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**LEARNTECH PROJECT**  
**ANNUAL REPORT FOR YEAR 2**

**September 1991 - September 1992**



The LearnTech Project, funded through the Office of Education, Bureau for Research and Development, U.S. Agency for International Development, is administered by Education Development Center, Inc. (EDC) and brings together a strong international consortium of institutional expertise and experience.

EDC is assisted by the following institutions who provide specialized expertise and skills:

- Academy for Educational Development (AED) Washington, D.C.
- Applied Communication Technology (ACT) Menlo Park, CA
- Asociación de Promoción y Desarrollo Socioeconomico (AVANCE) Tegucigalpa, Honduras
- Centro de Investigación y Desarrollo de la Educación (CIDE) Santiago, Chile
- Centro Internacional de Estudios Superiores de Comunicación para América Latina (CIESPAL) Quito, Ecuador
- Commonwealth of Learning (COL) Vancouver, Canada
- Development Technologies, Inc. (DETEC) Washington, D.C.
- Electronic Learning Facilitators, Inc. (ELF) Bethesda, MD
- Friend Dialogues of North Carolina, Inc. (FDI) Shelby, NC
- Institute for International Research (IIR) Arlington, VA
- Interactive Image Technologies, Ltd. (IIT) Toronto, Canada
- Intercultural Communication, Inc. (ICI) Washington, D.C.
- Interlock Media Associates (IMA) Cambridge, MA
- International Extension College (IEC) London, England
- Real World Productions, Inc. (RWP) New York, NY

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**EXECUTIVE SUMMARY**

The LearnTech Project (Learning Technologies for Basic Education Project) was established by the A.I.D. Bureau for Research and Development, Office of Education to promote the use of learning technologies to enhance basic education in the developing world. The project gives special emphasis to extending the impact of interactive radio instruction (IRI), a highly cost-effective use of technology that A.I.D. has invested in since 1973. The project also supports the use of other learning technologies, from programmed text materials to video and computers. LearnTech will examine how technologies can best be used to increase access to schools, especially for girls. Finally, LearnTech seeks to internationalize financial support for learning technology projects. LearnTech is a four-year project that ends in September, 1994.

**Africa**

LearnTech has made great progress in expanding support for IRI. In Africa, we developed proposals for Namibia, Ghana, Nigeria, South Africa, Cape Verde, and Zimbabwe. Those proposals came to fruition in South Africa and Cape Verde where substantial activities have begun. In Cape Verde, the site of a subregional project among the five Portuguese speaking countries in Africa, LearnTech is working with UNESCO to adapt IRI to teach mathematics.

**Latin America**

In Latin America, LearnTech has completed an IRI program in environmental education in Costa Rica for Grade 4, and is working on Grade 5. This series consists of two broadcasts per week and emphasizes school outreach activities to the local communities. An evaluation is planned for 1993. Bolivia continued to develop IRI math lessons through grade 5, and completed plans to initiate a new radio health series in late 1991. We initiated an important pilot project in Honduras in adult basic education and in civic education. We continue to support IRI programs in Belize, the Dominican Republic, El Salvador, Guatemala and Honduras.

**Other Technologies**

We are working with the World Bank in Indonesia to develop radio-based teacher training materials for multigrade teachers. Finally, in the area of other technologies, we continue to support the use of simple solar powered electronic learning devices to strengthen primary school math and reading in Belize.

In addition to IRI, LearnTech laid the groundwork for supporting other learning technologies such as computers. We assessed the ongoing impact of a major computer project in Grenada, and

conducted a seminar on the use of computers in primary schools in Honduras. In addition, we completed a state-of-the-art paper on the use of video for teacher training, and designed a pilot project in the use of video to support teacher training in the Philippines.

## **Collaboration**

The final major set of activities involved developing support for IRI among other international donors. We expanded our contacts with the World Bank, UNICEF and UNESCO. Our work in Cape Verde is a joint project with the UNESCO/Harare, Sub-regional Office for Southern Africa. The project is a regional effort among the five Portuguese speaking countries in Africa. The Dutch Government is considering a proposal to fund regional Central American initiatives in environmental education and teacher training, based on our work in Costa Rica. We are collaborating with UNICEF, the Norwegian Government and UNESCO to establish an international group called IMAGE that will pursue new international options for instructional technology beyond A.I.D. sponsorship alone, but which draws on the lessons learned by LearnTech. Finally, we are working with INNOTECH to develop new strategies for integrating video into improved teacher training programs, and with the World Bank in Indonesia to integrate radio into existing programs to improve in-service teacher training.

## **Administrative Changes**

Tom Tilson resigned as Project Director in June, 1992, although he will maintain an active relationship with the project. His enthusiasm and energy contributed highly to the level of interest now being shown worldwide in interactive radio. Dr. Tilson has assumed the role of Vice President for Basic Education at AED, a LearnTech subcontractor.

Michael Laflin was appointed the new Project Director of LearnTech. He was formerly Senior Vice President of the Institute for International Research (IIR), a LearnTech consortium member, where he was Director of A.I.D.'s Clearinghouse on Development Communication which publishes the *Development Communication Report*. He brings a wealth of experience in educational development, learning technologies, and development communication. He directed A.I.D.'s Liberian Rural Communications Network project for seven years, and managed A.I.D.'s Communications Support Project and the Honduras Primary Education Efficiency Project. He has served as Audiovisual Supervisor for Kuwait University and Radio and Television Producer for the Kenya Ministry of Education.

Dolores Alvino was appointed LearnTech's Associate Project Director for Administration. Ms. Alvino previously held the position of Project Coordinator for LearnTech since its inception in 1990, and has worked on the Radio Learning Projects at EDC since 1984.

## **I. Introduction**

This report is organized by region and country, and briefly describes the activities in each location where LearnTech is working, then details activities related to institutionalization.

## **II. Latin American and The Caribbean**

### **A. Central America**

#### **Regional Projects in Teacher Training and Environmental Education Funded by the Dutch Government**

LearnTech staff members Cárleton Corrales and John Helwig held discussions with Mario Sandoval, Executive Director of the Central America Education Secretariat, which is comprised of the six ministries of education of Central America and Panama. Mr. Sandoval and Ms. Altagracia Diaz drafted a proposal for the March, 1992, meeting of the ministers on the use of IRI methodology for in-service teacher training. The programs would cover content and pedagogy, and would be available for use throughout the region.

Corrales also met with Mr. José Perez, Latin American Director of Radio Nederlands, who expressed interest in participating in and funding some of our environmental education interactive radio work in Central America.

The outcome of these initiatives was that the Dutch Government has asked for proposals for using interactive radio for both teacher training and environmental education. Regional meetings of Ministers of Education were held in Costa Rica and Nicaragua, and a technical meeting was held in Tegucigalpa, Honduras, culminating in the submission of proposals to the Netherlands.

### **B. Belize**

LearnTech is investing in a small research center, the Belize Educational Laboratory, out of which a variety of studies have been conducted.

#### **MultiGrade Teaching Strategies**

The Institute for International Research (IIR) conducted a study on multi-grade teaching in Belize. During March, 1992, Dean Nielsen assisted in analyzing the questionnaire data and helped to prepare for the up-coming interviews. The purpose of the study was to identify effective teaching practices in multi-grade classrooms.

By June, 1992, when the first stage of the investigation was complete, Nielsen visited Belize to conduct a research and data analysis workshop on multigrade teaching. A draft of a research paper on the Belize experience was reviewed and will be submitted for publication.

The next stage involves the development and testing of "enriched models" of multigrade teaching, the development of training packages, and a training video.

### **IRI: English Language Pilot**

Stuart Leigh of Real World Productions (RWP) worked with the Ministry of Education to prepare for an expanded pilot IRI English project to begin in January, 1992. He visited Belize in December, 1991. The *Let's Learn English* IRI series was broadcast daily since January 1992 to twenty-five schools.

Interviews with principals and teachers revealed their satisfaction with the program and their enthusiasm for its continuation. All involved voiced their confidence in the children's acquisition of English language skills. Stuart Leigh visited Belize in late June 1992 to assist with final activities and for planning the possible expansion of IRI in late 1992.

### **Solar Math Project in Belize**

Kit Schrichte of the Institute for International Research (IIR) visited Belize during February 1992 to help the Belize Education Lab (BEL) begin its new Solar Math Project. Two types of photovoltaic modules were brought to Belize that could recharge C cell batteries used in the Speak & Math electronic learning aids. Accompanied by Vicky Pelayo of BEL, Kit visited four schools to explain the battery recharging procedure and distribute the photovoltaic panels, rechargeable batteries and new Speak & Math devices. A few days later they returned to the schools and found the charging devices functioning well. The schools were eager to begin to use the Speak & Math devices in their classrooms. IIR will also be looking into the use of solar-powered radios for possible future applications in IRI activities.

Over the course of one school year, the feasibility of using these devices in schools in countries like Belize will be assessed.

### **Environmental Education**

Stuart Leigh took the lead in developing a proposal entitled the *Belize Environmental Education Media Project (BEEM)*. However, the USAID mission decided not to fund this project.

#### **C. Bolivia**

### **IRI for Health and Environmental Education**

LearnTech received a buy-in for just over four million dollars from USAID/Bolivia to create a new health education IRI series and to expand the implementation of the math programs.

The Ministries of Education and Health asked that the project begin with a series of lessons on cholera, given the rising incidence of this disease in the region. Training workshops were held in January 1992 to begin preparing for the module on cholera. By March, 1992, the new IRI health series was underway. A long-term health educator, Ann Fitzgerald, arrived in Bolivia in early March.

In early 1992, the first lessons were completed. A new recording studio was constructed and equipment installed in March 1992, with recording of the health lessons starting in May 1992. By June 1992, a master plan and lesson format for the new grade 4 health series was developed and the first script on cholera was completed.

On August 13, 1992 in Tarija, Bolivia, Programa de Aprendizaje por Radio Interactiva (PARI) inaugurated the debut of "Cuidemos Nuestra Salud." The Minister of Education, Hedim Cespedes, delivered the keynote address which conveyed President Paz's support for PARI's venture into preventive health care. Also in attendance was Dr. Charles Bowers, U.S. Ambassador to Bolivia, who, in a moment of spontaneity, set his prepared speech aside and followed the interactive methodology to teach a few key English phrases to the audience of 3,400 primary-school children.

Since the inauguration, a total of five "interactive radio health" lessons have been broadcast to 600 pilot classrooms around the country. Preliminary assessment indicates that teachers perceive the program as filling an important void in the national school curriculum. Quantitative data will be gathered through summative testing upon the close of the school year in November 1992.

Prototypes of the new Radio Health programs will become available for broader distribution in the final quarter of 1992.

### **IRI for Mathematics Continues to Expand Its Coverage and Curriculum**

The Bolivian Interactive Radio Learning Project, in addition to developing a new health series, is continuing to expand the use of the IRI math series. In 1992, approximately 100,000 children (in grades 2-5) in 7 of the 9 states of Bolivia are learning from IRI lessons. Once the new health series is developed, the use of these lessons will expand into schools using the math series.

#### **D. Costa Rica**

### **Environmental Education by Radio**

Production of the fourth-grade series in environmental education *Escuchemos a la Tierra* - (Let's Listen to the Earth) continued. By October 1991, the first IRI environmental programs were being piloted in Grade 4 classes. The initial reaction to the lessons by the children was extremely enthusiastic.

Production of the fourth-grade environmental education radio programs was completed in July 1992. The program was broadcast to 1000 - 1500 classes, reaching approximately 40,000 students. The project also produced a teachers' guide which was distributed to 2000 teachers, or half of the fourth-grade teachers in the country.

During March, 1992 there was a formal inauguration of the programs with the First Lady with extensive media coverage. The project met with several European aid agencies to seek financing for the continuation and eventual expansion of the project to a regional Central American level. So far, the responses have been encouraging.

Regular school year broadcasts started on April 1, 1992 although the lessons were also broadcast during the vacation period on Radio Nacional and on Radio for Peace International. The programs were transmitted on 10-15 stations across the country, including short wave coverage for much of Central America. The series is being broadcast until November 1992, (the end of the school year) to fourth grade students and to an open audience. A few stations will also rebroadcast these programs during the December - February 1993 vacation period.

Since July 1992, the project staff were involved in training activities and dissemination of materials and information. At the same time, the grade 5 series is being planned and the production of new programs will begin in October 1992. A research study was conducted to determine environmental concerns and program and character preferences of fifth-grade children. The fifth-grade programs will be designed for all of Central America.

The Ministers of Education of the Central American region have expressed interest in adopting and testing this series in their respective countries as an official regional program. Several sources of international funding are being pursued to finance the program as a regional project. Lic. German Vargas of Costa Rica has been hired as the Technical Coordinator. He brings to the program his extensive knowledge in environmental education and video production.

The project held two Central American conferences, one in San Jose, Costa Rica in July 1992, and one in Tegucigalpa, Honduras in August 1992, in an effort to gain support for the regional production and use of the environmental education programs. The conferences were co-sponsored by Radio Nederlands, UNESCO, OAS, and the Central American Ministries of Education Council. At the annual meeting of the ministers in Managua at the end of August, 1992, the projects in teacher training and environmental education were approved at the regional level. The environmental education project is being presented (with participation by LearnTech and UNESCO) by the Radio Nederlands Training Centre to the Dutch government for financing. We expect that the project should be approved at the end of the year, with financing available in early 1993.

## **IRI Mathematics**

CENADI is also implementing the mental arithmetic series *La Familia de los Números* for first and second grade students.

In mathematics, the Costa Rican adaptation of the series, *La Familia de los Números* was broadcast on approximately a dozen radio stations beginning in late March, 1992. The project hoped to reach 2000 schools with 50,000 students in grade 1, and 1000 schools with 25,000 students in grade 2. The accompanying teacher training programs in primary school math, produced in Costa Rica, were also rebroadcast. Both the teacher training programs and the environmental education programs can be made available to other Spanish speaking countries.

### **E. Dominican Republic**

#### **A Teacher Training Video**

In October, 1991, RADECO completed the production of a teacher training video. LearnTech sent Jorge Madrigal (Costa Rica) to the D.R. to work with the RADECO team. Michael Hall (AED), a LearnTech intern who was in Nepal all summer, also helped to prepare the video, as did other IRI specialists from other countries.

#### **Expansion**

Broadcast of the RADECO lessons was delayed four months in 1991 because the Ministry did not allocate funds. The MOE has reorganized and RADECO now falls under the Servicios Tecnicos Educativos. The Ministry of Education found funds for another year for RADECO, and broadcasting began in January 1992 for grades 2 and 4. (The lessons for grades 1 and 3 are broadcast in alternate years.)

A request for European Community (EC) funding was pursued by LearnTech to support an expansion of the IRI activities.

A final report of the study of RADECO graduates was completed. A study was designed to observe the characteristics and activities of graduates after graduation from RADECO. In a random sample of ninety-seven of the 1,100 graduates from 1986, 1988, and 1990, the study found that over 90 percent of the graduates are continuing their education or are currently employed, 87 percent continue to live in the vicinity of the community where they received their education from RADECO, and the overwhelming majority have very fond memories of their experience with RADECO. The positive results led to the conclusion that RADECO should be encouraged and supported to gradually expand to national coverage.

RADECO developed plans to evaluate options in 1992 for training teachers on how to use the IRI math lessons. One group will receive conventional training (1-2 days of face-to-face

orientation); another group will receive orientation only through distance education using the newly created video (to be broadcast on television) and the series of 29 radio lessons developed in Costa Rica. A third group will receive conventional training as well as the distance education option. LearnTech will assist with an evaluation when the training takes place. Implementation is expected in 1993.

## F. El Salvador

### Mental Math Adopted

With LearnTech support, the Ministry of Education in El Salvador and the Strengthening Achievement in Basic Education Project (SABE/USAID), implemented a pilot project using IRI to support math education for first-grade classroom teachers.

To help prepare for the pilot activity, Maricela Turcios (from Honduras) and Altagracia de Jesus (from the Dominican Republic) provided technical assistance in December, 1992.

Beginning in March 1992, sixty of the radio mathematics lessons *La Familia de los Números*, produced in Honduras, were slightly adapted for broadcasting in the Santa Ana region of El Salvador. The target population was 2000 students attending 50 schools.

Additional expertise was provided by a team of Hondurans with experience from the IRI mental arithmetic series *La Familia de los Números*. Lic. Maricela Turcios helped to draft the overall proposal and the management and marketing aspects of the project. Lic. Mario Ramirez provided basic training in IRI methodology, the development of a master plan, lesson structure, and assisted with studio radio production. Lic. Gloria Gamero designed the evaluation proposal, trained the personnel, and prepared the tests. Under the leadership of Altagracia Diaz, a teacher training workshop was held in March 1992.

By June 1992, thirty-two first grade classrooms in the western part of El Salvador participated in the pilot. Twenty-five schools were part of the experimental group and seven were utilized for visiting purposes. An additional group of twenty-five classrooms in the Sonsonate region acted as a control group. A pre-test was administered to both groups. In the experimental group, teachers were provided with radios, teacher guides and a one-day training session. Each one of the more than 2,000 students participating in the pilot project received a notebook. Broadcast time was donated by a private regional radio station.

The summative evaluation was completed by mid-July to assess the degree of academic achievement. A total of 50 first grade classrooms from rural, urban, and semi-urban schools, were selected and divided into two groups of twenty-five. The experimental groups received the Radio Mathematics lesson and the control group did not. Children in both groups were given a pre-test before broadcast of the programs, and post-tests were administered after all sixty lessons were broadcast. Results from the evaluation showed that children exposed to the Radio Mathematics lessons scored significantly higher than students in the control group.

Reports from the formative evaluation of the seven other schools using the lessons also revealed that the lessons received enthusiastic support from the teachers.

The pilot project was concluded with a seminar attended by teachers participating in the Radio Mathematics Pilot Project who expressed their interest for the continuation of the math lessons. This expanded to 3 regional workshops.

The positive attitude of teachers toward the radio lessons and student enthusiasm in working with this technology convinced the Ministry of Education that a national implementation of Radio Mathematics is appropriate. Thus, 3,000 first grade teachers will participate in Radio Mathematics lessons during 1993.

The Ministry of Education has also requested the development of a new series: reading and writing in Spanish. It plans to use Interactive Radio Instruction (IRI) as a fast and effective way to improve academic achievement in language in the formal school system. The series will be produced for first and second grade teachers.

## **G. Grenada**

### **Evaluating Computer Assisted Instruction in a Rural Primary School**

Computer Assisted Instruction (CAI) began in one rural primary school in 1987, but was not used for about 18 months between 1989 and 1991. Two striking results are evident from the evaluation data. First, are the major achievement gains when the computers were introduced; second, is the sharp decline in achievement gains when the use of the computers was stopped.

In the fall of 1991, IIR, in collaboration with the Center for the Assessment of Language Skills (CALs) at the University of Massachusetts, completed an additional year of investigation on the impact of computer-assisted instruction. The evidence from achievement tests administered last year and this year reinforce the conclusions drawn from the previous three-year impact evaluation: the use of CAI has a strong impact on student performance in math and reading.

A report "Computer Assisted Instruction in Grenada: A Summary of Research Evidence" by James M. Royer and Maria S. Carlo is available.

## **H. Guatemala**

### **IRI Mathematics**

In 1991-92, the Basic Education Strengthening (BEST) project in Guatemala adapted the Honduras *La Familia de los Números* series. In 1992, second school year broadcasts were aired to 74 schools. By June, 1992, the IRI math series *La Familia de los Números* for

grades 1 and 2 was being broadcast to over 30,000 children in 600 classrooms in the greater Guatemala City metropolitan area. Full national implementation is planned for 1993.

BEST/Radio conducted an approximate replication of the original Honduran *Familia de los Números* summative evaluation. The Honduras recordings were broadcast, the lapped-year system was applied, and the original instrument was revalidated for use in Guatemala. The first-year results were strong: the raw gain (experimental over control) was 16.17 percent. The effect size was 0.57, using the z-score calculation described in the Honduras summative report.

### **Español... Mi Segunda Lengua**

The Guatemala Spanish-as-a-Second-Language series, with the working title *Español...Mi Segunda Lengua*, was produced and tested during the 1992 school year. The first year of the Spanish series was completed in September 1992. The *Español, Mi Segunda Lengua* series was piloted in ninety schools of predominantly Q'eqchi' and Poqomchi' ethnicity in Alta Verapaz in Guatemala's central highlands. Other schools participating are in Chimaltenango, near Guatemala City, mainly to provide accessible observation sites for the BEST/Radio staff. This four-year series, when complete, will consist of 600 half-hour broadcasts. The main body of instruction is in Spanish, but each broadcast also includes five-minute introductions and closes in mother-tongue with different versions in Q'eqchi', Poqomchi, and Kaqchikel.

The Guatemala BEST Project will host a group of five members of LearnTech's Bolivia IRL Project for two days on October 22 and 23, 1992. The purpose of the visit will be to conduct intensive joint technical planning with regard to bilingual instructional design parameters for the IRI program production for the two countries during 1993.

The Guatemala BEST Project recently responded to a request from Panamá for copies of the new radio Spanish-as-a-second-language series. The series will be used in 1993 by a Bahá'í community radio station in Panamá, serving indigenous Guaymí children. USAID/Guatemala approved this activity.

### **Institutionalization Issues**

Cárleton Corrales visited Guatemala October, 1991 to talk with USAID and BEST personnel about collaboration with the LearnTech Project. Corrales also met with the UNICEF representative to talk about a pre-school IRI series.

In December, 1991, Corrales and Tilson visited Guatemala to meet with BEST/Radio staff, David Edgerton and Phil Sedlak to discuss the issues of long-term sustainability of interactive radio and the transfer of technologies. Tilson and Corrales provided assistance on strategies for developing an institutional "home" for interactive radio at the completion of the project in Guatemala. The key component of the plan was to establish an educational technologies foundation, with strong fundraising capability and an endowment sufficient to cover operating

costs. This foundation would work closely with the Ministry of Education in implementing programs in the schools.

By the end of September, 1992, the BEST/Radio project was reported to be in the final negotiation stages of finding an institutional home for BEST/Radio. When finalized, these plans will transform BEST/Radio from a pilot project into a permanent Guatemalan educational media foundation. The project will have close ties to public education while maintaining institutional autonomy for fundraising purposes and in most aspects of technical operations. It is hoped that these arrangements will be complete by early 1993.

## **I. Honduras**

### **Mental Math**

A report by Applied Communication Technology entitled, *Evaluation of Mathematics Instruction by Radio in Honduras* examined the performance of Honduran students who received IRI mental arithmetic instruction. The evaluation compared the math performance on tests given to third graders in three groups -- traditional unimproved instruction, text-teacher training classes, and radio lessons. This study, which was completed in November, 1991 focused on the cumulative effect of three years of the intervention. As stated in this report:

*The results of the posttests show that students who listened to Radio Math lessons were consistently better than either other group, across virtually all indicators of outcome. The size of the difference was substantial, with an overall improvement of about a half a standard deviation. The comparison of the traditional with the text-teacher training intervention shows that there is no difference in the performance of these two groups.*

AVANCE and the MOE have made arrangements to resume broadcasting the IRI math series *La Familia de los Números* in 1993. The MOE would be responsible for evaluation, distribution, and teacher training; and AVANCE would be responsible for broadcasting arrangements and technical matters.

### **Adult Basic Education by Radio**

The Ministry of Education asked LearnTech to provide assistance in designing and implementing an IRI basic skills series for useful employment for adults who attend literacy centers. The immediate task was to develop 60 integrated lessons for the first year of basic adult education to be used in literacy centers of the Ministry. The main focus was to adapt for adults the interactive radio programs that have worked so well with young people in order to provide an equivalent primary education.

This activity is administered in cooperation with two Honduran NGOs, AVANCE and COEDUCA, through subcontracts with LearnTech. COEDUCA is responsible for the

research, scriptwriting and evaluation, and the Association for Socio-economic Advancement (AVANCE) is responsible for radio studio production.

The first radio lesson of the Honduras Basic Adult Education Program was broadcast in June, 1992. A total of 100 radio lessons per level will be broadcast over a six-month period to a target population of 100,000 adults in the department of Francisco Morazán. The 16% illiteracy rate in this department is lower than the national average of 32%.

A thirty-five minute radio lesson is broadcast Monday through Friday, with two lessons rebroadcast on Saturday afternoons and three lessons on Sunday mornings. Each lesson has two basic curricular lines: reading and writing in Spanish and mathematics. The lessons are divided into five sections. The first two sections are language (reading/writing), and mathematics and use the traditional IRI method of instruction. The other three sections use a dramatic approach, and focus on civic, legal, and democratic issues; family life which emphasizes the role of women and children; and population growth and its effect on health, economics, education, and the environment. The legal, civic, and democratic education segments are supported by the USAID Democratic Initiative Project. Adults may listen to the radio lessons at the new literacy centers organized by the Adult Education Division of the Ministry of Education or in their homes. Printed material to be used during the lesson and for post-broadcast exercises is available to the students. Cárleton Corrales visited Tegucigalpa, Honduras in September 1992 to assess the status of the Adult Basic Education Project, and reported that the programs are received with great enthusiasm from the learning audience.

Esta de Fossard, LearnTech consultant and consortium member, also visited Honduras in September 1992 to run a week long workshop on scriptwriting. The workshop was a success, and it was decided that Esta would continue to provide training and feedback to the staff from the United States, via fax. Fossard's assessment revealed some problems within the structure of the radio lessons, and she made recommendations to help make them stronger, clearer, and more effective.

### **Computers in Schools and Teacher Training**

LearnTech received a request from USAID/Honduras to assist the Ministry of Education in developing plans for the use of computers in secondary schools. The MOE requested that we review and evaluate Spanish-language computer software that might be appropriate for use in Honduran schools. LearnTech, under the direction of consortium member Electronic Learning Facilitators (ELF), and assisted by John Zuman of Intercultural Center for Research in Education, developed and conducted a workshop to examine a range of potential uses of computers. During the workshop, ELF discussed the factors to be considered in planning for a computer program and proposed a strategy for implementing such a program. One of the goals of the seminar was to assist the MOE in developing a preliminary plan for the implementation of computer education in upper primary and junior secondary schools in Honduras.

LearnTech also developed a proposal to the Ministry of Education for new teacher training initiatives.

## **J. Panama**

In June 1992, we had a request from Radio Bahá'í' in Panama for IRI materials on teaching Spanish as a second language. We forwarded some of the new Spanish lessons from Guatemala to Panama for their review.

## **K. Venezuela**

### **Adoption of IRI Mathematics**

EDC (separate from LearnTech) with assistance from AED, carried out a planning mission to Venezuela. John Helwig and Altagracia Diaz (from the Dominican Republic) were in Venezuela in August 1991 to assist the Ministry of Education in planning an IRI pilot math project. The Ministry planned to begin testing the programs in early 1992 with financial support from the Eugenio Mendoza foundation in Caracas. This foundation supported the consultancy of Helwig and Diaz.

Beginning in April, 1992, the MOE tested thirty grade 2 math lessons in thirty classrooms, eighteen in Caracas, and twelve in rural areas.

Teacher training workshops took place on April 20, 1992 in San Sebastián de los Reyes and San Casimiro, and on April 22, 1992 in Caracas. The MOE initiated discussions with the World Bank to incorporate support for IRI in an upcoming education loan.

By June, 1992, CENAMEC, the curriculum division of the Ministry of Education, had collected the evaluation data and were in the process of analyzing the results. They also produced a video on the pilot project that will be used for promoting the interactive radio series. The informal reports from the schools and parents have been very positive, and there have been very favorable articles in newspapers about the IRI project. Tom Tilson wrote a paper entitled, *Interactive Radio Instruction for Basic Education in Mathematics*, to be included in a special CENAMEC publication on mathematics instruction.

## **III. Africa**

### **A. Cape Verde**

#### **IRI in Portuguese for Africa**

LearnTech gave key support to a UNESCO/Harare initiative to implement a new IRI subregional project among the Portuguese speaking countries in Africa. Adaptation of the IRI

math series for grades 3 and 4 has begun and there are plans to develop a series on teaching Portuguese as a second language for grades 1 and 2, health, agriculture, and environment.

In late 1991, a new regional IRI activity began in Cape Verde in collaboration with UNESCO. The project is a regional effort involving all five PALOP or lusophone countries. In September 1991, there was a planning mission that included Jan Visser (UNESCO/Harare), Klaus Galda (EDC/Costa Rica), Anisio Matangala (Mozambique), Cárleton Corrales, and Tom Tilson. The team also included representatives from the Ministry of Education. At the time, Anisio had just completed a two-month LearnTech study tour of IRI sites in Latin America.

LearnTech and UNESCO shared the start-up costs in early 1992. In Cape Verde, the Ministry of Education is providing full support for the project, and Lic. Julio Correia, head of the Radio Education Unit at the Ministry, has been appointed National Director. UNDP funds were expected to become available in mid-1992 to continue the project, but this now seems unlikely. The Government of Holland is funding the UNESCO Associate Expert, Lic. Anisio Matangala from Mozambique as the Regional Director of the project.

A commitment is being developed in lusophone countries to adapt the content of the IRI Nicaragua math lessons, grades 3 and 4, rerecord them, and test the lessons in schools. In order to help plan for modifying the sequence of math instruction, Jamesine Friend of Friend Dialogues, a LearnTech consortium member, wrote a document, *Adapting the Nicaraguan Radio Mathematics Lessons for Use in Cape Verde*.

The field team has translated, adapted, recorded and administered the third grade diagnostic test as part of the baseline study that has been completed in some islands of Cape Verde and in Maputo, Mozambique. The Cape Verdean National Coordinator is undertaking special studies in evaluation at Florida State University during May and June. FSU will take a lead role in evaluating project activities.

By September, 1992, the first 100 scripts had been translated and adapted, and twenty lessons had been produced. Diagnostic tests had been administered in schools in Maputo, Mozambique, Sao Tiago, and Sao Vicente. Posttests were also administered in twenty-four schools in Santo Antao and Sao Vicente, which constitute the control group. The first IRI lessons on cassette were tested in the schools and were well received. Radio broadcast of the first math lessons is scheduled for early 1993.

## **B. Ghana**

### **IRI? Yes, but Not Yet...**

Tom Tilson and Gary Gleason (ICI) visited Ghana in mid-September, 1991, to talk with USAID, Ministry of Education, and Ghana Broadcasting officials about possible support of educational radio activities by LearnTech in Ghana. There was strong interest in using radio to support basic education, especially English, in the USAID mission, the Ghana Broadcasting

Corporation, and among staff of the USAID basic education program called PREP. However, the MOE's recently-concluded study of schools broadcasting in Ghana recommended giving primary attention to using radio for teacher training, and at this point the MOE is delaying startup of any new initiatives until there is better coverage of Ghana Broadcasting throughout the country.

### **C. Lesotho**

#### **IRI on a National Basis, but Faltering**

Tom Tilson visited Lesotho in November 1991, where he observed several schools using the IRI English programs, and consulted with Ministry officials. IRI lessons continue to be implemented on a national basis but there is need for a modest increase in Ministry support to ensure effective use in the schools. LearnTech has offered to provide some interim assistance.

LearnTech is assisting the Ministry of Education in insuring the future sustainability of the *English in Action* series by reprinting Teacher's Notes and Student Workbooks for the series. In addition, LearnTech will finance a modest assessment of the IRI English lessons in the schools in late 1992. The purpose of this assessment, to be carried out by the English division of the National Curriculum Development Centre, is to identify potential problem areas and to make recommendations accordingly.

### **D. Mozambique**

#### **Joining the PALOP Project?**

Jan Visser visited Mozambique in November 1991, during which time he discussed the IRI sub-regional effort with officials of the government, UNDP and USAID. Mozambique is participating in the IRI pilot project.

### **E. Namibia**

#### **Interest in IRI**

The Ministry of Education and Culture of Namibia is interested in conducting an IRI English pilot project during 1993. LearnTech may provide support for this activity. IRI English could be particularly helpful to teachers and children because Namibia has changed its official language from Afrikaans to English. Given the new developments with IRI in neighboring South Africa, LearnTech has suggested that Namibia and South Africa collaborate during 1992, so that Namibia may take advantage of this interchange and review upcoming revisions of the English series in South Africa.

## F. Nigeria

### IRI for Health

Gary Gleason and Tom Tilson visited Nigeria in late September 1991 at the invitation of the UNICEF Representative for Nigeria, Mr. Revelian's Tuluhungwa. The purpose of the visit was to assist UNICEF in developing basic education activities that could be supported by LearnTech. The team focused on the possible application of IRI to teach health and English to upper primary school children in the states of Kaduna and Bauchi. UNICEF expressed considerable interest in supporting work in health.

Plans were made for a workshop in 1992 on IRI for health education to be held in collaboration with UNICEF. Due to in-country logistical problems, the workshop has been postponed until January, 1993.

## G. South Africa

### Working with NGOs to Provide Basic Education

As South Africa moves towards a post-apartheid democracy, there has been much activity in support of a new educational system. There is general agreement that radio has much to offer to improve equity, access and the quality of education. As part of this effort, LearnTech is working with Open Learning Systems Education Trust (OLSET), a non-governmental organization, to develop a new, independent, national educational radio channel.

In November 1991, Tom Tilson and Phil Christensen gave a presentation at The Radio Learning Consultative Conference in Johannesburg on the potential uses of radio to improve education in South Africa. They gave particular attention to IRI. Tom Tilson and Esta de Fossard-Nelson wrote a paper for this conference, *Radio for Improving Basic Education in South Africa: Some Perspectives*. In addition, Tilson prepared a brief proposal, *Improving English Instruction in South African Primary Schools by Interactive Radio Instruction: A Proposal for a Mini-Project*.

An IRI English pilot activity took place from March to June 1992. OLSET was the host institution and Stuart Leigh of Real World Productions provided technical assistance. Fifteen lessons were tried out with 14 teachers in Bloemfontein and 10 teachers in Soweto. Plans were made for an extended project over the next 1 1/2 years.

Phase II began in July, 1992. Stuart Leigh arrived in South Africa in August 1992. National staff have been hired, including a national coordinator, ESL materials developer, and radio engineer/producer, and there are some good prospects for scriptwriters. The project will work in six regions with South Africa; Soweto, Eastern Cape, Natal/KwaZulu, Western Cape, Durban, and KwaNdebele; and plans are being made for regional coordinators in each of these regions.

Phase II is giving special attention to introducing some new methodologies during both the broadcast and nonbroadcast parts of the daily lesson. Later in 1993, plans will start for the adaptation of a radio math series, and possibly a teacher training program.

Phase III will take place in 1993 when the revised series will be produced and implemented in schools throughout the school year. In 1993, the IRI *English in Action* series will be broadcast to schools in six regions for a full year. At the same time, the IRI math series may be piloted, as well as a new radio-based teacher training series.

OLSET has produced a newsletter on the developments of the pilot phase of the project (March-June 1992), and has developed a promotional videotape.

## **H. Zimbabwe**

### **A Regional Center in Harare?**

The International Council for Distance Education (ICDE), a collaborating institution with LearnTech, has received funding from NORAD (the Norwegian Foreign Assistance Agency) to fund a Multi-Channel Learning Base in Harare. This will provide a laboratory to develop concrete applications of multi-channel education. See the section on IMAGE below for more information on multi-channel learning.

## **IV. Asia**

### **A. Indonesia**

#### **In-Service Training for MultiGrade Teachers**

The Ministry of Education in Indonesia is upgrading all 1.2 million primary school teachers and plans to use radio as an important component of the upgrading process for teachers working in remote areas. The particular challenge is to use radio in a way that supports the objectives of the new curriculum which is child-centered and promotes active learning.

In December, 1991, LearnTech conducted a workshop on using radio to support teacher training in Indonesia. The workshop was coordinated by Dean Nielson (IIR) and led by Esta de Fossard (EDC consultant). Steve Anzalone (IIR) also participated.

Esta de Fossard conducted the scriptwriting workshop by instructing participants on the use of interactive radio methodology for in-service teacher training and gave a presentation to Ministry officials on IRI for primary school children.

Training modules on multigrade teaching are being developed for testing, and will include interactive audiotapes. Esta de Fossard conducted a second workshop on scriptwriting for these tapes. The training modules for teachers are now in draft form and the interactive

audiotape scripts are being reviewed by Esta. There will be field trials of the training modules beginning next March, 1993. Dean Nielsen will assist in analyzing the results of the field testing and in planning the necessary revisions.

### **Open Junior Secondary Education**

In March, 1992, LearnTech received a request from the UNDP/UNESCO Chief Technical Advisor in Indonesia for assistance on interactive radio to support the Open Junior Secondary Schools system. LearnTech has sent information on IRI, on courses in educational radio in the U.S., and on IRI specialists who could provide technical assistance.

#### **B. Malaysia**

##### **Interactive Instructional Television?**

Steve Anzalone visited Malaysia in late 1991 and met with officials in the Ministry of Education dealing with educational technology. Discussions centered on Malaysia's use of educational television and the new program for educational computing in secondary schools. Malaysia will contribute its experience with educational television to a LearnTech publication on the use of educational television in developing countries. Anzalone also visited a rural school computer club and collected information on this experience.

The World Bank and the Ministry of Education have held discussions on the use of interactive radio. LearnTech is talking with the Bank about finding a way to provide assistance, since Malaysia is not an A.I.D. country.

#### **C. Nepal**

##### **No More of the Same?**

Following initial planning missions to Nepal in October 1990 and February 1991, Dwight Holmes (AED) spent September 1991 in Nepal helping to plan a pilot IRI math project. The project was to be based at the Primary Education Division of the Ministry of Education where there is an experienced group of radio professionals. There would be no long-term technical assistance from LearnTech, so Holmes made arrangements for local administration of the project. He also assisted with the preliminary activities for launching the IRI programs in the schools in early 1992.

There was little activity in Nepal during 1992. Consequently, LearnTech Director, Mike Laflin, and consultant King Beach visited Nepal in August 1992 to decide what action to take. Recommendations were made, but at the time, the prospects did not look promising.

## **D. Papua New Guinea**

### **Radio Science Continues**

The grade 6 Radio Science lessons continue to be broadcast nationally. The grade 5 lessons and, hopefully, the grade 4 lessons are scheduled to be broadcast in 1993.

## **E. Philippines**

### **Using Video for Teacher Training**

Initial discussions were held in late 1991 on possible LearnTech support of a new instructional television pilot project being designed for the Philippines. The proposal is to deliver about ten minutes of Instructional Television (ITV) programs daily for each of 4-5 subjects in all primary school grades.

Steve Anzalone visited the Philippines in November, 1991, to give a presentation at the Third SEAMO/INNOTECH International Conference, entitled *Between Active and Interactive Instruction: Options for Basic Education in Developing Countries*. He also met with the Secretary for Education and with other Ministry officials to discuss their interest in technologies to support basic education. They were interested in video to provide in-service training to secondary school science teachers.

Anzalone also met with Dr. Minda Sutaria, Director of INNOTECH, to further collaboration between LearnTech and INNOTECH. The proposed pilot study on using videocassettes for training effective teaching skills was identified for potential collaboration.

In August, 1992, Steve Anzalone initiated collaboration between LearnTech and INNOTECH in developing and testing a new interactive model for using videotapes for teacher training. Agreement has been reached to develop and test two modules in the Philippines. LearnTech will host a visit from Dr. Minda Sutaria, Director of INNOTECH, in October, 1992.

## **F. Thailand**

### **Study of Television for Instruction**

During a brief visit to Thailand, Steve Anzalone met with Ms. Napa Bhongbhibhat, Deputy Director-General of the Ministry of Education. Khun Napa will make a contribution to the LearnTech update on educational television in developing countries.

## V. Publications

The following working documents and trip reports were produced this year:

- The Spanish version of the A.I.D. monograph, *Interactive Radio Instruction: Confronting Crisis in Education*
- "Instructional Radio", an article by Thomas D. Tilson to be included in the upcoming edition of *International Encyclopedia of Education*
- The LearnTech brochure in Spanish and French
- Several new Fact Sheets on various aspects of the LearnTech Project were completed by ICI. The titles are:
  - Evidence of Radio Effects
  - Interactive Radio Instruction
  - Radio Access to Education
  - Radio Health in Primary Schools
  - Radio Cost Effectiveness
  - RADECO
  - IRI for Environmental Education
  - Radio and Teacher Training
- A short series of audio cassettes in English of IRI programs that previously were only available in Spanish. Lesson segments from the Bolivian radio health series, the Costa Rican environmental education series, and the two teacher training series developed in Costa Rica have been dubbed. Each of the four series will be represented by a 5-10 minute program.
- Belize Trip Report 2/16-2/27/92 by Kit Schrichte
- Matemática Interactiva para Educación Básica Proyecto for Grade 2 by CENAMEC
- Graduate Course in "Radio for Education" by Esta de Fossard-Nelson
- "Boosting Mathematics Achievement with Electronic Learning Aids: The Experience of Belize" by Steve Anzalone, Pornjit Arunyakanon, Cynthia Thompson, and Vicky Pelayo
- "Promoting Learning Technologies for Basic Education: A Plan for the LearnTech Project" (Overall Project Plan and Update of Priority Activities for 1992) by Intercultural Communications, Inc.
- IRI Project "Let's Learn English" Report by Erlindo Pech
- Cape Verde Trip Report 1/27-2/13/92 by José Cárleton Corrales
- "The Use of Video Technology in the Education of Teachers: A State of the Art Review" Draft by H. Dean Nielsen
- Indonesia Trip Report 12/1-12/14/91 by Esta de Fossard-Nelson
- RADECO Grade 1 Language Arts Program in Costa Rican Schools January 1992 by Klaus Galda
- Guatemala Trip Report 1/6-1/7/92 by Klaus Galda
- Belize Environmental Education Media Project (BEEM) by Stuart Leigh
- "Radio Programs for Primary Teacher Training in Mathematics" by Virginia Rojas is available in both English and Spanish

- Guatemala Trip Report 12/18-12/19/91 by José Carleton Corrales
- Bolivia Radio Mathematics Project - article in local newspaper, *El Diario Estudiantil* La Paz, Bolivia 12/4/91
- Belize Trip Report 12/8-12/20/91 by Stuart Leigh
- Bolivia Trip Report 1/6-1/26/92 by Kjell Enge
- "*The Way Forward*," a plan for IRI in Nepal, August 1992. by Mike Laflin

## VI. Conferences/Workshops

### UNICEF

The *Interagency Technical Advisory Group Meeting on Third Channel Approaches to Basic Education* conference was held in New York on 8/15-8/16/91. Tom Tilson (EDC), Carleton Corrales (AED), Wambui Githiora (EDC), Clotilde Fonseca (Omar Dengo Foundation/Costa Rica), Gary Gleason (ICI), Phil Christensen (IIR), and Steve Anzalone (IIR) attended this conference in New York. Tilson, Githiora and Anzalone gave a presentation on IRI and other technologies supported by LearnTech. Fonseca talked about the use of computers for supporting primary school education in Costa Rica. In addition, Jan Visser (UNESCO/Harare) attended the conference, and held meetings with LearnTech during his stay in the U.S. The purpose of the conference was to develop collaboration and support for UNICEF's effort to promote the "Third Channel." Although there was some difficulty clearly defining the Third Channel, in general, it refers to educational efforts to reach people not being served by the formal and non-formal systems. Notes on the meeting are available upon request.

### USCEFA

The first conference, *Learning for All: Bridging Domestic and International Education*, of the United States Coalition for Education for All will be held in Virginia from October 30 - November 1, 1991. Tom Tilson, Carleton Corrales and Steve Anzalone gave presentations. In addition, LearnTech partially supported the participation of Reider Roll, Secretary-General of ICDE (International Council on Distance Education). LearnTech held discussions with Mr. Roll on possible collaboration with ICDE. Steve Anzalone was the key person to plan this conference.

### Solar Energy

Steve Anzalone organized a one-day solar energy seminar, *Renewable Energy for Development: New Opportunities for Education, Training and Communications Programs*, for LearnTech in August, 1991 (presented by the Sandia National Laboratory). Of particular interest was an analysis of different battery types (including re-chargeable ni-cad batteries) for use in radios and tape recorders. A copy of the report *Primary Batteries vs. Rechargeable Secondary Batteries for Use in Electronic Learning Aids* is available upon request.

## **World Bank**

Tom Tilson, Carleton Corrales and Jerry Hursh-Cesár (ICI) gave a presentation on IRI and LearnTech to a small group of World Bank officials in the Latin American/Caribbean division. This lunch meeting was arranged by Laurence Wolff.

The LearnTech Project also gave a presentation on IRI at the World Bank (Asia division) *Primary Education Symposium*.

## **A.I.D. West African Environment Conference**

German Vargas of LearnTech's Environmental Education Project in Costa Rica, along with Jonathan Schwartz of Interlock Media completed several months of support for the A.I.D. sponsored conference on environmental education from November 4-8, 1991 in Abidjan, Ivory Coast. Mr. Vargas and Mr. Schwartz gave presentations daily on the use of media, especially interactive radio, to support environmental education.

## **Mexican Association of English Teachers**

Stuart Leigh of Real World Productions gave three presentations at the national convention of the Mexican Association of Teachers of English : "*Effective Designs for Language Instruction by Radio*" at a plenary session, plus "Interactive Radio Instruction in ESL for Primary Schools," and "Exploring America Culture in the ESL Classroom with Audio Cassettes."

## **INNOTECH**

As cited under the section on the Philippines above, Steve Anzalone delivered a paper at the Third SEAMO/Innotech International Conference.

## **UNCED Conference**

German Vargas of the Costa Rica Environmental Education Project and Jonathan Schwartz (IMA) represented LearnTech at the UNCED conference on environmental education held in Rio de Janeiro in June 1992.

## **Regional Meeting on Sustainability**

LearnTech sponsored the *Third Latin American Conference on Interactive Radio* in Tegucigalpa, Honduras from March 6-7, 1992, which focused on the long-term sustainability of interactive radio instruction. There were delegates from Honduras, Costa Rica, El Salvador, Guatemala, Bolivia, the U.S.A. and the Dominican Republic. The first part of the conference was an update on new developments in IRI: Health Education in Bolivia, Environmental Education in Costa Rica, Spanish as a Second Language in Guatemala, Pilot Mathematics in El Salvador and Basic Adult Education in Honduras. The second part of the conference

concentrated on the issue of long-term sustainability. Presentations were made on past and present experiences on the institutionalization of IRI. There were also discussion groups, panel presentations and country expositions. The prevailing sentiment was the importance of strong politics to move forward towards institutionalization and the importance of designing long-term sustainability of the programs, beginning with the first phase of the project.

### **AECT Annual Convention**

At the annual AECT (Association of Educational Communications and Technology) convention in 1992. Tom Tilson assisted Dr. Clifford Block in a presentation of A.I.D.'s work in learning technologies.

### **Distance Education Conference**

LearnTech members Michael Laflin, Klaus Galda and Anisio Matangala attended the *World Education Crisis: Roles for Distance Education*, held in Cambridge, U.K., from 20-24 September, 1992. The conference focused on distance education's role in adult basic education, with attention to continuing education for out-of-school youth and adults, and teacher training. The conference was sponsored by the International Extension College (IEC), and included participants from government and distance education institutions from all over the world, including a number of funding and international education agencies.

### **South African Distance Educators Conference**

The *SAIDE Conference* held in South Africa from September 7-9, 1992, was attended by Stuart Leigh, in-country Director of LearnTech's English Radio Learning Project. There was a significant representation of distance education consortia who shared their ideas on distance education in relation to primary/secondary education, teacher training, and adult basic education.

## **VII. Training**

### **Ohio University Radio Education Course**

A course on educational radio held at Ohio University from July 20-August 3, 1992 proved very fruitful. Esta de Fossard, a longstanding interactive radio education consultant and LearnTech consortium member, taught this intensive course which focused on radio as an educational vehicle. Students learned about project design and management, writing interactive radio scripts, evaluation, and curriculum design. The workshop was so successful that Ohio University is exploring with LearnTech the possibility of a more expanded course on educational radio, including instructional design.

## **Workshop on Computers in Education**

Electronic Learning Facilitators (ELF) held a workshop on Computers in Education, in Tegucigalpa, Honduras from June 26-July 2, 1992. The workshop focused on assisting the MOE/Honduras in implementing a computer education program. Vice Minister, Omar Roussel requested LearnTech's assistance in evaluating and selecting Spanish language software for the integration of computers into the Honduran curriculum. The MOE has received a donation of 30 IBM computers and wanted to use them in three elementary school computer programs. Karen Penn of ELF and John Zuman of Intercultural Center for Research in Education (INCRE) presented the workshop to twenty-five participants which included members of the MOE, public school administrators, and teachers. The workshop included demonstrations of various Spanish software programs, intense hands-on training, discussions, and software evaluation. Participants expressed enthusiasm about the use of computers in the schools, and the idea of promoting a more interactive role for the students in the use of computer education. As a result, at the request of Vice Minister Roussel, LearnTech has prepared a proposal for additional workshops and for staffing of an Educational Computer Institute.

## **VIII. Collaboration with Other Donors**

### **UNESCO**

LearnTech is increasingly collaborating with other donors. It is supporting UNESCO with a new interactive radio project in Cape Verde.

### **World Bank**

In Indonesia, we are collaborating with the World Bank in designing an interactive radio project with the Ministry of Education and Culture.

### **IMAGE**

LearnTech is collaborating with ICDE (International Council for Distance Education) and UNICEF on establishing the *International Multi-channel Action Group for Education (IMAGE)*. Meetings were held at ICDE in Oslo in March, 1992, at UNICEF in New York in April, 1992, and will meet in Paris in October, 1992. IMAGE will direct itself toward (a) helping to give momentum to efforts that view basic education in a more integrated and comprehensive way than do more conventional perspectives; and (b) promoting development and awareness of practical applications that reflect this wider focus. IMAGE will operate as a forum for cooperation among its members and others involved in basic education. Cooperative activities include promoting the consideration of multi-channel approaches in national plans for education, supporting case studies using multi-channel education, providing consultation or training, and mobilizing resources to support multi-channel learning. The IMAGE headquarters will be at ICDE in Oslo, Norway.

## Radio Nederlands

Technical assistance from the LearnTech Project was requested by the Ministries of Education from Central American countries for the writing of a proposal for in-service teacher training for the entire region. After reviewing the proposal during their meeting in Puntarenas, Costa Rica on May 15-16, 1992, the proposal was approved and presented to Radio Nederlands for possible funding. This project will involve six countries during a six year time span. The basic idea is to use Interactive Radio Instruction (IRI) as the main media of instruction for upgrading the quality of education. Printed materials, teachers meetings and other technologies will play distinct roles in order to support, motivate and obtain feedback from the teachers.

Each nation will develop one part of the series. They will then be able to share their products according to their needs. The strength of the project will be the base of strong national offices working at the Ministry. The in-service teacher training units, already in existence at the Ministry, will have time to adjust, to test, and to incorporate their working scheme into this new approach.

## IX. 1992-93: NEXT STEPS

### 1. Interactive Radio for Direct Instruction

Location	Activity	Next Steps	Person	Inst	Funds
Central America	Regional Project in Environmental Education	Follow up on Dutch Government funding for a regional project, with Radio Nederlands as a prime contractor. LearnTech would continue to provide technical assistance, and would continue development of programming in Costa Rica.	Vargas	EDC	Core, Mktg
Belize	English Language	No further action anticipated			
Bolivia	Environmental Health Education Program	development and evaluation continues	Fitzgerald	EDC	Buy-in
Bolivia	Math	Mathematics continues to expand its coverage nationally and its curriculum into Grade 5	Fryer	EDC	Buy-in
Cape Verde	Math in Portuguese	Program development continues	Matangala	AED	Core, UNDP
Costa Rica	Environmental Education	Program development continues; evaluation of program impact in communities designed and conducted	Vargas	EDC	Core
Costa Rica	Mental Math	Programs being broadcast			Govt
Dominican Republic	RADECO	Look at issues constraining plans for a major expansion of RADECO	Corrales	AED	Govt

## 1992-93: NEXT STEPS (CONTINUED)

### 1. Interactive Radio for Direct Instruction (Continued)

Location	Activity	Next Steps	Person	Inst	Funds
Dominican Republic	Mathematics	Expansion into primary schools			Govt
El Salvador	Mental Math	Being broadcast; no further LearnTech funding anticipated			Govt
Guatemala	Mental Math	Being broadcast			Govt
Guatemala	Español... Mi Segunda Lengua	Program development continues	Corrales	AED	BEST
Honduras	Adult Basic Education	Pilot continues; proposal being considered by Mission for further expansion	Corrales	AED	Core (buy-in?)
Lesotho	English	IRI on a national basis, but filtering; check on status;	Laflin	EDC	Core
Mozambique	Math/PALOP	Joining the PALOP project? Testing Cape Verde pilot project materials	Corrales	AED	UNESCO
Nepal	Math	Activity dormant for two years; little prospect for coming year	Laflin	EDC	Core
Namibia	English	Interested in IRI pilot project; follow up	Laflin	EDC	Core
Papua New Guinea	Science	Programs being broadcast			Govt
South Africa	English, Math	Working with NGOs to provide basic education	Leigh	RWP	Core

### 2. Interactive Instructional Strategies for Other Purposes

Location	Activity	Next Steps	Person	Inst	Funds
Central America	Regional Project in Teacher Training	Follow up on Dutch Government funding for this activity, probably through Radio Nederlands, with LearnTech as its source of technical assistance.	Corrales	AED	Core, Mktg
Belize, Indonesia, Bolivia, Costa Rica	MultiGrade Teaching Strategies	Continue research into current practices; develop and test enriched models at four (?) sites; exchange designs among collaborating countries; develop training models	Nielsen	IIR	Core
Honduras	Multimedia teacher training	Mission considering proposal for in-service training for science teaching	Corrales	AED	Buy-in
Indonesia	In-service Training for MultiGrade Teachers	Continue to provide assistance to World Bank project	Nielsen, de Fossard	IIR, EDC	Core, WB
Philippines	Using video for teacher training	Proposal being developed, subcontract drafted for INNOTECH	Anzalone	IIR INNOTECH	Core

## 1992-93: NEXT STEPS (CONTINUED)

### 3. Research Projects

Location	Activity	Next Steps	Person	Inst	Funds
Belize	Solar Math Project	No further work anticipated			
Grenada	CAI	Evaluating computer assisted instruction in a rural primary school: no further work expected			

### 4. Training Activities

Location	Activity	Next Steps	Person	Inst	Funds
Honduras	Computers in primary schools	Proposal requested by Mission	Hilberg	ELF	Buy-in
Ohio? Overseas?	IRI	Develop course, market it, hold it; special course for S. Africa? Indonesia?	de Fossard	EDC	Core
Nigeria	IRI for Health	Workshop with UNICEF? Postponed four times last year... Follow up	Hursh-Cesar	ICI	Core
Worldwide	Computers Roadshow	Need to develop a computer roadshow for countries considering use	Hilberg	ELF	Core

### 5. Publications

Location	Activity	Next Steps	Person	Inst	Funds
Belize and Indonesia	MGT models	Case studies of practices	Nielsen	IIR	Core
Costa Rica	Environmental education	Evaluation of programs	McKenna	EDC	Core
Malaysia, Thailand	ITV	Case studies in interactive instructional television	Anzalone	IIR	Core
Worldwide	Theoretical	Study of interactivity in instructional media	Moulton	EDC	Core
Worldwide	Training manual	Training materials for interactive instruction	de Fossard	EDC	Core

### 6. Regional Centers

Location	Institution	Next Steps	Person	Inst	Funds
Belize	The Belize Education Laboratory (BEL)	Invest modestly in maintaining BEL for studies in multigrade education and solar powered technologies	Pelayo	IIR	Core
Philippines	INNOTECH	Focus on regional strength, develop training programs that include IMPACT experience, research program in video for teacher training	Anzalone	IIR	Core
Zimbabwe	IMAGE	Regional Center in Harare for alternative technologies development, working with UNESCO?	Anzalone	IIR	Core

## 1992-93: NEXT STEPS (CONTINUED)

### 6. Regional Centers (Continued)

Location	Institution	Next Steps	Person	Inst	Funds
South Africa	OLSET	Regional Center for IRI?	Laflin	EDC	Core
Latin America		Need to identify a Spanish-speaking institution for training programs	V. Rojas	EDC	Core