

Interactive Radio Instruction: New Subjects, New Audiences and New Learning Environments

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Interactive Radio Instruction (IRI) has gained worldwide attention as a cost-effective means of improving learners' academic achievement. In remote areas of the world, where students might otherwise not receive a high quality education -- or an education at all -- interactive radio instruction programs have been upgrading teaching practices and providing students with direct instruction for over two decades. Today the methodology has found new applications far beyond what was expected in the 1970s. Not only has IRI been attractive and effective in reaching remote and nonformal learners, it has also found a comfortable niche upgrading and strengthening the quality of national curricula within mainstream educational systems.

IRI reaches schools and nonformal learning centers in Central and South America, in Africa and in Asia. The original interactive radio series was developed in 1974 to teach mathematics in formal schools in Nicaragua. The methodology promoted active learning through a conversation between the students and the radio teacher. The radio instructor would ask a question and leave pauses for learner responses. This rendition of Radio Math has been adapted to suit schools in Guatemala, El Salvador, Bolivia and Thailand.

LearnTech Project Extended

The LearnTech project will continue until June 30, 1995 in order to complete important work that had been delayed by funding problems in 1993.

IRI methodology was then used to develop English as a Second Language in Kenya and a series of basic education courses for children who had no teachers in rural areas of the Dominican Republic. The combination of the media and the pedagogical principles of active learning proved highly successful. In the Dominican Republic where children had no schools, for example, evaluations showed that children learning from one hour of carefully designed IRI programming outperformed other students in math and did almost as well in language as children who went to formal schools. In Bolivia, Kenya, Thailand and many other countries, evaluations showed that achievement went up for formal school students who participated in IRI programs. And using a medium like radio allowed IRI programs to serve both a formal and nonformal education function. It can reach children and teachers who might have few opportunities for education, or be broadcast into conventional classrooms. Results were consistent across the board: achievement went up and new populations of learners were served.

In early studies, cost studies linked low cost per student to IRI's instructional effectiveness. IRI was compared advantageously with investments in school buildings, textbooks and other expenditures regularly made in conventional education. Research pointed out that radio mathematics and language programs traveled well to new countries, and students and teachers liked using them. The programs were used successfully in the classroom with very little teacher training. IRI was also cited to be cost-effective in later studies. The World Bank (in Educational Technology: Sustainable and Effective Use, 1991 p.18) cites a study that showed that textbooks and IRI were comparable in effectiveness, but when costs were also considered, IRI proved to be nearly three times as cost-effective as textbooks in some countries. IRI was also cited as one of four best investment choices to improve education.

As one IRI series after another proved effective, efforts were made to further integrate IRI into the lives and communities of the learners. For example, the Nicaragua math programs were rewritten in Honduras to be more relevant to the learner by using situations and resources within his or her own environment. This model was called mental math. In other countries, ministries continued to adapt programs to learners in their regions and new local styles and formats emerged. While the original IRI methodology continued to work, new variations began to show IRI's applicability to a diversity of new situations.

The original prototype of IRI became the IRI "classics," still effective in many regions today. The following characteristics distinguish the "classic" IRI as it stood in the late 1980s:

- ❖ First, the "classic" IRI referred only to the mathematics and language models, albeit with a confidence based on evaluation data from many settings. Effectively, those were the only proven applications, and they "became" IRI. Their salient features were consolidated into the description at the beginning of this paper.

- ❖ Second, the two varieties of IRI developed for mathematics and language were largely unchanging (until Honduras mental math and South Africa English language). Adaptations of language arts and mathematics programs simply did not change very much. The research had been completed, the answers had been found to most instructional problems in those subjects, for that young primary school audience. Time and again, in country after country, evaluation of radio mathematics showed that the methodology worked.

- ❖ Third, the programs, and their accompanying printed materials for teachers and students, were developed as a single, complete package. IRI for mathematics and language arts was thought of as a methodology that either replaced other instructional materials such as textbooks, or somehow had to compete with them, but it was not designed to be integrated with other learning channels.

IRI: new applications and methods

What were once perceived as the limits of the methodology are now being viewed as a powerful foundation for further growth and development. What was seen as the domain of a few experts ten years ago is now being used well by practitioners in many countries. As confidence grows in the methodology and in the practitioners who make it work, important opportunities are opening up. These new opportunities impose three major challenges:

- ❖ First, we need to reach out to new populations, to new audiences in and out of school – children, youths and adults of both genders who need high-quality instruction and have not previously had the chance.

- ❖ Second, we need to build on our successes in basic education, health and the environment. We need to extend the methodology to new sectors and applications -- in population education, nutrition, agriculture, democracy, and business management.
- ❖ Third, we need to continue to search for ways to work towards sustainability through integrating IRI methods into educational systems which reach not only marginalized audiences, but also mainstream audiences who can benefit from multi-channel learning and a higher quality of education.

Today's IRI: a more integrated methodology

Historically, IRI was used in the classroom, and required the participation of the teacher, but it made few concessions to conventional instructional systems. Indeed, IRI felt the need to compete with other elements rather than join them. In Honduras, for example, the interactive radio programs were seen as competitors to the new textbooks rather than trying to demonstrate that the combination of radio and textbooks, if used well, could be an even more potent solution.

IRI programs have always reflected existing curricula, but a greater integration of radio and conventional instruction and an empowering of teachers and creating a genuine partnership with them is now being sought in several settings. In the Dominican Republic, for example, a new mathematics series is now being developed, but it will be integrated with and enhance the new textbook using the national curriculum. This approach follows many of the principles of multi-channel learning.

Experimentation in subjects such as science, health, environmental education, early child development and adult literacy has also resulted in new methods of interactivity and new ways to involve the teacher. Definitions of interactivity and active learning no longer stop at a conversation between the radio teacher and student. In Papua New Guinea, the Radio Science Project pointed

the way to a different kind of interactivity -- the inquiry approach to science led to more open-ended questions, less segmentation, and interactivity managed as much by the teacher as by the radio.

In Costa Rica, IRI methodology is being used to teach environmental education in formal schools. The soap opera format, particularly popular in Latin America, engages the students in a story. Each child becomes an Econaut, active in the quest to save the planet. The storyline is consistent throughout the series.

In Honduras, IRI methodology is being used to teach basic education to adult learners in nonformal literacy centers. The adults find the programs relevant enough to their lives to attend the centers regularly while the programs are aired. Similar to school-age learners, they respond verbally as the interactive methodology involves them.

In Bolivia, Radio Health programs are being developed which teach practical health information and incorporate a child-to-child methodology. As children learn, they practice and teach health information to their siblings. Evaluations are showing that attitudes towards health practices are changing quickly.

Also in Bolivia, IRI methodology is being used to teach adult caregivers how to stimulate young children in early child development programs. The programs actively engage the children and show the adults how to organize their childcare programs effectively, provide a stimulating and healthy environment, and prepare the children for primary school.

Finally, in South Africa, new constructs of interactivity are being developed which work to empower the teacher. In IRI English and in future mathematics programs, time is provided for translation and personal and cultural inputs. The learners -- both teacher and student -- are encouraged to interpret the knowledge in personally relevant ways. Early evaluation results show that achievement in the English programs has increased even more than in the original Kenya language programs.

Signs of sustainability

As IRI's twenty-year history continues to bring us new formats and educational methods to engage students and increase achievement, we must continue to move IRI into the mainstream and plan for sustainability. We must integrate the IRI programs with textbooks and conventional instruction, developing teachers' confidence in using the radio as a partner in the classroom. This integration may require that we develop assessment instruments and procedures as well as teachers' notes and pupils' materials. If, to attend a training program, teachers need the incentive of being accredited as an "interactive teacher" with extra pay, then we should try to find a way to do that too.

And more and more, IRI programs are beginning to show signs of sustainability as they become integrated into national plans. In Bolivia, Radio Math is now budgeted and broadcast through the Ministry of Education and Culture. "Jugando en el Pidi," the early child development IRI programs, are being integrated into a national child development program which will eventually reach over 100,000 children.

In Lesotho, the Ministry of Education has levied an education tax to pay for the guidebook which accompanies the IRI programs. Because of this move, the programs are able to be broadcast in every age-appropriate classroom.

In Papua New Guinea, Radio Science has been adopted by the Ministry and is still being broadcast. And in Honduras, national literacy centers have adopted the IRI adult basic education programs as they proved more effective than their previous curricula.

As multi-channel learning strategies become more popular, and ministries and educational specialists look for new and effective ways to reach learning objectives through an integration of various learning channels, interactive radio instruction remains a viable and flexible option. After twenty years, IRI has shown how the combination of radio and active, pedagogically sound learning strategies can contribute to education for all. It has been shown that IRI can be effectively designed to teach diverse

subjects to traditional and nontraditional audiences alike in an engaging fashion. And it is now being shown that while radio has a unique ability to reach remote areas, it can also be used to reach large groups of learners in more mainstream environments. Despite sometimes major shifts in format, audience, subject and learning environments in recent years, evaluations continue to demonstrate that well-designed interactive radio instruction programs increase learner achievement and educational quality.

For more information on the applications of IRI, contact: Education Development Center, 1250 24th St., NW Suite 300, Washington, D.C. 20037 Tel: (202) 466-0540 fax: (202) 223-4059.

Bangladesh: BRAC looks at IRI

LearnTech will be embarking on a new activity in conjunction with the Bangladesh Rural Advancement Committee (BRAC). The World Bank has sent a pre-appraisal mission in preparation for its upcoming basic literacy project and the beginnings of an IRI project have been set up which will have some overlap with the World Bank project. BRAC is currently operating 17,000 small schools for poor children, with plans to expand to 50,000 schools by 1995. 70% of the students are girls, and most of the teachers are women, so the schools are effectively meeting the needs of many people who do not have access to formal schooling. Plans are being made to use radio to help teachers who have difficulty with mathematics and English.

A proposal has been drawn up for a pilot project and possible follow-up activities. The pilot will include the production of 90 IRI English programs, to be adapted from those developed in Africa, and an adaptation of the Grade 1 mental math programs developed in Honduras, all to begin before the end of 1994. BRAC will cover local costs and LearnTech assistance will assist with technical assistance and training. BRAC will provide infrastructure for IRI and conditions are very promising for extensive IRI activities.

Cape Verde: And now...the Portuguese version

The development of mathematics programs in Portuguese for Grade 3 has drawn to a successful conclusion in Cape Verde. Anisio Matangala, a Mozambican communicator, who has been sponsored by UNESCO with Dutch funding, has led this initiative, and the operational elements were funded by LearnTech. The result is a package of 65 programs, teachers' notes, pupils' workbooks and an evaluation instrument which other Portuguese-speaking countries can use to test the methodology for themselves in order to make better-informed decisions about adoption.

Dominican Republic: RADECO becomes part of the mainstream

RADECO, Radio Community Education, began as a project to provide instruction by radio to children who had no schools. Despite the fact that a RADECO unit has been part of the Ministry of Education since March, 1986, there was limited institutional growth of RADECO until mid-1992. RADECO has made exceptional progress within the MOE in defining its identity and role within the educational system as a whole. Part of this is due to the technical assistance provided by successive AID-funded projects, especially in the area of scriptwriting. The evaluators have also come to understand their role as evaluators and what is expected of them.

LearnTech's Dr. Cárleton Corrales, participated in the designing of two training seminars that were held in November 1993. The first was for the school principals, as more than 50% were unable to attend the seminar held for the launching of the series. This one was very successful in that more than 200 principals came to acquire information on the radio programs. The second was targeted at the participating primary school teachers. More than 300 teachers attended, and there was almost unanimous agreement as to the effectiveness of the radio lessons. Suggestions were made about how to increase teacher training and distribute the ancillary materials in a more timely manner.

Dr. Corrales visited three RADECO centers in the Barahona region, and concluded that although there were vast differences in the levels of the students and overall literacy levels of the communities, for the radio programs are still the only way any of these children will ever have access to an education. On the whole, Dr. Corrales and USAID/Dominican Republic expressed satisfaction with the growth of the project and the quality of the education it provides.

IRI for Early Child Development: Reaching caregivers with hands-on interactions

Bolivia: One year ago, LearnTech became involved with ONAMFA (Organismo Nacional del Menor, Mujer y Familia) in response to perceived gaps in the strategy of a World Bank project aimed at creating a network of home-based integrated child development programs (pidis). LearnTech's Andrea Bosch, noting the lack of practical educational support given the caregivers and parents, worked with ONAMFA and PER to provide interactive audio cassette programs which help model and teach child development to the caregivers, coupled with activities such as games, stories and songs for the children.

The pilot project *Jugando en el Pidi* has gone through its second cycle of formative evaluation and the twenty cassette programs are being revised again with input from the caregivers. The format and use of interactivity has changed dramatically since its original conception due to the stringent formative evaluation conducted by the Programa de Educacion por Radio (PER). The model which resulted stands to be effective in reaching uneducated caregivers with hands-on guidance and practical experience in organizing their home-based centers and providing solid and interactive early child development activities for young Bolivian children. Incorporating principles of active learning for children and

caregivers, both groups learn by doing and playing, and are guided with comments about early child development from the character Aunt Clara, the motherly figure who is featured in every program. As this is the first experiment using IRI to teach early child development, the formative evaluation process has been well worth the effort and caregivers involved in the pilot project report that they would feel lost without guidance from the cassette programs.

South Africa: In October, LearnTech, with OLSET (Open Learning Systems Education Trust) and TREE (Association for Training and Resources for Early Education), looked at the possibility of incorporating IRI methodology into new training modules and directing instructional tools for early childhood development. These tools will be developed as part of packages for trained personnel to use as a hands-on educational resource with children. Research has begun and local children's games, stories and songs have been recorded. A radio script on the early childhood development theme of water was written and a program has been produced.

Honduras: Mission support continues for adult learners by radio

The Adult Basic Education Project (ABEH) has now been operating for six months with financing from USAID/Honduras. ABEH is becoming an alternative system to formal schooling. It delivers the equivalent of primary school but does not resemble the formal school system. A new curriculum is being designed for adults and out of school youth, so that they can enter the system at almost any stage. Currently, the average student is 35 years of age, but that is expected to fall as ABEH increasingly targets out of school youths.

A Master Plan has been produced for each of the curriculum lines so that the lessons develop a dramatic context and a better flow of ideas.

The main characters of the series have been designed to project the idea that the achievement of higher ends is related to their attendance at the radio lessons. The evaluation team was very active and visited the observation schools every day to provide information to the scriptwriters, curriculum development and radio studio production teams.

LearnTech conducted an external evaluation of the ABEH project. They interviewed USAID Officers and determined that the project is in good standing on the technical production side, particularly in radio lessons and printed material.

South Africa: Rural schools using new IRI improve by 28%

Thoughts turned towards the future as the 1994 implementation plans for two levels of English in Action (EIA) were developed. The existing EIA curriculum was reassessed and redefined, and scripts for EIA Level 1 were completed through lesson 130, and have been produced. EIA level 2 is being written and recorded. All lessons through 110 were distributed to the schools and post-testing ended. EIA 1 and 2 teams presented their designs for revision of their respective series. The aims of the English in Action program are to teach four language skills: listening, speaking, reading and writing. The listening and speaking skills are emphasized in the first year and reading and writing follow later. There will be a new "schools readiness" program for pupils beginning EIA 1. The workplan and timeline for 1994 have been written, which included a "Readiness Kit" for Substandard A classes.

The formative and summative aspects of the English in Action evaluation are underway. In them, the project's goals, management, implementation and materials are being analyzed, and performance indicators of the program are being monitored by means of tests in both project schools and comparison schools. So far project school pupils have performed on

average 18% better than the comparison school pupils on a test of English vocabulary. Pupils in farm schools exposed to English in Action improved the most relative to urban and rural schools: 21% versus 17% and 14% respectively. The results suggest that the English in Action program was more effective than regular English classes in improving vocabulary of Sub A English second language speakers.

In addition, the more lessons pupils were exposed to, the higher they scored on English tests. Those pupils who received fewer than 33 lessons improved by 6.7%; those who received between 34 and 66 lessons improved by 13%; and those who received more than 66 lessons improved by 28%. It is clear that pupils' vocabulary improved with increased exposure. Further assessments will focus on other skills.

A pre-pilot test of the Primary Maths Project (PMP) for Grade 5 was completed and a second teacher-training maths program was designed for all teachers participating in the PMP maths pre-pilot.

Costa Rica: Environmental Education Soap Opera

The project finished its production of radio programs in December 1993, and will now concentrate on evaluation, training and institutionalization. The present Costa Rican administration will change in May 1994, so project staff are investigating other sources of support both within and outside of the government in order to continue the programs and perhaps produce more.

Klaus Galda, former director of the Costa Rica Environmental Education project (CREE), went to Costa Rica in January 1993 to help German Vargas, current director of the CREE project, write the final report detailing the project's activities since its inception in April 1991. He also worked on a plan for evaluating the fifth-grade radio programs. For the fifth-grade, the format chosen was entirely novel, in that it is essentially a combination of soap opera and IRI.

Traditional evaluation techniques had to be redesigned in order to find out to what extent the children identify with the characters and whether they understand the relevance of the programs to actual environmental problems.

Plans are already being discussed for future series. One at the secondary school level will be aimed at adolescents and emphasizing population and associated environmental problems. Another would be geared towards the kindergarten and first-grade level. This series would focus on love of nature in an attempt to instill environmentally sound habits in young children.

Bolivia - Programa de Aprendizaje por Radio Interactiva (PARI)

PARI is the Spanish name of LearnTech's Interactive Radio Learning Project (IRL). PARI is a collaborative effort of EDC, the Bolivian National Secretary of Education, USAID, and Bolivian subcontractors, Programa de Educacion por Radio (PER), and Fe y Alegría. The program reached over 250,000 students in the nine departments of Bolivia during the 1993 school year and continues to grow.

The six month period from September 1993 through February 1994 was an active time for the PARI project team. PARI has focused on institutionalization strategies as it enters into the last phase of the project. The team effort has reaped some real successes, as the PARI team held four successful national conferences, completed the comprehensive evaluation of the pilot health series for the 1993 school year, heeded feedback from its international health panel, and as a result, is bringing a fresh new approach to the fifth grade lessons in the health series.

Institutionalization: In this second phase of the project, the PARI curriculum was declared a ministry approved math curriculum and all nine Bolivian departments now use Radio Math in

the public schools. PARI turned its focus to the regional education authorities and began a series of orientation and training activities which places the education authorities on the front lines of implementing the PARI project activities in the 1994 school year. To that end, the project has developed a national infrastructure of teachers, supervisors, and departmental authorities trained in the use of interactive radio instruction.

Another goal of the PARI project in 1994 is to assure that PARI be included as an educational methodology in the national education reform. To this end, the PARI project brought together national education authorities and union leaders in Cochabamba in September 1993 to demonstrate the PARI program and its effectiveness and to gain their continued support of the PARI project once Learntech's role ends. Those attending the meeting were the highest authorities in their departments for public education, both from the government and the unions. They unanimously endorsed the PARI project and set up specific suggestions for improving its delivery in the various departments.

In October 1993, the PARI project held an International Meeting in Santa Cruz, inviting representatives from the health and education sectors of Bolivia to work with the PARI International Technical Panel in an intensive review of the pilot health lessons. Participants were invited to attend a live broadcast in celebration of the closing of the 1993 school year, which was attended by Jimena Sanchez de Lozada, First Lady of the nation.

PARI's team has been working hard to develop a more thematic format (versus isolated segments), incorporating drama and problem solving approaches into the lessons, and placing a strong emphasis on child to child activities during and after the radio broadcasts.

In February 1994, PARI sponsored a three day seminar to train public school supervisors in the use of IRI methodology. The Cochabamba meetings were instrumental in gaining the

support of the Directors of Urban Education in the nine departments of Bolivia, who later sent their supervisors to be trained in the IRI methodology.

The PARI team has begun a twofold strategy to involve the Office of Education in all aspects of implementation, from teacher training activities, to identifying and negotiating broadcast schedules with the radio stations, to classroom observation, to participation in the solar panel project. On the political side, the PARI team is working at the departmental level to gain Ministry line item funds for a "PARI" supervisor in the regional offices. The first success has been in the city of Oruro, where a supervisor formerly paid by the PARI project was placed into a Ministry-funded position. The goal is to continue to acquire line items throughout the country in 1994, thus improving the prospects for sustainability.

In support of the institutionalization efforts, PARI invited Mr. David Werner, international technical panel member, well known for his book, *Where There Is No Doctor* and his use of the Child to Child methodology, to make a presentation to the public health community on the issues of nutrition, oral dehydration and the Child to Child methodology. It was an important step in bridging communication between the health and education sectors in Bolivia.

Technical Activities: Evaluation and Production: The conclusions reached during the discussions held in the meetings in Santa Cruz were added to the PARI evaluation activities for the pilot health project. Revisions of the programs have been ongoing since November 1993 and reached a peak in January 1994 when international panel member David Werner joined the PARI staff in an extensive analysis of the contents and presentation of the pilot health scripts. They reviewed the health lessons for accurate health content and integration of drama and problem solving approaches. As a result of Dr. Werner's visit, intensive revisions began on the third and fourth grade lessons and development of the fifth grade lessons, incorpo-

rating drama, problem-solving approaches and Dr. Werner's other suggestions for health content.

Solar Pilot Study: EDC and PER are collaborating with the National Rural Electrification Cooperative Association (NRECA), who will assess the potential cost-effectiveness of using renewable energy to power classroom radios instead of electricity and batteries. Since December 1993, PARI and NRECA have been collaborating in the development of the implementation and installation of 50 solar panels in preparation for a large solar project. This complements the PARI project's gradual outreach to the rural sector with the delivery of math and health programs to rural areas. The current contract focuses on urban schools, but the enthusiasm of the national authorities for implementing the program in rural areas has the PARI staff looking for funding to branch out into the rural areas.

Costa Rica: Multigrade instructional strategies

The first meeting on a Costa Rica LearnTech Multi-grade Teaching Initiative was held on October 12, 1993 at the Education Development Center in Washington, DC. LearnTech Director in Costa Rica, German Vargas and Vice-Minister of Education, Virginia Rojas explained that in the 1970s a demographic explosion occurred which led to increased pressure for matriculation and a greater demand for education. This led to a need for new alternatives in education, of which one result was a multi-grade system to offer education to the largest possible number of students. Today, 43% of schools in Costa Rica are multi-grade and all Costa Ricans have access to education, but due to a lack of materials and resources designed for multi-grade classrooms and teachers trained in multi-grade methodology, the quality of education has suffered.

Lic. Rojas stated that multi-grade schools need a number of modifications, including a new type of curriculum, teacher training, new teaching aids and resources and improved scheduling of classes. Radio can be an important tool for training teachers in rural areas. She stressed that the problem itself is not multi-grade schools, but that an old model is being applied to a new situation for which it is inappropriate. Lic. Vargas discussed how environmental education should be included in the new model of education because environmental radio programs have already been proven successful in Costa Rica, and they promote group work, essential for the functioning of a multi-grade class.

LearnTech's experience with multi-grade teaching in Indonesia and Belize provides a base of knowledge for the planning and implementing of the Costa Rican model. At the meeting, it was concluded that a combination of qualitative research and classroom intervention would be beneficial in the multi-grade teaching environment.

LearnTech consultant Aida Pasigna went to Costa Rica in February 1994 to initiate instructional design activities related to the development of two pilot modules for multi-grade teaching to be tested in six rural schools, and to work in collaboration with the Costa Rican partners in specifying the evaluation/action research component of the project.

The interview schedules and criteria to be used were determined in order to generate descriptions of the schools and communities involved in the pilot project before and after the intervention. The "before" questionnaire has been completed by the participating classes, documenting teacher behaviors, student behaviors, use of classroom space, environmental awareness and the like. It will synthesize Costa Rica's experience with multi-grade teaching to date. A comparison questionnaire will be issued in five months time.

Latin American Two-Week Workshop in Interactive Radio Instruction

A Training Course in Interactive Radio Instruction will be held in Costa Rica from April 25 - May 6, 1994. Thirty practitioners of interactive radio from 10 countries in Latin America and Lusophone Africa will join together to discuss their experiences. The training program will have a four-part focus: 1) Costa Rican Environmental Education as a case study in designing a new format; 2) Honduras Adult Basic Education as a case study in issues in delivery and management of IRI; 3) Bolivia Health Education as a case study in research and evaluation issues; and, 4) other models and adaptations as studies in issues of innovation in IRI.

LearnTech Case Studies Series Underway

LearnTech is producing a series of case studies which investigate and report on diverse interactive education projects, variations in methods within IRI, regions, and degrees of sustainability from around the world. The LearnTech case study series, (which the staff calls the textile series because of the series of local textiles represented on the covers), was inaugurated with the paper *Interactive Radio Instruction: Broadening the Definition* by Jeanne Moulton, which shows how theories of active learning and educational media have evolved over the past twenty years. From this broad starting point, authors will report on all of the major LearnTech activities, their particular styles, audiences, formats and the country contexts which make their activities distinctive. In addition, older IRI projects and educational media projects will be researched to discover what happened to them and why, and investigations will be made into non-LearnTech activities with interesting stories about learning and technologies.

Written with subjectivity and objectivity intertwined in a journalistic style, the case studies will feature

local project directors and outside researchers and will include photos and interviews with teachers, country administrators and others. Each will feature a particular angle specific to the course of events. While other titles remain to be determined, case studies currently in progress include:

- ❖ *Institutionalizing Interactivity: A Response to Teacher Demand* by Micael Ollson
- ❖ *Teaching Environmental Awareness Through IRI in Costa Rica: Soap Operas, Formal Schools and Econauts* by German Vargas
- ❖ *Radio Mathematics for 200,000 School Children in Bolivia: How a Small NGO Rose to the Occasion* by Michelle Fryer
- ❖ *Whatever Happened to Radio Math in Thailand? IRI Moves to the Hilltribe Regions* by Chawalert Lertchalolarn
- ❖ *Radio Health in Formal Schools* by Ann Fitzgerald
- ❖ *Computer Assisted Instruction in Grenada after Seven Years: The Story of the Crochu School and its Unusual Long-Term Success* by Steve Anzalone and Andrea Bosch
- ❖ *IRI for Adult Basic Education in Honduras: Breaking all the Molds* by Carleton Corrales
- ❖ *Principles of Early Child Development: IRI on Cassette for Caregivers and Children* by Andrea Bosch

Interactive Radio Instruction Manual

A new manual is available on designing, implementing, managing and evaluating interactive radio programs. It takes account of the process used by governments in deciding whether to invest in IRI, and answers commonly-asked questions about IRI and the role of radio.

Part One explains what IRI is, and is thus geared towards planners who have little prior knowledge. Part Two lays out what an organization needs if it decides to invest in IRI. Part

Three describes what has to happen once a decision is made to go ahead.

The manual contains script samples, with a fascinating and informative analysis of what is happening instructionally and in radio terms as the script proceeds. In this way, novices in instructional design can see for themselves how IRI differs from other kinds of instructional media, and how it forms a partnership with texts, the teacher and the learner.

IMAGE

LearnTech continues to support the development of the International Multi-Channel Action Group for Education (IMAGE). The Terms of Reference for IMAGE and the Action Plan (1993-96) were finalized at a meeting of the Executive Bureau in Brussels in December.

At the SEAMEO/INNOTECH International Conference on "Technologies for Learning for All: Today and Tomorrow" held in Manila during February, IMAGE conducted a plenary session on multi-channel learning. The plenary consisted of a videotape on the notion of multi-channel learning and presentations by Reidar Roll, Secretary General of IMAGE and the International Council for Distance Education (Norway), Steve Anzalone, Chair of the IMAGE Steering Committee, Andrea Bosch of LearnTech, Carleton Corrales of LearnTech, and Dr. Chawalert Lertchalolarn of Chulalongkorn University (Thailand).

Two IMAGE Working Groups are beginning to operate. The first is the Rapid Response Basic Education Program, of which Tom Tilson is the Chair. The first activity of this group comes in response to a request from Haiti for assistance in developing a multi-channel, multi-audience program of civic and environmental education to assist the transition from dictatorship to democracy. LearnTech is taking the lead in getting this activity rolling and in enlisting support from the other IMAGE partners.

The second IMAGE Working Group will be on Multi-Channel Learning for Women and Girls. A group of eight Principal Technical Advisers is being invited to advise IMAGE on this initiative, and Andrea Bosch has been invited by IMAGE to serve as coordinator of this Working Group.

VIDEO TECH

Collaboration continues between LearnTech and SEAMEO/INNOTECH on Project VIDEO TECH. Two modules for teacher training have been developed and are being tested in the Philippines. These modules, which contain a videotape, instructor materials, and take-away materials for trainees, cover questioning and reacting skills for more interactive teaching.

Phase Two of the project has begun. This will involve adapting one of the modules for use in another INNOTECH country, Thailand. The purpose of this adaptation is to test the complexity and cost of adapting modules for use in other countries.

At the conclusion of LearnTech's assistance, INNOTECH will seek resources to continue to develop additional modules in what is being called the Interactive Instruction Series for Teacher Education.

IRI Course with George Mason University

LearnTech has established a three-week course on IRI that will provide three credits towards a Master's degree at GMU. It will be conducted with the Graduate School of Education, and will be held in the Greater Washington, DC area September 12-30, 1994. The cost of tuition will be \$1200.

For more information, contact Betsy Goldstein at the Education Development Center, 1250 24th St., NW Suite 300, Washington, DC 20037 Tel: (202) 466-0540, fax: (202) 223-4059.