, localization appears essential to make the mass media relevant to the audience and to guarantee that interpersonal contact will be rewarding.

Principle 3: Although communications media provide a dramatic instrument for reaching heretofore isolated or neglected groups of people, it does not appear that a technological panacea is imminent that can produce planned behavioral change without intensive and systematic planning and considerable administrative coordination.

It is our belief that producing planned behavioral change in the areas of agriculture, nutrition, health, and family planning is a complex and sensitive business, which entails not only an examination of the media's capability to present a "solution," but also a thorough investigation of the

problems, perceived needs, and characteristics of the audience. Our prototypes did not center on a particular "hardware" or medium alone but, instead, on a communication process, involving the dynamic interaction of message source, content, channels or media through which the message is transmitted, and ultimately the receiver of the message. The complexity of the undertaking increases, of course, as the number of variables increases. In short, the planning of behavioral change through use of communications media needs the same degree of careful and systematic thought that accompanies any plans for behavioral change--even more so, considering the vast heterogeneous audience the message will reach. Planning should encompass, at least, the following five stages:

1. Diagnose problems and assess needs in terms of the social, cultural, and political milieu in which change is to take place.
2. Designate specific objectives the program is to fulfill, which in some manner can be measured.
3. Devise the appropriate delivery system best suited to fulfill the objectives set forth.
4. Coordinate the delivery system with the management and training components for adequate project implementation.
5. Evaluate (discussed under principle 6).

Principle 4: Communications media projects, no matter how creatively and systematically planned, will fail if there is no delivery system to provide follow-up information, services, and resources in response to the demands created by the programs.

The importance of follow-up information, services, and resources to a nonformal education program using media cannot be overemphasized. If

the behavioral objective in agriculture is the planting of a new and different seed, planning officials should be able to assure the farmer that he can not only obtain information concerning the planting of crops but also actually obtain the seeds, fertilizers, insecticides, and credit that may be essential for planting. The farmer should also know that there will be a market for the new crop after harvesting. In family planning programs, it makes little sense to provide information on family planning techniques, if contraceptives cannot be obtained locally or at a nearby clinic. When such demands, purposefully aroused through media broadcasts, are unfulfilled, frustration and further discrediting of the media are likely to arise. Backup media equipment and receivers must also be available, along with an efficient technical servicing capability. Media projects, therefore, must be coordinated with agencies, ministries, or private concerns that can supply follow-up services and resources.

The supply of such services and resources will reflect on the commitment and support that government officials--ranging from the national to local levels--give to the media project; this commitment and support must be strong if the project is to accomplish most or all of its behavioral objectives.

Principle 5: Change programs should begin with the perceived needs of those to whom the programs are directed.

The problems that the people themselves perceive as most important should be considered first. Responding to the people's perceived needs ensures their interest and response, since the problems to be dealt with reflect their priorities rather than those of the planners.

Since all the problems in an individual's life are interconnected,

the initial consideration of needs or a set of problems in one sector will probably lead to involvement with problems in other sectors. For example, nutritional concerns, such as providing a proper diet and eliminating vitamin deficiencies, have obvious relevance to the health, agricultural, and family planning sectors as well, and such inter-relationships can be the base for expanding the scope of a media project.

An integrated sector approach, therefore, deserves serious consideration, since communications media programs could involve the coordination of all the various sector considerations around central problems and needs. Each sector, however, may require a different media approach or treatment depending on the nature of the subject and the values of the audience. For example, in cultures where birth control techniques are traditionally not discussed openly, radio might not be a feasible technology for dealing with the subject extensively.

Media programs and community institutions could be designed to handle problems in more than one sector. Change agents could be trained, according to the "general practitioner" model, to offer basic solutions to a multitude of problems and to refer individuals to more specialized community workers when necessary.

Principle 6: A strong formative evaluation component must be an integral part of any communications media project.

A strong formative evaluation component in a communications media project considerably increases the chances of a project's reaching its objectives. Formative evaluation--which entails constant monitoring throughout a project--provides continuous feedback to planners, essential for the modification of the project.

Instead of simply conducting a summative evaluation at the end of a project, which attempts to determine if the project has failed or succeeded, formative evaluation asks the questions, "How far have we come from where we started? How can we improve that rate of achievement? Are the objectives of the project still consistent with the needs and desires of the clients, or must they be altered?" Answers to these questions and others like them will provide useful information for judging alternatives while the project is in process. The interaction of the planning and evaluation components is essential from the beginning of the project.

Objective statistical data should be collected, analyzed, and interpreted on a continuous basis. This information must then be translated into modifications that in turn are evaluated. This results in a continuous improvement in the formative evaluation techniques as well as the planning, content and delivery system of the program.

Monitoring such a program in a comprehensive manner need not be expensive or require many highly skilled personnel. Practically all the data collection can be done by local people with a minimum amount of training. In most cases only one highly skilled evaluator is required to systematize the effort, analyze the data, and interpret its meaning with suggestions for modifications.

Statistical data can be supplemented by demonstrable information, obtained by local people simply observing whether an innovation has been adopted and through informal interviewing, asking why or why not. It is not based on the gathering of quantifiable data, but instead attempts to provide a depth of information concerning the adoption process. Demonstrable

evaluation can be particularly useful in discovering unanticipated secondary effects that arise in the pursuit of specific behavioral objectives.

The type of evaluation just described must be an integral part of any project that seeks to maximize its responsiveness to the interests, needs, and cultural characteristics of those it intends to serve. Every project should contain in its planning stage an elaborated set of evaluation objectives and the necessary allocation of budget resources to meet them.

Principle 7: A project's success can in part be measured by the extent to which people incorporate the project's objectives into their own culture.

Countless projects that first appear successful in modifying behavior ultimately fail because new practices are often adopted by people for only a short period of time, "on trial," and are not fully integrated within the existing culture. Hence, total adoption and integration of innovations may take a very long period, and a complete evaluation will consequently involve a long-term longitudinal study.

To judge a project's success on the basis of the initial adoption of innovations is to risk duplicating the pitfalls of evaluators who, on the basis of an initial positive response of Indians in Mexico to new high-yield corn, deemed the innovation a success. A follow-up study approximately two years later, however, ascertained that every Indian had readopted the previously used low-yield corn. The innovation was not integrated within their culture, researchers found, because the new hybrid tasted different and lacked the qualities necessary for making satisfactory tortillas (an Indian carbohydrate staple).

Innovations in the agricultural, nutritional, health, and family planning sectors will often require considerable cultural readaptation to be completely integrated within a culture. The adoption of modern family planning practices, for example, may influence or change such aspects of life as property inheritance customs, values regarding the number of children, the role of children in caring for the aged, the roles of midwife and witchdoctor, and the division of labor within the family. An innovation's impact, therefore, must be evaluated in light of secondary cultural effects accompanying adoption.

In sum, cultural sensitivity must be present in both the planning and evaluative stages of communications media projects.

Final Thoughts

The state of the art of nonformal education is in its infancy. This is quite noticeable in the literature, where even the terminology used by the field's most knowledgeable and experienced people varies considerably. There needs to be a move toward using common terminology, a clarification of the concepts, and a synthesis of the scattered material to be focused further on creative projects.

Various groups are working on this problem at present. Some of the work overlaps, but most of it is directed at different dimensions of the problem. All possible efforts should be made for groups to meet together to share information and pool their knowledge to build a solid foundation in the field. The future application of media to the area of nonformal education looks promising. Increasing numbers of school-age children, combined with the lack of an adequate economic base for creating extensive school programs, is likely to lead many less developed countries to experiment with alternatives to the formal educational system. It appears from a review of the

literature of projects already completed that nonformal education with the use of media might be most successful in providing a workable alternative to the educational problems of the less developed countries.

BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

BOOKS

Abt, Clark C. Serious Games. New York, Viking Press, 1970.

A book length examination of the use of games and simulations for instructional purposes in elementary and secondary schools, higher education, the military, and business training.

Arnold, Arnold. The World Book of Children's Games. New York, World, 1972.

Primarily a how-to book about children's games intended for use by parents and teachers. It also delves into the history of such games and the psychological factors related to them. Under "strategic games" a number of non-Western games are discussed.

Brameld, Theodore. Cultural Foundations of Education, An Interdisciplinary Exploration. New York, Harper, 1957.

Anthropology is brought to bear on the field of education. Ideas of anthropological theory are united with those of psychology, sociology, history, and the philosophy of education.

Foster, George M. Applied Anthropology. Boston, Little, Brown, 1969.

The leading book in the application of anthropology to problem solving in education, nutrition, agriculture and other areas of interest to the administrator. Foster takes the perspective that the anthropologist is a research scientist who brings scientific data to bear on specific culture change problems.

Freire, Paulo. Pedagogy of the Oppressed. New York, Herder & Herder, 1970.

A noted Brazilian educator outlines a method for instilling in peasants a new awareness of selfhood which would enable them to begin to look critically at the society in which they find themselves. Freire used this method as a basis for teaching illiterates in Latin America to read and write.

Gartner, Alan, Mary Conway Kohler, and Frank Riessman. Children Teach Children: Learning by Teaching. New York, Harper & Row, 1971

A discussion of tutorial and peer teaching techniques, based on the experience with the Youth Tutoring Youth project in New York City. Includes rationale for this approach, a survey of current projects, and extensive discussion of how to establish a program.

Havelock, Ronald G. A Guide to Innovation in Education. Ann Arbor, Mich., U. of Michigan Institute for Social Research, 1970.

Developed through extensive pretesting, this is a how-to handbook for change agents operating in educational institutions. Outlines a step-by-step approach for securing the adoption and continuance of educational innovations, particularly in US schools.

Illich, Ivan. Deschooling Society. New York, Harper & Row, 1970.

A bold manifesto for the disestablishment of formal schooling, which is held to be counterproductive for both the developed and the developing nations. The major alternative structure proposed by Illich is the "learning web" composed of several types of resources: (1) reference services to educational objects, (2) skill exchanges, (3) peer matching, and (4) reference services to educators-at-large.

Lerner, Daniel. The Passing of Traditional Society: Modernizing the Middle East. New York, Free Press of Glencoe, 1958.

A pioneering social science study of the modernization process. Based on structured interviews with citizens of seven Middle East countries, the analysis focuses on the development of the "mobile personality" and the role of the mass media in encouraging certain attitudinal patterns.

Mead, Margaret, ed., Cultural Patterns and Technical Change. Paris, UNESCO, 1955.

In section three, Dr. Mead reviews the cross cultural aspects of fundamental education. Beginning with some comments on traditional educational patterns, the author proceeds to delineate the cultural factors that must be considered in the new formal educational institutions and practices that are employed in the name of development programming for fundamental education.

Mead, Margaret. The School in American Culture. Cambridge, Mass., Harvard University Press, 1951.

Dr. Mead examines three kinds of schools in American society - the little red schoolhouse, the academy, and the city school. She discusses the transmission of culture in these schools with a comparison to primitive societal models for cultural transmission (sibling, parent, grandparent). She proceeds to expound on the rapid change in American society and the difficulty of cultural transmission within the context of the "generation gap."

Model Programs in Childhood Education. Interdependent Learner Model of a Follow Through Program. Washington, HEW National Center for Educational Communication, 1970.

A booklet describing a program designed to raise reading achievement among low-income children; uses a new method of teaching reading plus a component in which the children play the role of teacher, encouraging the children to become interdependent of each other.

Montessori, Maria. Pedagogical Anthropology. New York, Frederick Stokes, 1913.

Brings many anthropological notions and methods to the education process by emphasizing the relation of the child's education to his "whole" environment.

Reimer, Everett. School is Dead: Alternatives in Education. Garden City, New York. Doubleday, 1970.

The book is subtitled "An Indictment of the System and a Strategy of Revolution" and is intended as an extension of the thinking of Ivan Illich regarding radical alternatives to the conventional system of schooling. Among the specific ideas presented are "networks of things" (access to records, books, games, etc.) and "networks of people" (mechanisms for learners to be matched with skill models and learning peers).

Rogers, Everett, and F. Floyd Shoemaker. Communication of Innovations: A Cross-Cultural Approach, 2d ed. New York, Free Press of Glencoe, 1971.

A heavily revised edition of Rogers' 1962 book, Diffusion of Innovations. Examines the roles of both mediated and person-to-person communication in the process of directed social change. Content and examples are strongly oriented toward the less developed countries. An extensive appendix lists generalizations founded on empirical research in the areas discussed.

Roy, Prodipto, Frederick Waisanen and Everett Rogers. The Impact of Communication on Rural Development. Paris, UNESCO, 1969.

Communication programs using such components as the radio forum, animation, and literacy training were undertaken in India and Costa Rica. An extensive evaluation was conducted comparing the findings from both countries.

Simulation Games for the Social Studies Classroom. New York, Foreign Policy Assn., 1968.

Intended for social studies teachers. Provides information about appropriate games and guidelines for the use of simulation games in the classroom.

Waniewicz, Ignacy. Broadcasting for Adult Education: A Guidebook to World-Wide Experience, Paris, UNESCO, 1972.

Provides practical advice and guidance on the use of radio and television broadcasting in adult education. Covers such topics as program planning, production personnel, utilization systems, reception groups, research and evaluation, and supplementary materials.

REPORTS AND PAPERS

An African Experiment in Radio Forums for Rural Development. Reports and Papers on Mass Communication, no. 51. Paris, UNESCO, 1967.

Evaluation of a UNESCO-Ghana pilot project using radio forums as an educational tool in a rural setting.

Brumberg, Stephen F. Accion Cultural Popular. Nonformal Education for Rural Development, Case Study no. 1. Essen, Conn., International Council on Educational Development, 1972.

Research project sponsored by the World Bank and UNICEF. Description of Colombia's ACPO multi-media program and a partial evaluation of its impact.

Harrison, Grant von. Structured Tutoring. Provo, Utah. Brigham Young University, 1971. Mimeo.

A brief paper setting forth the author's specifications for an approach to tutoring calculated to provide increased learning on the part of the tutee. The approach resembles programmed instruction in its emphasis on specified objectives, pretesting, posttesting, validation, and highly structured management procedures.

Radio and Television in the Service of Education and Development in Asia. Reports and Papers on Mass Communication, no. 49. Paris, UNESCO, 1967.

Covers the work of a conference held in Bangkok in 1966. Includes formal and nonformal education - teacher training, school instruction, vocational guidance, adult education, and literacy.

Radio Broadcasting Serves Rural Development. Reports and Papers on Mass Communication, no. 48. Paris, UNESCO, 1965.

Another description of rural forums in India along with ideas for rural broadcasting training in Africa.

Rogers, Everett. Communication in Development: Modifications in the Classical Diffusion Model for Family Planning. Paper presented at the Third World Congress for Rural Sociology, 1972.

Reviews the role of mass media and interpersonal communication in development programs. Specifies three modifications in the "classical diffusion model" stemming from the case of family planning communication.

Royal Thai Government. Report of the Ministry of Education of the Royal Thai Government on Their Mobile Trade Training Units. Published by the Vocational Promotion Division of the Department of Vocational Education.

A statistical summary of the number of students, programs, and mobile units involved in this country wide program.

Schramm, Wilbur. Communication in Family Planning. Reports on Population/Family Planning, no. 7. New York, Population Council, 1971.

Describes the role of different media in family planning programs and provides descriptions of many national programs.

Television and the Social Education of Women. Reports and Papers on Mass Communication, no. 50. Paris, UNESCO, 1967.

A preliminary evaluation of the UNESCO-Senegal pilot project at Dakar which involves a television forum program for urban women.

Thelen, Herbert A. Learning by Teaching. Report of a Conference on the Helping Relationship in the Classroom. Chicago, Stone-Brandel Center at the U. of Chicago, 1968.

Ward, Ted, Lois McKinney, and John Detoni. Effective Learning in Nonformal Modes. East Lansing, Michigan State University, Institute for International Studies in Education, n.d. Mimeo.

First, lists 10 steps in the design of effective nonformal instructional programs. Second, discusses the "ethno-pedagogical" issues underlying the design of nonformal education in other cultures (motivations, rewards, expectations, abilities). Third, reviews some of the major bodies of research related to these topics. Finally, lists six guidelines to be followed to ensure good fit of nonformal education programs in developing countries.

ARTICLES

Becker, Howard, and Ruth Hill Useem. "Sociological analysis of the dyad." American Sociological Review 7 (1942). pp. 13-26.

An early attempt to outline a frame of reference for the sociological study of the two-person group.

Cassirer, Henry R. "Two way radio in rural Senegal." Educational Broadcasting International, v. 4, June 1970.

A description of the Rural Educational Radio program which included tapes of onsite discussions in its broadcasts to village listening clubs.

Coleman, James S. "The role of modern technology in relation to simulation and games for learning." In Tickton, ed. To Improve Learning, v. 2. New York, Bowker, 1970.

An essay on the potential uses of games and simulations in American education. Includes an annotated bibliography of commercially available games.

Defever, Armand. "Radio in agricultural extension in developing countries." Educational Broadcasting International, v. 5, March 1971.

Suggests that broadcasting is the focal point around which a large-scale agricultural information, education, and motivation campaign for the rural populace can be organized.

Fleming, J. Carl. "Pupil tutors and tutees learn together." Today's Education 58:7, October, 1969. pp. 22-24.

Hassinger, Jack, and Murray Via. "How much does a tutor learn through teaching reading." Journal of Secondary Education 44:1, January 1969. pp. 42-44.

Johnson, Charles. "Education and the cultural process." American Journal of Sociology, v. 48, no. 6, May 1943.

Discusses how education was originally carried on informally in the context of the family or the tribe and how it was indistinguishable from the whole matrix of living. The author conveys his dismay at the growing conflict between the informal educational procedures of the family and the formal processes of schooling.

Kahnert, Friedrich, et. al. "Radio Togo's educational programme." In Schramm et. al. New Educational Media in Action, v. 2. Paris, UNESCO, 1967.

A description of a radio series for rural areas, which transmitted information about health, economics, civics, and other relevant topics and incorporated feedback in the form of questions, suggestions, and criticism sent in by listening clubs.

Kaplan, R. B. "Cultural thought patterns in inter-cultural education." Diag. Language Learning, v. 16, no. 42, 1966. pp. 1-20.

Compares language learning and rhetoric as they relate to thought patterns in five basic cultures. Claims that certain linguistic and behavioral patterns might best be comprehended within certain logical structures (cultural relativism). Cultural differences in the nature of rhetoric supply the key differences in teaching approach. Rhetoric here refers to what goes on in the mind (logical-meaningful pattern)

Klugman, Samuel F. "Cooperative versus individual efficiency in problem-solving." Journal of Educational Psychology, 35, 1944. pp. 91-100.

An early experimental study of the use of dyads in education. Concludes that "children working together solved more problems correctly but took a longer time."

Lefranc, Robert. "Radio clubs in Niger." In Schramm et. al. New Educational Media in Action, v. 3. Paris, UNESCO- 1967.

Indicates the efforts of one nation to build widespread participation into the use of communications media.

Mead, Margaret. "Our educational emphasis in primitive perspective." American Journal of Sociology, v. 48, 1943.

Contracts modern and primitive concepts of education. Emphasizes the need to combine the primitive idea of learning something old (cultural continuity) with the modern notion of making something new (change and innovation).

Mead, Margaret. "Primitive education." In Encyclopedia of Social Sciences, v. 5. New York, Macmillan, 1931. pp. 399-403.

Describes primitive education as "the process by which preliterate peoples induct children into the cultural tradition of the tribe," and draws from many anthropological studies to illustrate the various educational practices and theories of different tribes.

National Film Board of Canada. "Challenge for Change." Societe Nouvelle Newsletter, no. 1-9, 1968-72.

A collection of articles on the use of film and videotape for community development in Canada.

Ohme, Herman. "Needed: Exportable models of significant change in education." Phi Delta Kappan, May 1972. pp. 655-658.

Outlines a set of criteria that must be part of an innovative educational program if the program is to serve as a model for others.

Riitho, Victor. "Radio in family planning education in Africa." Educational Broadcasting International, v. 5, December 1971.

Claims that radio is extremely effective in distributing information but alone cannot change long-standing habits and attitudes.

Schramm, Wilbur. "Ten years of radio forums in India." In Schramm et. al. New Educational Media in Action, v. 1. Paris, UNESCO, 1967. pp. 105-134.

A description and partial evaluation of India's national program of radio forums. The study builds on an earlier UNESCO evaluation of radio forum pilot projects in India.

Taek Il Kim. "South Korea: enlightened leadership and enlightened parents." In Bernard Berelson, ed. Family Planning Programs. New York, Basic Books, 1969.

A concise description of Korea's family planning efforts from 1960 to 1969. With strong government support and a stable leadership the Koreans have managed to achieve considerable success in attaining their family planning goals.

Thelen, Herbert. "Tutoring by students: what makes it so exciting?" The School Review, 77:3, Sept. 1969. pp. 229-244.

Webster, Hutton. "Education among primitive peoples." In Monroe's Encyclopedia of Education. New York. 1913, pp. 31-35.

Explores the range of education among primitive peoples from early childhood to adult initiation.