

**dot-EDU**  
**Using Information and Communication  
Technologies to Improve Learning Systems**

**GDG-A-00-01-00011-00**

**FINAL REPORT**

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## **BACKGROUND: “THE DOT-COM VISION”**

Digital Opportunity through Technology: Educating the Disadvantaged and Underserved or dot-EDU mechanism was established through the "Digital Opportunity through Technology and Communication" (DOT-COM) initiative, an alliance of three Leader with Associates Type Cooperative Agreements to promote information and communication technology (ICT) for development. The DOT-COM program provided USAID access to fifteen grantee institutions and over 75 resource partners who worked on ICT-for-development issues. DOT-COM provided USAID missions with a mechanism to participate in a global effort to bridge the digital divide.

DOT-COM built on the principles of USAID’s Leland Initiative in Africa, the U.S. Internet for Economic Development Initiative (IED), and the Digital Opportunity Task Force (DOT Force) of the G8 to foster an appropriate policy and regulatory environment, extend information and communication technology access to the under-served, and promote ICT applications across sectors, particularly for the participation of women. The Global Bureau Center for Human Capacity Development (G/HCD) and the Office of Women in Development (G/WID) funded the core DOT-COM awards. Management of dot-EDU in the final years was provided by the Office of Education in the Bureau for Economic Growth and Trade (EGAT/ED).

DOT-COM activities crossed all sectors, including education, economic growth, women in development, agriculture, trade, health, environment, and telecommunications/e-commerce policy. The three DOT-COM cooperative agreements provided expertise and services in policy, access, and learning systems.

dot-GOV – The DOT-COM program for telecommunications and e-commerce policy and regulatory reform. Examples included assessments and workshops on the telecommunications and e-commerce policy environment; assessments of gender equity within the information and ICT sector; assistance to governments preparing telecom legislation or in strengthening the regulatory authority; and assistance in developing policies and regulation to promote ICT access for the under-served.

dot-ORG – The DOT-COM program for extending ICT access to the under-served. Examples included assessments and pilot activities for Missions on how to incorporate ICT in their programs in education, democracy & governance, environment, health, and economic growth; systems of community ICT access; assistance in using ICT for crisis intervention, distance training, environmental surveillance, and telemedicine; and solutions for off-grid and wireless access.

dot-EDU – The DOT-COM program for ICT in learning systems. Examples included Internet/ICT and multi-media CD-ROM technology use to increase the reach and quality of programs in basic education, teacher training, workforce development, and higher education; and applications of Internet/ICT for learning systems in countries suffering the effects of civil unrest, natural disasters, or HIV/AIDS. dot-EDU received a one year no-cost extension to continue through September 2007.

## **DOT-EDU: PURPOSE AND OBJECTIVES**

The goal of dot-EDU was to assist developing countries in strengthening learning systems to improve quality, expand access, and/or enhance equity through carefully planned applications of digital and broadcasting technologies. The LWA mechanism was meant to open a new avenue for Missions and Bureaus to participate in the process. With the LWA agreement, Missions and Bureaus were able to develop their own stand alone agreements or grants known as Associate agreements, without repeating the competition process, so long as the Associate agreements were within the scope of the LWA agreement. Through these activities, dot-EDU anticipated the following results:

- Improved quality, demonstrated through increased learning outcomes across gender;
- Improved teacher development, demonstrated through numbers of teachers trained and evaluations of classroom performance;
- Improved efficiency of learning systems, demonstrated by better planning and implementation;
- Increased participation by communities, women and girls, the disabled and others traditionally isolated from educational resources and learning; and
- Improved evaluation and monitoring systems, demonstrated by data and knowledge learned.

Under the dot-EDU cooperative agreement, EDC and its partners established learning systems pilots and applications, intended to apply a range of innovative implementations:

- Using Internet/ICT to increase the reach and quality of programs in basic education, teacher training, workforce development, and higher education;
- Developing centers of excellence for the production of interactive, multi-media instructional materials in national and indigenous languages;
- Applications of Internet/ICT for learning systems in countries suffering the effects of civil unrest, natural disasters, and HIV/AIDS;
- Developing distance learning programs using multi-media and other digital technology; and
- Establishing and enhancing networks of school-to-school programs to stimulate teacher and student use of digital and Internet technology for learning.

In order to achieve these results, EDC brought together a consortium, or alliance, of some of the best technical resources available in U.S.-based educational technology and in the application of technology for learning. EDC, the prime awardee, has been a leader in the US and internationally in pioneering the application of older and newer technologies, focusing on their role within broader learning systems. EDC was complemented by a partnership that includes the Academy for Educational Development (AED), the Concord Consortium, and three universities active internationally in applying technologies to education: Howard University, Michigan State University and Prince George's County

Community College. These partners brought a large network of other university connections with them. Also at the core of the dot-EDU team were four private sector organizations: IBM, Intel, Sun Microsystems and ThinkQuest. In addition, over 30 resource institutions complemented the expertise of the core partners with their project experience in specific areas of technology applied to education and training. The list of resource partners included: M.I.T.'s Media Lab; I.L.I.; World Education; WorldLinks; Classroom Connects; the Council For Basic Education; I\*EARN; EarthWalk Communications; the World Computer Exchange; Real World Productions; Media Bridge; World As a Classroom; the University of Pittsburgh; WorldSpace Foundation; INCRE; Omar Dengo Foundation; CPAL; SchoolNet/Namibia; INNOTECH; NIIT; IREX; and PREL.

The following section provides a summary description of the partners that worked together under the umbrella of dot-EDU.

## **THE DOT-EDU CONSORTIUM**

### **Education Development Center (EDC).**

The Education Development Center, Inc. (EDC) is one of America's leading research and development organizations in the use of information and communications technologies to achieve development objectives. EDC has worked domestically and internationally on improving education systems, much of the time incorporating technology into its strategies. EDC has used technology to promote greater opportunities for women and girls to learn, has developed strategies that make it easier in classroom settings for marginalized groups to participate in learning, and evaluated technologies based on the learning outcomes and changed attitudes produced through extensive teacher training activities.

### **Academy for Educational Development (AED)**

The Academy for Educational Development (AED) is a private, nonprofit service organization with 40 years of experience in development assistance. AED applies IT to projects throughout the world demonstrating the possibilities, as well as the limitations, of these learning systems, sometimes in very challenging environments.

### **Concord Consortium**

The Consortium's expertise is in online teacher professional development and the online preparation of teachers and facilitators who offer online courses. The Consortium can help a university or ministry of education anywhere create their own online teacher professional development program, or can facilitate situations where expertise in a capital city is made available throughout a country.

### **Howard University**

Howard University has worked closely with countries throughout Africa and the Caribbean and has contributed to dozens of USAID or Africa-related projects.

### **Michigan State University**

MSU is engaged in many projects to enhance connectivity, facilitate networking, and share information through the Internet-based systems with a special interest in countries of sub-Saharan Africa.

### **Prince George's Community College**

Prince George's Community College has created and implemented innovative distance education programs for underprivileged institutions in Africa and Europe and has designed successful distance education programs for faculty.

### **Private Sector Partners**

#### **IBM**

IBM has worked with school partners throughout the world to develop and implement innovative technology solutions that can spur and support fundamental school restructuring.

#### **Intel**

The Intel® Teach to the Future program is a worldwide initiative to help teachers effectively integrate the use of computer technology into classroom curriculum to improve student learning and achievement; the program has been successfully implemented in many countries.

#### **Sun Microsystems**

Sun Microsystems is a leading provider of open network computing solutions to schools and colleges around the world, powering academic research and high performance computing systems, campus administration, digital libraries and student instruction systems.

#### **Advanced Network & Services (ThinkQuest)**

Advanced Network & Services has designed, launched and deployed one of the world's leading online learning programs for elementary and high school students and teachers through the ThinkQuest web site and the ThinkQuest Internet Challenge.

### **Resource Institutions**

#### **Centro Peruano de Audicion, Lenguaje y Aprendizaje (CPAL)**

CPAL is a private, non-profit institution devoted to the education, treatment and rehabilitation of children, adolescents and adults who suffer from difficulties in audition, language and learning. CPAL is a Center of Competence for the IBM Latin America Early Learning Program and trains teachers from Peru, Argentina, Paraguay, Uruguay, Venezuela, and Mexico.

#### **Council for Basic Education**

The Council for Basic Education (CBE) develops and establishes programs that support teachers, administrators and policymakers to reform and improve the quality of education offered in their countries, states, and districts.

### **EarthWalk Communications**

EarthWalk is a premier provider of technology software and services integrating mobile wireless computing to Web-enable the classroom. EarthWalk's distance learning and communications platform can be used as a bridge to enable teachers and schools to communicate via chat, email, and telephone.

### **I\*Earn**

I\*Earn focuses on developing action-oriented global partnerships between educators and students that lead to enhanced learning, improved exchange and training programs, tangible products, and meaningful community service activities.

### **International Literacy Institute**

ILI provides scientific leadership in training and development in basic education and literacy for children, youth and adults, with a special emphasis on developing countries.

### **INCRE**

INCRE has experience and expertise in several areas of Learning Systems Activities, including 1) teacher training; 2) curriculum development; and 3) installation of IT networks and management information systems. INCRE has conducted thousands of hours of training in the educational uses of computers, the integration of computers in different subject areas (K-university), and educational uses of the Internet.

### **INNOTECH**

The Southeast Asian Ministers of Education Organization's Regional Center for Educational Innovation and Technology (INNOTECH), located in the Philippines, is dedicated to using technology to improve basic education, teacher education and training, and empowering learning communities.

### **Instituto Tecnico y de Estudios Superiores de Monterrey**

The Monterrey Institute of Technology is the largest private university in Latin America. The Virtual University, one of ITESM's innovative higher education programs, helps students worldwide to generate knowledge and develop skills.

### **IREX**

The International Research & Exchanges Board (IREX) builds human networks by facilitating communication between researchers and professionals in the US and the countries of Central and Eastern Europe, the Baltics, the NIS, Asia, and the Near East.

### **Media Bridge**

Media Bridge is a small, minority-owned production company in Washington D.C. It has worked on many Discovery Channel television programs.

### **MIT Media Lab**

The MIT Media Lab has a long tradition of developing technologies for learning and community development. Media Lab researchers have developed educational

technologies used by millions of people (especially children) around the world, and have implemented pilot projects in diverse geographical, economic, and cultural settings.

### **NIIT**

NIIT is a global leader in technology-based training solutions, with extensive experience in providing courseware management software, support services, systems integration, and online multimedia courseware development services.

### **Omar Dengo Foundation**

The Omar Dengo Foundation has experience in education, technology and development projects. Its areas of expertise include educational technology, teacher training and development, and on-line learning and digital production.

### **Pacific Resources for Education and Learning**

For the past 10 years, PREL has worked with distance learning and training, interactive website development, distance learning needs assessment, and governance issues pertaining to technology and basic education.

### **Real World Productions**

Real World Productions expertise includes project planning, curriculum development, staff training, and media production in audio, video, print, multimedia, and IT.

### **SchoolNet/Namibia**

SchoolNet/Namibia is a non-profit organization dedicated to extending information, education and communication technology to all Namibian schools and educational institutions, using the Internet.

### **University of Pittsburgh**

The International Institute for Studies in Education at the University of Pittsburgh creates learning communities and cooperates with governmental and non-governmental entities around the world to encourage equitable educational access across regions, language, and gender.

### **World Computer Exchange**

World Computer Exchange works to keep used computers out of landfills by giving them new lives and helping overseas schools bridge the global digital divide for youth.

### **World As A Classroom**

WAAC works at the grassroots level to accelerate instructional and learning processes and improve educational quality in developing nations by enhancing the performance of their teachers

### **World Education**

World Education (WE) runs international literacy programs for out-of-school youth and adults. World Education's expertise includes using information technology to improve instruction and to develop learning materials for adult education.

## **World Links**

World Links Program is an independent organization initiated by the World Bank. Its principal objective is to provide developing country schools with sustainable solutions for mobilizing technologies, skills, and educational resources to prepare students and teachers to enter the Information Age.

## **World Space Foundation**

Since 1999, the WorldSpace Foundation has developed an innovative and successful set of digital technology audio and multimedia services for developing countries.

## **AN OVERVIEW OF THE MECHANISM**

dot-EDU was funded by the United States Agency for International Development (USAID), and implemented by Education Development Center, Inc (EDC) and an alliance of partners to help USAID Missions around the world use Information Communication Technologies (ICT) to improve quality and access in the developing world. There have been 25 dot-EDU Associate Awards in Africa, Latin America, the Middle East and Eastern Europe that use ICT to improve learning through better access and higher quality education. These applications included such interventions as Interactive Radio Instruction (IRI), online learning portals and personal computer laboratories in schools, just to name a few. Additionally, dot-EDU core funds supported twelve pilot projects initiated to test new possibilities in linking learning and technologies around the world.

dot-EDU's mission was to assist developing countries in strengthening learning systems to improve quality, expand access, and enhance equity through carefully planned applications of ICT. Mission buy-ins exceeded goals stated in the original Request for Proposals. Original targets were to generate \$20-\$30Million of Mission supported activities. Since its inception in 2001, USAID Missions have allocated funds totaling \$109,291,638 to implement ICT-in-education interventions. Additional initial core funds of \$4,360,566 were provided and cost share in the amount of \$3,262,999 was contributed to help with initiating and designing of activities in the field bringing the total dot-EDU fund commitment to \$116,915,203. A total of 25 dot-EDU Associates and another eighteen pilot activities took place in thirty countries around the world. These activities worked with local government and non-governmental stakeholders and USAID Mission staff to plan and implement a range of activities.

The original Request for Applications for dot-EDU was generated by USAID's Office of Human Capacity and Development, as part of their efforts to increase digital opportunities for developing nations. After several transitions of Cognizant Technical Officers, management of the mechanism finally ended up in USAID's Office of Education housed in the Bureau for Economic Growth and Trade, or the EGAT/ED office. Dot-EDU received a one year no cost extension which gave it a six year period of performance. The core funding amount provided by USAID, originally budgeted at \$4,999, 634 was later reduced to \$4,360,566. The purpose of the core funds was to



support USAID Missions in developing their plans as well as to market and support the mechanism itself, so that Missions around the globe knew about it and were able to take advantage of it. Dot-EDU worked with counterparts dot-GOV and dot-ORG under the dot-COM alliance to provide regular updates to USAID and to the central dot-COM web site. Moreover, \$728,819 of the core funding was used directly to pay for pilot activities which also generated \$1,233,480 in cost share while the Associates were able to leverage some \$3,262,999 in cost share. See Appendix A for a complete list of Associates and pilots.

Dot-EDU was designed to improve education systems around the world. It was meant to work, locally, nationally and internationally at finding solutions and appropriate partners. The experiences of dot-EDU have revealed several stories about improving education systems around the world through integrating ICT. This report, in addition to providing a project by project overview, seeks to provide a deeper analysis around what was learned and observed over the six years of this mechanism's lifecycle based on experiences in many of the projects undertaken. Six particular themes are revealed in studying the accomplishments and challenges faced by dot-EDU projects. Those themes are synthesized in the following topics:

1. Creating Dialogue across Borders: Technology-Facilitated Dialogue and Action
2. Students at the Center: Using ICT to Focus the Classroom Experience
3. Navigating Difficult Terrain: Deployment of ICT in difficult environments
4. Teaching Together: Communities of Practice
5. Sometimes Less is More: The One-Computer Classroom Experience in India
6. ICT 101: Technology as a Means and an End

### **CREATING DIALOGUE ACROSS BORDERS (COLOMBIA, LEBANON, SUDAN)**

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One of the most popular applications of technology in recent years is to make communication easier, whether through email, instant messaging or voice over Internet protocol (VOIP). Likewise, the typical mode of learning is for classes of students to work in isolation. Several dot-EDU projects sought to marry these two phenomena to bring students together to create new opportunities in education.

Cartagena, Colombia is a tourist destination for many. But away from the historic city center and hotels, many children live in bare-bones conditions. Homes have rudimentary electricity and few amenities. For these reasons and more, it is a challenging place to bring ICT. Yet tools for virtual communication in the region have blossomed in recent years including: videoconferencing, blogs, podcasting, internet radio and internet telephone. All have increased the ability of people with shared interests to connect and have meaningful dialogue. dot-EDU brought another virtual communication tool to Cartagena with the Illuminate! pilot project. This activity applied the *Illuminate Live!* software, a program that allowed different classes from around the region to communicate through VOIP and to share images to further the discussion about what they were learning.

Next to the stark reality of the city lies another world that is largely unexplored and unappreciated by most residents: a system of mangrove forests, hosting a wealth of tropical plants, animals, and sea organisms. For the participants in the project, the mangrove forests were a gateway to discovering not only ecology, but also ICT as a means to connect with others. Students took field trips or “charlas del mar” (“sea chats”) out to nearby mangrove reefs. When they returned to the classroom, they used software called *Elluminate Live!* to share their pictures and observations with other students who had conducted similar field trips. Students found some forests healthy and vibrant, while others were polluted and dying. They explored ways to protect them.

Unreliable Internet connections made using the software difficult at times. And because *Elluminate Live!* was only available in English, students sometimes substituted the Spanish version of Skype, an internet telephony network. Using Skype changed the nature of the interactions: they resembled conference calls rather than the virtual classrooms created by *Elluminate Live!*

But for Antonio Palacio, an *Illuminate!* facilitator, technology problems were minor compared to what the students learned: *“The kids are more confident talking about what they know. They had two Elluminate Live! sessions with kids in the US, and you could see how confident they were. The students now respect mangroves and understand they are a part of a bigger system; they understand the impact students have on the system.”*

Another learning community formed in Lebanon with the Youth Communicating and Networking – Mediterranean project, or YouthCAN-Med. Students took part in activities like environmental hikes and school exchange visits, enabling them to interact directly with their peers and their environment. They then used ICTs such as PowerPoint presentations, videoconferencing and online forums to capture what they learned and share it with young people in other parts of the world.

The highlight was a one-day videoconference among students from Lebanon, Egypt, Morocco, India and New York. In the months leading up to the conference, students held an environmental rally, shared their power point presentations and exchanged ideas with youth from other communities.

Grade 10 students of the Universal School of Lebanon said, *“We were pleased to have a large audience in order to get the opportunity to share our hard work and our message about pesticides and their dangers...The conference that was held online with New York gave all participants the opportunity to talk about their project.”*

ICT can also foster virtual communities where people come together for purposeful online forums. Typically, these online communities can be as small as a handful of people with a common interest or as large as hundreds of thousands of people working together online to a common end, constructing something like Wikipedia or socializing through communities such as My Space or Facebook. These communities of course are much larger than classrooms.

Another kind of community is a gathering of people through a common strand of information. In Sudan, decades of ethnic conflict and civil war hurt the growth of independent media. Following peace talks in 2002, the Sudan Radio Service (SRS) was born. With its mission to equip listeners with the knowledge and tools to participate more fully in peace making, reconciliation and development processes of Sudan, SRS provides non-partisan, independent news, information and entertainment to Sudanese inside and outside the country. SRS broadcasts include detailed news and informational content in the areas of current events, civic education, health, agriculture and animal husbandry, business and economic issues and the only all-Sudanese music program in the country. Content is produced by an all-Sudanese staff and is presented in English, Arabic and eight local languages. Broadcast via short-wave radio and an internet streaming service, SRS reaches a community of listeners around the world, six days a week.

In a country where communications infrastructure is extremely poor and inconsistent, people often feel they do not have a voice. And even though radio is a one-way means of communication, SRS has sparked dialogue and feedback from its audience through call in and email. By having their commentary and questions incorporated into the broadcasts, listeners in even the most remote locations know they have a sounding board to express their views. This freedom of expression is at the core of Sudan Radio Service's mission. SRS faces several ongoing challenges. It is operating in a region where infrastructure and independent media are both fractured. As a result, the service has to be broadcast from Nairobi which requires great coordination with journalists in the field, a need for an up-link and an inability to provide live broadcast and live interaction with audiences. Training and retaining good field journalists has proven to be a key to the programs success, but these journalists sometimes find themselves facing serious personal and physical safety threats, another stark reality of working in this region.

These three projects demonstrate that the demand for information and interaction drives the use of technology for virtual communities. For the students in Lebanon and Colombia, interactions are most fruitful when they can discuss familiar topics and share experiences with their peers. For the Sudanese, radio allows them to take part in the evolution of their country's democratic process. The projects also show how motivated participants find ways to work around a technology's shortcomings in order to reach out, be heard and connect with one another.

#### **STUDENTS AT THE CENTER OF LEARNING (UGANDA, PERU, MACEDONIA)**

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Changing teacher practice to be more focused on the student and less reliant on traditional lecture formats was a consistent need. Student-centered learning is meant to result in dynamic and productive learning experiences. However this is not the methodology used by many teachers where children are subjected to teacher-centered instruction that leads to poor results. dot-EDU projects sought to utilize technology to increase student-centered teaching which empowers teachers to build creative lessons that engage students mentally and physically and encourage interaction with other students, the teacher, and the community.

In Peru, government has made significant investments in computers, materials and telecommunications infrastructure for its schools, yet education quality remained low. Dot-EDU aimed to use Peru's ICT investment to support active, student-centered learning in the classroom.

One primary school teacher, Lucina, was a part of this process and represents other teachers involved in the program. Like many of the teachers, Lucina had relied on traditional teacher-centered methodologies, leaving students disengaged from the learning process. Her students were observed fidgeting and distracted. The model developed for CAPTIC combined face-to-face training modules with online learning. Teachers learned how to ask questions that encourage student reflection, and communicated with their peers in person and online about their experiences in the classroom.

Using their new tools, teachers developed lesson plans. Lucina researched the use of local water resources in her area. She then organized field trips for her students so that they could investigate the role of water in their community. They visited lagoons and interviewed community members about the history, evolution and importance of water. Lucina began to put students into smaller groups, and asked more questions to engage them. In one instance, she used a map and photographs, and cut out letters to help students demonstrate their knowledge of the topic.

At the end of the program, observations of her classroom showed that Lucina's teaching greatly improved. She graduated from merely asking questions to ensuring that all students had a chance to participate, and used the students' ideas and responses to encourage reflective reasoning about different topics.

Another teacher-education initiative took place in Uganda, where the Connect-ED projects focused on bringing ICT to teachers and then applying it to student-centered learning. Teachers enrolled in Harvard's WIDE (Wide-scale Interactive Development for Educators) World online course, "Teaching to Standards with New Technologies." The program put the teachers in touch with an online instructor, coaches and other course participants from around the world to help them plan lessons around student centered learning principles. The community-oriented design of the online course emphasized the reflective, collaborative learning teachers were to use in the classroom. Before the WIDE course, Robinah Nazziwa, a music teacher, "planned without learner involvement."

As a result of the WIDE course, Robinah learned to integrate several learning topics into a single unit, and her students produced their own instructional materials. For example, Robinah designed a lesson for learning about pitch in which her students made their own musical instruments. Using pawpaw stems, they made everything from pan pipes to flutes. They assessed sound quality and suggested improvements to each other. As a result, the students became more practical and involved in their learning. For Robinah, her challenges were getting her students to express their own ideas; and at first, accepting self and peer assessment was difficult. Her students eventually became more accepting of giving and receiving feedback to each other, and she was able to focus

on encouraging other teachers at her school to use similar teaching methods. Another benefit of her participation in the WIDE program was it enabled her to collaborate with teachers in English-speaking countries around the world, sharing challenges, successes and questions.

As a result, the teachers brought new skills to the classroom. However, the actual use of *technology* to support student-centered teaching remained fairly limited. At the root of this challenge remains a lack of technological resources available for use and a capacity to maintain those that were in use. When teachers returned to classrooms with limited or no computers many were not able to actually deploy and continue to use the tools they had been trained to use.

These examples demonstrate how ICT can help teachers obtain new skills to take to the classroom and challenges faced along the way. But technology can also be taken directly to the students. The dot-EDU program in Macedonia, known as e-Schools, installed computer labs in every primary and secondary school in the country, numbering 460 in all. The ToolKID component of this program provided content for the new computer-based learning initiative that empowered students to direct their own learning. ToolKID was built on a system of decision making and exploration, giving students dozens of options to help them build their skills. Students were able to learn sequencing and mathematics through a music composing program or explore physics through a game focused on construction and spatial patterns.

Overall, educators found the ToolKID easy to use and adjustable to specific student requirements. The software promotes active participation and information exchanges, allowing students to have interactive classes while achieving good results. The dialogue and critical thinking it encouraged in the classroom was a new phenomenon for many teachers.

To extend this success, teachers must be trained and retrained to learn approaches that further take advantage of the interactivity and communication that educational software introduces to the classroom. Even with these successes, however, administrators reported that without ongoing professional development and encouragement, some teachers were prone to falling away from using the ToolKID program consistently.

dot-EDU's experiences show that that support and infrastructure are critical to enabling teachers and students to progress. ICT may be somewhat intimidating for teachers and technology resources may be limited. But if conclusions can be drawn here it can be surmised that when provided with the right tools and training, teachers are able to understand this new student-centered methodology. These efforts are bolstered when they have a network of colleagues to turn for support and reflection. In the end, well-designed ICT-based programs can enable participants to provide better learning opportunities for their students.

## **NAVIGATING DIFFICULT TERRAIN (SUDAN, HAITI, SOMALILAND, ZAMBIA)**

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dot-EDU was invited to work in several countries with significant safety and infrastructure challenges. One education tool that proved to be especially effective in these areas was radio. Nearly half of dot-EDU projects used radio, a low-cost technology. Radio was used in areas including Sudan, Haiti, Somaliland and Zambia—countries affected by conflict and disease, where basic infrastructure, education access and teacher training were seriously compromised.

The last mile delivery of interactive radio instruction, or IRI, only requires a radio and an adult facilitator. It reaches large numbers of teachers and learners isolated by distance and poor infrastructure, as well as marginalized groups, Out Of School Youth, and orphans. It can be used in almost any setting, from formal classrooms to community learning centers to outdoor venues.

Years of research proves that IRI instructional programs can still be powerful and effective, when produced and deployed appropriately. They employ stories, songs, physical activities, and role-plays that encourage and model interaction between teachers and students. The exercises lead the children to use multiple skills beyond memorizing and repeating, and lessons correspond to the learning objectives and content of the country's national curriculum.

IRI has been used in Haiti since 1995 to provide quality basic education to children of all socio-economic backgrounds. It is the only instructional option that has proven to respond effectively and rapidly to disruptions from political upheaval and natural disasters. In Somaliland, the education system was fractured by civil war. And in a region with political complexity and low resources, the Somali Interactive Radio Instruction Project, known as SIRIP, is the only educational initiative currently reaching Somalis in all parts of the Horn of Africa. It proved to be an effective aid to the large number of under trained and untrained teachers.

IRI Programming takes into consideration cultural, linguistic and political differences among many groups who just recently were at war with each other. To be effective broadly, the project must serve all these groups without alienating any of them. SIRIP attracts many listeners because its format fits in well with Somali traditions of oral communication and storytelling.

In Southern Sudan, after more than 20 years of civil war, a generation of people lacks formal education. Training and monitoring of teachers is seriously weakened by the lack of infrastructure—some rural schools are a 50-mile walk through the bush to the nearest urban center. As an added challenge, a new government policy makes English the official language of instruction for all grade levels. However, most Southern Sudanese teachers are untrained, and English language proficiency is low in most of the country.

The Southern Sudan Interactive Radio Instruction (SSIRI) program targets both students and teachers. The Learning Village is an interactive radio instruction program that

teaches basic literacy and numeracy in students' local languages. Two adult literacy programs, TERBIA A and TERBIA B, use radio to deliver English language instruction to teachers and Ministry of Education staff who must "catch up" to the new English language policy.

Zambia is another country that has made use of radio as a tool for reaching many teachers and learners. Two-thirds of the population lives on less than a dollar a day. Zambia's problems have been compounded since the mid 1980s by one of the world's most devastating AIDS epidemics. The epidemic has taken a heavy toll on the education sector, creating many orphans and school dropouts in the last decade. Many more vulnerable children cannot afford to attend school because of poverty, prolonged stay at home to care for sick parents, engagement in income-generating activities, and so forth. The Quality Education Services Through Technology, or QUESTT Project aims to improve the quality of basic education delivery systems and to mitigate the impact of HIV/AIDS on children's educational experiences.

The QUESTT project provides quality education to the most vulnerable children in Zambia, particularly orphans, through IRI programs that incorporate life skills education. A community-based system of radio learning centers was established in areas with high populations of out-of-school youth.

These radio-based projects faced many challenges. Radios were not always available in all the target areas, and sometimes distributing reliable radios was not always possible. Government officials sometimes questioned intentions and set up new barriers. Broadcast signals needed to be strong and could not always be received in some of the neediest areas. Projects, particularly those working in countries with high rates of HIV/AIDS like Zambia faced problems with retaining trained teachers and instructors, who may have become ill and were subsequently replaced by new untrained teachers. Nevertheless, the radio has proven to be a valuable learning tool, even in this day and age of digital education.

### **TEACHING TOGETHER: COMMUNITIES OF PRACTICE (GUATEMALA, MACEDONIA)**

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While most teachers work in isolation from one another, networks in which they can exchange ideas, resources and teaching techniques with each other are valuable. In many developing countries, interactions between teachers in different schools are a rarity due to costs of face-to-face teacher training workshops. dot-EDU initiatives experimented with technology solutions to this problem in different ways and with different resource constraints and opportunities and ultimately with varied results.

In Guatemala, the Enlace Quiche project was a bilingual initiative that sought to strengthen traditions and culture in indigenous Mayan communities. The first phase of the project focused on creating, compiling and digitizing resources. The second phase, under dot-EDU, emphasized ways to share these materials, and to create a virtual space for teachers to interact about Mayan culture and bilingual education. Teachers received

training in how to use the Internet, how to manage Internet use in the classroom, and how to enable students to use the education materials teachers had shared.

The project faced technical challenges that inhibited active and regular participation in an online network. The project had to allocate much of its resources to resolving problems in the centers.

Despite these challenges, teachers posted 251 resources, 146 links to other useful websites and activated a discussion space for sharing ideas. The learning portal received an average of 142,000 hits, 20,000 page views, and 143 new visitors per month. Teachers continued to stay connected through the Internet.

Macedonia received a gift of 5,300 computers from the People's Republic of China. Leveraging that donation, the Macedonian government and USAID conceived a project that would provide students and teachers opportunities to use computers to extend the national curriculum. The program aimed at supporting the country's efforts for pursuing future entry into the European Union and a generation of students better equipped to work in the information age.

More than 10,000 teachers were trained in the Innovative Use of Technology curriculum developed for the project. They were invited to submit lesson plans and supplementary materials to a web portal for sharing online. The hope was that this community would be dynamic so that it could expand and sustain the impact of e-Schools beyond the life of the project itself. In the end, it had mixed reviews from participants and observers. A core group of passionate teachers emerged as regular contributors and consumers of the content in the online discussions – 40% of comments came from 23% of participants. Many teachers reported they simply did not have the time to regularly check and/or contribute to the online Communities of Practice.

To maintain interest and involvement from a large group of participants, a focus on topics important to the common interests of the community was very important. Who participated was also important to the online forum's success. Well-respected teachers influenced the involvement level of others.

Teachers tended to share knowledge about using hardware or programs rather than ask and answer questions around improved teacher practice. But they were also eager to reflect on their role as teachers:

*"... when we dealt with the ENERGY unit in Physics and I tried to teach my students the concepts of work and energy... I instructed them to visit a student-created web site in which the results of the research on the energy of the wind (kinetic energy) and its transformation into electric energy was presented....I think: Knowledge is not to know, but to spread what you know. Learning is a two-way street. When I see that a class I have taught holds students' attention, or not, I actually learn from my students and try to positively implement this experience".*



Teachers also shared reflections on how they perceived their students' level of interest in working with technology, often citing evidence that it increased engagement in the classroom.

The Macedonian and Guatemalan experiences show that online professional development that includes communication between educators must be structured and motivate teacher involvement. Teachers need to know that the trainer or coordinator will be available to send them resources, answer their questions, and provide support. At the same time, the interactions require some stimulation and enthusiasm or interest on the part of the participants. The content of discussions also needs to be relevant to their daily lives, and must provide some kind of added value.

### **SOMETIMES LESS IS MORE: THE ONE-COMPUTER CLASSROOM**

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During the strategic planning phase of the Technology Tools for Teaching and Learning (T4) project in India, investigators found schools had some computers, but power supplies were unstable, the computers themselves were underutilized due to lack of training, and often there were not enough of them for every teacher and student to have regular access. Indian schools also tended to have high student to teacher ratios, varying teaching quality, and limited access to instructional materials and funding.

For the T4 project, the computer lab model was unappealing. The focus was to increase learning in the classroom, to make it more active, and to address hard spots in the curriculum. T4 staff members decided to develop an interactive CD that facilitated group learning about environmental science for 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> graders that would also help them gain basic IT skills. The result was Group Teaching and Learning – or GTL – software, which combines text, video, games, and Interactive Radio Instruction in an animated, interactive interface. The project leveraged the fact that more than 13 million students were listening to the IRI programs and incorporated popular IRI characters and songs into the design of the CD.

GTL software engages a group of 20 to 25 students around a single computer. It combines colorful graphics and animation, narration, songs, sounds, text, quizzes and even follow-up off-computer activities in an interactive game format. It instructs teachers how to facilitate the students as they play the games in their teams, emphasizing the role of the teacher as facilitator in a student centered learning model. Its content is customized to the India context and has three language options: English, Hindi and Kannada.

The development of the first CD, “Animal Discovery”, met several challenges. The GTL concept was new and the learning curve for the design team was quite steep. Almost all of the content was created from scratch. And initial testing in schools revealed a problem with one of the key activities, Classify an Animal: students and teachers could not understand how to navigate through the activity.

Further testing revealed that teachers and students were often confused about how to work in teams. There was also the question of how to engage a 100-student classroom, which is common in India. What should be done with those students not using the software? A major redesign of “Animal Discovery” extended costs and development time. However, the resulting upgrade provided clearer instructions in how to guide teams through learning activities, maximize peer-to-peer learning and promote positive teamwork among the students as they play and learn. This design approach was used for the production of subsequent titles.

To date, two GTL CDs have been completed for Grades 4, 5 and 6 in Environmental Science: “Animal Discovery” and “Ecosystems and Habitats”. Two more are in production: “What is Disease?” and “Let’s Be Healthy: Hygiene and Sanitation”. The designs for other GTL CDs in mathematics are also underway.

Infrastructure and logistics are still a challenge; at the outset, there were inaccurate estimates of the number of functioning computers that were actually found in classrooms. In many places electricity is still inconsistent, and there is not adequate maintenance or support to schools to enable computer use.

Yet this creative way of using one computer in a classroom produced good results. Evaluations showed that after one month of using the software, GTL students gained 30.2 percentage points from pretest to posttest, compared to a gain of only 4.72 points for students in non-GTL classrooms. Girls, an underserved group, learned as much as boys.

Children were observed as excited about the content and about the possibility to use the computer, even if just for a little while. Teachers used active learning methodologies and creative teaching techniques with the software program. With approximately 10 hours of content on each CD, students were able to return to the activities again and again. The GTL software maintained their interest and reinforced learning.

### **ICT 101: TECHNOLOGY AS A MEANS AND AN END (ZAMBIA, MALI)**

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Capacity-building through ICT has taken many forms over the course of dot-EDU. Some projects began with an assumption that users must be trained in basic computer literacy before applying their new skills to classroom instruction, research or communication. In other projects, the very means by which the technology was introduced used principles of active learning and student-centered pedagogy, and content used was meaningful and related to the interests of the end user.

In Mali, the project “University Linkages” sought to leverage the University of Bamako’s new connection to the internet to expand learning opportunities for teachers and school administrators in training. At the time in 2002, it was one of the first university-wide networks in West Africa. dot-EDU trained teachers and administrators on basic computer applications, navigating the internet and developing websites. Advanced training included programs such as Acrobat, Access, Mathematica and SPSS, as well as a virtual

chemistry laboratory and virtual frog dissection. University system administrators were trained to maintain the school's network.

The project faced several difficulties, including unreliable network connections that kept teachers from accessing the internet on a regular basis. Resources had to be shifted to the repair of improperly installed signal antennae, and plans to provide training content extending beyond basic introductions to software applications were never realized. Nonetheless, the project did succeed in helping professors and administrators become more comfortable with the technology. Brian Adams, a trainer, noted:

*The most remarkable and satisfying part of the training was personally witnessing how far the professors came in such a small period of time. At the start of the first day, it became quickly evident that many had little or no experience with computers, yet after two days of instruction these same professors were sending and receiving email, surfing the net and preparing course materials from information found online. For those who were able to attend the training, the digital divide finally became something they could see across.*

In Zambia, a group of teachers experienced in Interactive Radio Instruction piloted the use of MP3 players in their classrooms. In the Quality Education Services Through Technology (QUESTT) project, dot-EDU provided teachers with new iPods and trained them both technically and pedagogically to use the iPods in class. One of the Zambia QUESTT project's key objectives was to make learning fun through student-centered activities via content broadcast over radio. Teachers participated in training sessions on the new equipment that incorporated these teaching qualities.

The adjustment to high tech was quite a leap; few teachers had seen the technology, and each player came packaged with unfamiliar accessories: a small set of speakers and foot-powered generator for recharging. They received support materials such as teacher guides and videos and teachers were shown how they can play segments of interactive radio instruction to fit their class schedule. A final unique strength to this version of IRI and unlike a radio-only broadcast option, teachers were encouraged to review the IRI segments prior to playing them for their classes, as part of preparation for that day's lesson.

From these and other dot-EDU experiences, –it is evident that a natural tension exists between increasing ICT literacy as the starting point for building the skills of the teaching force, and using technology as a vehicle for introducing good pedagogy. The QUESTT project indicates that blending good pedagogy and content relevant to the end user's interests motivates users to build their own skills with using technology which in turn allows them to use ICT more easily in teaching and learning settings.

## **PILOTS: TESTING NEW APPLICATIONS OF TECHNOLOGY IN EDUCATION**

Eighteen pilot activities were conducted through dot-EDU ranging in targeting policy makers to testing new technology platforms to applying proven platforms in new ways. Pilots under the dot-EDU mechanism were meant to be innovative activities that sought to ask new questions about the role of technology in learning in a developing world context. They were not, for example, simply to document ICT-and-development work that has been done in the past.

Pilots were required to contain cost share, or non-Federal funds contributed to the activity – preferably in the 4-to-1 or 5-to-1 range. For example, if EDC contributed \$25,000 from the dot-EDU budget, cost share should bring the total budget for the pilot to \$100,000 or \$125,000. These goals were not always met, however the 18 pilot activities conducted through dot-EDU accounted for \$1,233,480 in cost share – Associate awards brought in another \$3,262,999 in cost share.

Two pilot activities particularly exemplify the ways dot-EDU sought to answer new questions through testing of technologies in the field. One such activity sought to take a proven educational platform in hard to work environments, interactive radio instruction, and apply it in a new context. Two pilot activities exemplify that model.

The Kenya IRI Entrepreneurship Training for Youth and Adults pilot activity worked with a local business skills development NGO to design, develop, and implement a program that would provide the poorest of the poor in Kenya with the opportunity to learn basic entrepreneurship skills through a radio delivered curricula. The project was, in effect, a study seeking to demonstrate, through a short, low level pilot test, that Interactive Radio Instruction (IRI) can be an effective way of providing entrepreneurial learning for participant members of community based learning groups.

Building on successful experience using low-cost radio to provide training for children and youth in basic education and adults in teacher education and basic literacy, the activity sought to apply the same technology and IRI characteristics to complement the efforts of governments, public and private institutions, and NGOs to reach the masses of poor with sound, appealing training in entrepreneurship to equip some of the most economically disenfranchised people in Kenya with the capacity to help themselves and their families. The radio content for entrepreneurs contained many of the same elements or IRI for education radio programs - a wide variety of interactive activities including narrative, drama, song, poetry, paired with participant interactions and testimonials.

This study was able to answer the following questions:

1. Will an IRI approach to training appeal to undereducated, poor adults living and working in slums?  
Answer. According the evidence provided by this small study, IRI is very appealing to this population.

2. Will IRI activities that have proven effective with children be equally effective with adults?  
Answer. According to the evidence from focus groups, IRI activities work as well with adults as with children, as long as they are suitably adapted to the age group being targeted.
3. Can adults learn from the IRI programs?  
Answer. Based on the pre- and post-test results with a small group of adults, there is strong evidence that adults do learn well from IRI programs.
4. Are IRI distance education methods appropriate for the delivery of entrepreneurial and financial education training?  
Answer. IRI is designed to be broadcast by radio or through other audio devices, and facilitated by trainers at the local level with listening groups. Given that this pilot test simulated that approach and was successful in teaching basic entrepreneurial skills, there is some evidence to suggest that it can be an effective distance education tool for current or aspiring entrepreneurs.

The study also worked through problems faced during the implementation phase and discovered that significant modifications to the traditional IRI format needed to be made to be effective with this audience and with this content. Lengthening the pause time to allow for more discussion, reflection and translation was important. And while the pilot study offered English-based content and called upon instructors to translate, participants indicated they would prefer direct-language instruction.

Another pilot that sought to push the boundaries of education and technology was the Uganda Thin-Client activity. A USAID-funded, low-cost, low-energy computer lab for teacher training in rural Uganda was developed as a test-solution for places where electrical problems (surges, cuts, and brownouts) tend to damage ICT equipment and make Internet access unreliable. At Bulera Primary Teachers College, four hours northwest of Kampala, a hybrid system was built that used both 12-volt direct current (DC) as well as standard alternating current (AC) from the main electricity lines. The lab, which had ten workstations, was capable of running entirely off of the 12-volt batteries.

As a pilot activity, this project did not have significant levels of funding and lacked a component for providing much maintenance training. However, the activity was able to work with the local Peace Corps volunteers that were working with the teachers college to provide both maintenance to the equipment and some training to local staff.

A key part of this lab was the use of low-energy, low-cost “thin client” devices – rather than regular desk-top PCs, which require much more power. The “thin clients” were about eight inches tall and two inches wide. They had no moving parts, no fans, and cost around \$600 US, yet – when connected to a server – had all the ports and capabilities of modern PCs. With the help of an energy solutions company based in Kampala, the thin-client devices were connected to a 12-volt direct current supply instead of using the standard 220 to 240 AC power feed.

The activity also used a battery back-up system that allowed some equipment, such as the server (a low-cost desktop central processing unit in this case) a laser printer and a scanner to run on AC power. The battery back-up system used power from the main electricity lines and provides a stable 12-volt system, even when the main lines were not working. Low-energy LCD monitors (15 inch) were also part of the setup. This combination of appropriate equipment and “light” power supply reduces the “load”, or power consumption of this rural computer lab.

On average, approximately 100 students per day used the lab to prepare to become educators and education managers. The alternative power supply enabled them to have continuous access to information and training, and to learn valuable ICT skills.

The dot-EDU pilots were intended to test new ways of applying technology to improve learning. In the Kenya example, a proven technology, IRI, was deployed to test whether an alternative content – small business skills – can be effectively conveyed through radio broadcast. In Uganda, new and innovative configurations of technology allowed for enhanced teacher training of an established content curriculum.

## **CONCLUSIONS**

Over the six years of dot-EDU, activities were not always successful at accomplishing all of their goals, but they did provide for interesting and educational opportunities for the many people involved. The diverse and localized project plans devised by all of the Missions, and the hard work put forth by all of the partners in the field is a testament to the original conceptualization and opportunity that led to the creation of dot-EDU.

The range of activities that were included and the variety of technologies and pedagogical interventions that were incorporated is noteworthy, in and of itself. While the impetus for dot-EDU may have been the irrational exuberance that characterized the potential of education at the turn of the century, a more sober approach to ICT in education was adopted, one that was more outcome oriented, that usually, though not always, stuck to a rigorous process of beginning with an objective, identifying required inputs and activities, and resulting in intended (and often unanticipated) outputs and outcomes. The collective efforts of dot-EDU resulted in a transformation among many teachers and resulted in better learning opportunities for even more children. Without a doubt, serious challenges limited success in many cases and certainly original plans were adjusted and many expectations tempered throughout many projects.

It can be said that the entire dot-EDU mechanism was an experiment in innovation, more so than a vehicle for reform. By providing USAID with access to planning funds and resources for devising intervention strategies, dot-EDU carried out more than forty activities, each unique except for a common goal of improving learning through appropriate technology programs. While this may not in the end prove to be revolutionary, it did help move many education programs in the developing world forward into a new phase of learning with a better understanding of what works and what does not work.

**APPENDIX A: DOT-EDU LEADER WITH ASSOCIATE AGREEMENTS SUMMARY**

Countries		Dates	USAID Funding	Cost Share	Total
<b>Signed Awards</b>					
Leader		9/27/01 - 9/25/07	\$ 4,999,634		\$ 4,999,634
<b>Obligated Amount</b>			\$ 4,360,566		\$ 4,360,566
<b>Associate Awards</b>					
5047	DR Congo II (AFR) <i>ONGOING</i>	10/4/04-11/05/07 (extension)	\$ 6,433,671		\$ 6,433,671
7783	Haiti (LAC) <i>ONGOING</i>	9/1/02-1/31/08 (extension)	\$ 6,620,706		\$ 6,620,706
6336	India (ANE) <i>ONGOING</i>	9/30/02-9/29/07 (extension)	\$ 6,999,820		\$ 6,999,820
5401	India (ANE) Phase II <i>ONGOING</i>	9/25/06 - 9/24/2011	\$ 7,300,531		\$ 7,300,531
6493	Macedonia (EE) <i>ONGOING</i>	8/1/03-9/30/07 (extension)	\$ 7,799,804		\$ 7,799,804
5292	Madagascar/Comoros (AFR) <i>ONGOING</i>	1/6/06 - 3/31/08	\$ 2,711,000		\$ 2,711,000
5484	Malawi IRI <i>ONGOING</i>	05/15/07 - 02/28/10	\$ 5,300,000		\$ 5,300,000
5216	Somalia (AFR) <i>ONGOING</i>	9/15/05-9/14/08	\$ 6,000,000		\$ 6,000,000
6416	Sudan (AFR) <i>ONGOING</i>	3/12/03-12/31/2011 (extension)	\$ 19,114,182		\$ 19,114,182
6090	Sudan (AFR) <i>ONGOING</i>	6/22/04-6/21/2009 (extension)	\$ 15,469,303		\$ 15,469,303
5024	Zambia (AFR) <i>ONGOING</i>	9/29/04-9/30/09	\$ 12,729,816		\$ 12,729,816
6334	DR Congo (AFR) <i>CLOSED</i>	9/30/2002 -6/30/04 (extension)	\$ 1,799,032		\$ 1,799,032
7775	Guatemala (LAC) <i>CLOSED</i>	6/6/2002-2/5/2004	\$ 999,056	\$ 278,190	\$ 1,277,246
6442	Honduras (LAC) <i>CLOSED</i>	5/1/2003-6/30/2005 (extension)	\$ 1,867,851		\$ 1,867,851

5141	<b>Kenya (AFR)</b> <b>CLOSED</b>	5/11/2004- 6/15/05 (extension)	\$ 106,544		\$ 106,544
6372	<b>Lebanon (ANE)</b> <b>CLOSED</b>	1/29/03- 1/28/04	\$ 50,000	\$ 19,000	\$ 69,000
7895	<b>Mali (AFR)</b> <b>CLOSED</b>	7/1/02- 9/30/03	\$ 652,572	\$ 111,959	\$ 764,531
6452	<b>Namibia (AFR)</b> <b>CLOSED</b>	5/22/03- 5/21/06	\$ 999,372	\$ 2,463,850	\$ 3,463,222
6367	<b>Namibia (AFR)</b> <b>CLOSED</b>	2/1/03- 8/31/05 (extension)	\$ 994,996		\$ 994,996
6292	<b>Peru (LAC)</b> <b>CLOSED</b>	1/16/04- 03/31/05 (extension)	\$ 400,000		\$ 400,000
7793	<b>Rwanda (AFR)</b> <b>CLOSED</b>	7/3/02- 7/2/04	\$ 484,958	\$ 150,000	\$ 634,958
6347*	<b>Sudan (AFR)</b> <b>CLOSED</b>	12/2/02- 1/6/03	\$ 74,365		\$ 74,365
6278	<b>Uganda (AFR)</b> <b>CLOSED</b>	10/1/03- 10/31/05 (extension)	\$ 1,284,076		\$ 1,284,076
6491	<b>Yemen (ANE)</b> <b>CLOSED</b>	6/30/03- 3/31/07 (extension)	\$ 699,983		\$ 699,983
6374	<b>Zambia (AFR)</b> <b>CLOSED</b>	2/7/03- 9/30/04	\$ 2,400,000	\$ 240,000	\$ 2,640,000
<b>Sub-Total</b>			<b>\$109,291,638.05</b>	<b>\$ 3,262,999</b>	<b>\$ 112,554,637</b>
<b>TOTAL DOT-EDU FUNDING</b>					<b>\$ 116,915,203</b>



**APPENDIX B: DOT-EDU PILOT ACTIVITIES SUMMARY**

<b>Pilots</b>	<b>Start date</b>	<b>End date</b>	<b>dot-EDU support</b>	<b>Cost share</b>
Colombia-Elluminate!	Jul-04	Sep-07	\$ 32,040	\$ -
Jordan Project Based Learning Training Modules in Arabic	May-07	Sep-07	\$ 90,800	\$ -
Kenya IRI: The Use of Interactive Radio Instruction (IRI) Entrepreneurship Training for Youth and Adults (REACH)	Jun-07	Sep-07	\$ 19,922	\$ -
Colombia-Concord Consortium	Dec-04	Sep-06	\$ 109,672	\$ -
Benton Foundation Study	Feb-04	Jul-04	\$ 20,000	\$ 6,214.00
Ghana/Ethiopia-MIT	Apr-03	Aug-03	\$ 33,264	\$ 41,580.00
Guatemala - transfer Enlace to NGO (AED)	Jun-04	Feb-05	\$ 16,380	\$ -
ICTs in African Schools	Apr-03	May-03	\$ 11,077	\$ 262,000.00
ICT survey-Harvard	Sep-02	Mar-04	\$ 33,000	\$ 100,000.00
ICTs for Participatory Health and Livelihood Skills Training - Thailand	Jul-04	Sep-05	\$ 41,760	\$ 211,827.00
Jamaica (AED)	Jul-04	Dec-05	\$ 88,040	\$ -
Kidsmart/IRI Hybrid/IBM	Jul-04	Jun-05	\$ 17,520	\$ -
Mekong Girls - Laos/Thailand	Nov-03	May-05	\$ 33,021	\$ 160,000.00
Peru-Early childhood (AED & IBM)	Aug-02	Jul-04	\$ 36,000	\$ 86,754.00
South Africa-ILI literacy project (AED)	Apr-03	Mar-05	\$ 50,000	\$ 164,280.00
Southeast Asia-IBM (Innotech)	Oct-03	Oct-03	\$ 26,323	\$ -
Thin Client Uganda	Jan-05	Jul-06	\$ 35,000	\$ -
Uganda IT/HIV	Jan-02	Jan-03	\$ 35,000	\$ 200,825.00
<b>Total</b>			<b>\$ 728,819</b>	<b>\$ 1,233,480</b>

**APPENDIX C: DOT-EDU PROJECT PROFILES**

# Colombia Illuminate!

July 2004 – September 2007



**Country:** Colombia  
**Region:** South America  
**Award Amount:** \$32,040  
**Language of Instruction:** Spanish  
**Grade:** Grades 6-8  
**Subjects:** Environmental education  
**Partners:**

- EDC
- La Cultura del Mar

## Intervention Objectives

- ✔ Encourage the use of technologies in education
- ✔ Introduce students to the use of computers for educational learning purposes
- ✔ Enable students from marginalized areas to share their experiences with students from other regions and countries
- ✔ Teach students about key environmental issues in their regions

## Direct Project Beneficiaries

- ✔ Teachers and students

## Marginalized Populations Reached

- ✔ Teachers and students from La Boquilla, Getsemani, and Cundinamarca

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Online communication software</b>	Enable students from distant parts of the country to communicate	Illuminate Live! and Skype were used during the course of the project	3 different schools, including two in Colombia and a predominantly Latino charter school in the U.S.

### Training

	Intended Change	Beneficiary	Scale
<b>Software use</b>	Encourage educators to incorporate technologies in the learning process	Educators	6 schools/communities (approx. 10 teachers/ 300 students)
<b>Environmental issues</b>	Enable youth to learn about local environment and their roles in protecting it	Students	

### Instructional Materials

- ✔ Environmental education materials
- ✔ Illuminate Live!, a software application that has the potential to improve communications between remote populations. Similar to WebEx and Microsoft Net meeting, users need a PC, a headset with a microphone, and an internet connection
- ✔ Skype, an internet telephony application

## Activities

Middle-school students in the Cundinamarca and Bolivar regions of Colombia shared experiences and materials with each other using Elluminate Live! software. An additional cohort of students in the U.S. was also identified. Elluminate Live! allowed users to share and store materials within a virtual office or classroom. Students worked with local NGOs and teachers on projects related to environmental issues. They then shared these experiences with students in other areas via the Elluminate Live! software. Skype software was also tested.

## Outcomes

### Anticipated Outcomes

- ✔ 300 students from marginalized communities trained in key environmental education issues
- ✔ 300 students familiar with the use of Elluminate Live and/or Skype as a medium for exchanging information, ideas, and materials with youth from other regions and countries
- ✔ 10 teachers trained in the use of Elluminate Live! and Skype as communications tools
- ✔ Elluminate Live! and Skype tested as user-friendly and appropriate applications for the exchange of information, ideas, and materials between groups in other regions and countries

### Unanticipated Outcomes

- ✔ Student participation in International Environmental Conference in Japan
- ✔ Student participation and award for mangrove drawing in international environmental art calendar contest
- ✔ At the end of the project, the Secretary of Education for the Cartagena region arranged for students involved in the project to have unlimited access to computers and internet at a local community center

## Outputs

- ✔ Elluminate Live! guide in Spanish
- ✔ Environmental Clean-up Day with 70 participants
- ✔ Article in *El Universal*, a paper local to the Bolivar region
- ✔ Art created by students used in the Mangrove Action Project Calendar

## Sustainability Efforts

Colombia Illuminate! initially proposed the use of the Elluminate Live! software. While this software was an excellent tool for teams to communicate, it did not prove useful for this project due to the language barrier (see Major Challenges, below). Instead, the project piloted applications available in Spanish, such as Skype. Skype proved more efficient because, in addition to being in Spanish, it is available for free online. Hence, once the program comes to completion, the educators will be able to continue with the exchanges if they so desire.

## Major Challenges

- ✔ **Connectivity:** Most schools in impoverished areas have neither internet connectivity nor computers. Students graduate from school without receiving technology instruction. Colombia Illuminate! dealt with this challenge in two ways. First, La Cultura del Mar, a local ecotourism company, volunteered staff time and resources to the project. Students who lived close to its offices connected from there and learned how to use the computer. Second, volunteers traveled to the distant areas with laptops and provided connectivity to the schools through the use of internet connection cards, which required only a phone line to work. This was in itself a challenge, since phone lines often did not work either.
- ✔ **Language:** Despite its numerous useful and fun functions, the software proved challenging to use, as it was only available in English at the time. The Colombian educators did not understand English, and required training in how to recognize the different icons in order to use the software. Later, the decision was made to pilot other free online applications available in Spanish.

## Comments

The primary goal of this pilot was the ability to test the human-use factor of the Elluminate Live! application in marginalized communities. The design of the project was successful in terms of our work with local partners in environmental education and the enthusiasm the students had for exchanging their newfound expertise with youth in other regions and countries via the application. However, the primary result was that Elluminate Live! proved to be too difficult to use in Spanish-speaking settings where the users were not technology experts. While Skype had fewer features, it was a much easier application to use.

# Improving Basic Education, Especially for Girls (SIEEQ) – Democratic Republic of Congo

October 2004 – November 2007



**Country:** Democratic Republic of Congo (DRC)

**Region:** Sub-Saharan Africa

**Award Amount:** \$6,433,671

**Language of Instruction:** French

**Coverage:** 150 primary schools in the provinces of Bandundu, Bas-Congo and Equateur

**Grade:** 1 - 6

**Subjects:** Active pedagogy across primary school subjects

**Partners:**

- EDC
- Academy for Educational Development (AED)
- Intercultural Center for Research in Education (INCRE)
- The Mitchell Group (TMG)
- The International Foundation for Education and Self Help (IFESH)

## Intervention Objectives

- ✔ Improve teaching practice and increase access to learning materials through innovative teacher training programs
- ✔ Increase community engagement in school-based learning and management in basic education
- ✔ Increase access to learning materials, retention, and achievement, particularly for girls

## Direct Project Beneficiaries

- ✔ Primary school students, teachers, administrators, principals, community members, school inspectors

## Marginalized Populations Reached

- ✔ Girls and children who live in areas affected by military conflict, orphans, abandoned children, children made vulnerable by HIV/AIDS

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computers</b>	Tool for providing new training techniques for local teachers	Teachers benefited from digital learning modules in a variety of subjects	Small scale pilot activity in Vanga region
<b>Video</b>	Used as a teacher training tool	Tape classroom sessions and best practices and then used in teacher training activities	Used during follow up sessions after rounds of teacher trainings (one per trimester and bi-annually)

### Training

	Intended Change	Beneficiary	Scale
<b>Training of trainers of active pedagogy</b>	Understanding and use of active pedagogy methodology	Master teacher trainers	47 teacher/administrator trainers
<b>Master trainers train teachers</b>	Increased competency of teachers to implement active pedagogy methods in the classrooms	Teachers	14 Master teacher trainers
<b>Teachers and Head Masters</b>	Increased competency in active pedagogy methods and ability to provide support to teachers	School-based staff	2,520 teachers and 150 head masters trained who in turn trained colleagues at their school
<b>Community involvement</b>	Increased awareness in community of civic education, life skills, HIV/AIDS, and retention of girls in school; greater capacity to find local solutions for the care of orphans and other children made vulnerable by HIV and AIDS; increased community participation in school life	Community members, parents	120 trained community facilitators in education in 60 schools in the project

## Instructional Materials

Teacher and student materials (teacher's kits and student's kits), model lesson plans based on national curriculum, teachers' guidebook, textbooks, and self-made materials were used.

## Activities

- ✔ Teacher training, including multichannel capacity building (face-to-face, print, ICT), with reinforcement through face-to-face training
- ✔ Supported teaching quality: classroom observations, discussions, and peer and self-analysis via videotaping of teaching practices
- ✔ Distributed project-based learning teacher's guidebooks, teachers' kits, self-made didactic materials, and copies of the national curriculum to all targeted teachers
- ✔ Provided textbooks and student kits to increase access to learning materials for students
- ✔ Trained community to support learning needs of young children, especially girls
- ✔ Provided gender-appropriate professional development activities addressing gender equity in the classroom and the unique learning needs of girls and boys

## Outcomes

### Anticipated Outcomes

Improved quality of education for about 44,000 students in three districts of DRC

### Unanticipated Outcomes

Increase in girls' enrollment combined with the influx of students from non-targeted to targeted classes result in overcrowded classes

## Outputs

- ✔ Project works with 150 schools in the three targeted provinces
- ✔ According to project evaluations, the project reaches approximately 44,000 students in three provinces
- ✔ Evaluations show the projects works with 1227 school teachers, administrators and school inspectors on professional development

## Sustainability Efforts

The Vanga Resource Center (CCLR) has received upgrades and a new management structure has been turned over to the community.

## Major Challenges

- ✔ Untrained teachers in selected schools and overcrowding of project classrooms: some schools had more than one teacher per grade level. In these cases, many parents moved their children out of the class of the untrained teachers to project classrooms, resulting in overcrowded classes for those teachers trained under SIEEQ.
- ✔ Difficult to reach schools: The intention of the project was to reach the neediest schools (i.e., serving the most vulnerable populations) in each province, while still maintaining an equitable distribution over the entire province. However, due to the inaccessibility of many primary schools in Equateur Province, most of the schools selected were in close proximity to Mbandaka or close to main roads.
- ✔ Reinforcement of training topics: Preliminary observations of teacher classroom practices show that teachers are often slow to start using new methods in their own work
- ✔ Infrastructure challenges: The use of computer equipment and video was often impossible due to electricity shortages.

## Comments

This ongoing project is a good example of how project activities were modified to match the changing environment of the country and population to make the project as effective as possible.

# Distance Education Inside and Beyond the Classroom (Haiti)

October 2001-September 2008



**Country:** Haiti

**Region:** Latin America and the Caribbean

**Award Amount:** \$5,421,096.50

**Language of Instruction:** Creole

**Coverage:** West, North, South, Grand-Anse, Artibonite, and Center regions.

**Grade:** Formal: Grades 2-4; Non-formal: Grades 1-6

**Subjects:** Formal: Grades 2-4; Non-formal: Grades 1-6

**Partners:**

- EDC
- Catholic Relief Services
- Save the Children
- University Quisqueya
- Association des Paysans de Vallée
- Ministry of Education and Professional Training
- Fonds de Parrainage National
- Fondation Haitienne de L'Enseignement Privée (FONHEP)

## Intervention Objectives

- ✔ Support the Fondation Haitienne de l'Enseignement Privée (FONHEP) and the Ministry of Education and Professional Training (MENFP) to develop and implement the non-formal education program for out-of-school youth (OOSY) aged 12-18
- ✔ Advocate with MENFP for the validation and institutionalization of the IRI approach for in-school and out-of-school programs
- ✔ Develop, implement, and expand in-school interactive radio instruction
- ✔ Identify a new and sustainable financing and management mechanism, a network of potential funders (including in the Haitian Diaspora), and procedures for the marketing and expansion of the in-school IRI program in new schools and for out-of-school children ages 6-11
- ✔ Monitor and evaluate the IRI program and its potential impact

## Direct Project Beneficiaries

- ✔ Students, teachers, FONHEP and MENFP technicians

## Marginalized Populations Reached

- ✔ At-risk and out-of-school youth aged 6-18

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Radios with solar and wind-up power</b>	Provide alternative energy-powered radios to schools in regions where electricity and batteries are scarce	Schools and communities in the West, North, South, Grande-Anse, Artibonite and Center regions	400 radios purchased and distributed

### Training

	Intended Change	Beneficiary	Scale
<b>IRI Methodology</b>	Incorporate IRI programming into conventional classroom instruction	Teachers	813 teachers
<b>IRI Development</b>	Technical training in creation and implementation of out-of-school youth (OOSY) IRI programming	FONHEP and MENFP scriptwriters and technicians	FONHEP: 14 MENFP: 8
<b>Media in educational programming</b>	Training in video production, digital recording, and software for use in digital recording studios	MENFP Radio Educative unit	14 technicians
<b>IRI program management</b>	Introduce community stakeholders to IRI and role in program management	PTA/School committee members	33 committees

## Instructional Materials

IRI support material including readers, reading and math notebooks, teachers' guides, song books, and posters were used.

## Activities

- ✔ Conducted needs assessment for development of Interactive Radio Instruction (IRI) programs targeted toward marginalized youth
- ✔ Drafted, reviewed, recorded, and broadcasted IRI programs
- ✔ Met with relevant stakeholders to identify alternative and sustainable sources of funding for IRI broadcasting
- ✔ Established IRI monitoring model utilizing PTAs and school committees
- ✔ Delivered independent news and information to broadcast education, conflict resolution and health news and information

## Outcomes

### Anticipated Outcomes

Improved reading and math skills for more than 40,000 children

### Unanticipated Outcomes

IRI programs were used by many non-target schools and communities that witnessed the impact of IRI in other localities

## Outputs

### In-School Program:

- ✔ Project has reached 364 schools and 42,435 students (21,722 boys and 20,713 girls)
- ✔ 189 reading lessons broadcast every year
- ✔ 252 math lessons broadcast every year
- ✔ 813 teachers trained
- ✔ 400 radios distributed

### Out-Of-School Youth Program:

- ✔ 200 Level 1 scripts drafted by FONHEP; 83 reviewed by EDC before production and testing
- ✔ 14 weeks of curriculum mapped for Level 2 IRI programming; 14 Level 2 scripts reviewed to date

## Sustainability Efforts

- ✔ The project aims to establish a mechanism of program sustainability to ensure continuity of the IRI program following project closure. Partners within the business development, legal, and marketing sectors have been identified and activities are underway
- ✔ IRI programs have been reviewed and validated by the Ministry of Education, encouraging widespread use
- ✔ There has been a focus on building the capacity of sponsors to strengthen schools and communities
- ✔ Training has increased the capacity within the Ministry of Education for radio equipment use, scriptwriting, and production

## Major Challenges

- ✔ Poor reception due to geographical configuration of Haiti and the cost of having to contract with several local radio stations
- ✔ Problems with radios breaking down or poor sound quality
- ✔ Political instability and unrest, causing school closures

## Comments

- ✔ Particularly in the past 4 years, interactive radio instruction has been seen to respond effectively and rapidly to school-year disruptions as a result of political upheaval and natural disasters
- ✔ PTAs have been especially supportive of IRI programming, in some cases recording broadcasts and facilitating lessons for students who have missed a scheduled programming, or funding local radio stations to carry programming where reception is poor



# Interactive Radio Instruction-Based Pre-School Program in Honduras

May 2003 – August 2005



**Country:** Honduras

**Region:** Latin America and the Caribbean

**Award Amount:** \$1,867,851

**Language of Instruction:** Spanish

**Coverage:** Comayagua, Francisco Morazan, and La Paz

**Grade:** Pre-school

**Subjects:** General kindergarten lessons in all pre-school subjects

**Partners:**

- EDC
- Honduran Fundación para la Educación Ricardo Ernesto Maduro Andreu (FEREMA)

## Intervention Objectives

- 🎯 Develop an alternative learning system of pre-school kindergarten education to serve as a foundation for a national program
- 🎯 Develop and distribute a new curriculum for out-of-school and pre-school students through Interactive Radio Instruction (IRI) lessons
- 🎯 Institute teacher professional development and IRI training

## Direct Project Beneficiaries

- 🎯 Pre-school students, and children not reached by the current system

## Marginalized Populations Reached

- 🎯 Out-of-school children

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Interactive Radio Instruction (IRI)</b>	Improve quality of education by improving teachers' effectiveness; increase access to education by reaching more children, those including out-of-school	Interactive Radio Instruction lessons	The 108 45-minute lessons transmitted in three regions of Honduras

### Training

	Intended Change	Beneficiary	Scale
<b>Teacher training in IRI</b>	Improved pedagogy, provide new teaching skills, and increase ability to use IRI effectively	Teachers	4 quarterly trainings

### Instructional Materials

Print materials for students, teacher's guide, posters, games, additional educational materials for parents, teacher professional development materials and methodological tips and instructions were used to develop materials using local resources related to each lesson.

## Activities

- ✔ Created IRI centers in three targeted regions
- ✔ Developed and distributed pre-school IRI lessons
- ✔ Produced and distributed accompanying printed materials for teachers and students, such as handouts, teachers' guides, parent's materials, and teacher professional development materials
- ✔ Trained teachers in IRI lesson facilitation

## Outcomes

### Anticipated Outcomes

- ✔ A positive change in learning environment, especially in poor, rural areas, and an increase in learning outputs (test scores) of children who attended the IRI lessons
- ✔ Opening of 2,000 additional preschool centers using Juego y Aprendo in 2005

### Unanticipated Outcomes

- ✔ Increase in active and purposeful participation of parents in their children's education
- ✔ Community involvement in supporting pre-schools through making toys and donating resources
- ✔ Support from local school districts that started to include yearly salary of a preschool teacher in their budgets

## Outputs

- ✔ 53 IRI centers opened in Comayagua, Francisco Morazan, and La Paz
- ✔ 108 45-minute preschool kindergarten IRI lessons developed and broadcast
- ✔ Multi-channel learning system including print materials for students, teachers' guide, posters, games, parents' materials, and teacher professional development materials related to each lesson developed and implemented

## Sustainability Efforts

FEREMA has been able to secure additional funding and in 2005, 2,000 additional pre-school centers using Juego y Aprendo opened, helping Honduras to provide quality pre-school education to children not served by the existing system. As a result of the project, some local school districts began to include yearly salaries for preschool teachers in their budgets.

## Major Challenges

- ✔ Ongoing methodological support and training for educators
- ✔ Districts' ability to sustain teachers' salaries

## Comments

The pre-school IRI program changed the way in which parents and the local community get involved and participate in their children's education. IRI and the supplemental project activities helped individuals and groups throughout the country realize that quality education is possible in limited resource areas. The program has improved the quality of pre-school education and increased access to schooling for many children.

# Technology Tools for Teaching and Training in India (T4 Phase I)

September 2002 – September 2007



**Country:** India

**Region:** Asia

**Award Amount:** \$6,999,820

**Language of Instruction:** English, Kannada, Hindi

**Coverage:** Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh

**Grade:** Primary school (Grades 1-5)

**Subjects:** English as a Second Language (ESL), Mathematics, Science, Social Studies, Kannada

and Hindi

**Partners:**

- EDC
- AED
- Sarva Shiksha Abhiyan (SSA)
- State governments of Karnataka, Chhattisgarh, Madhya Pradesh, Bihar and Jharkhand
- NASSCOM Foundation
- UNICEF
- The Quality of Education and Skills Training Alliance (QUEST)

## Intervention Objectives

- ✔ Improve the quality of education in primary schools by developing and implementing an ICT-mediated learning system
- ✔ Improve the quality of teachers' professional development by piloting and assessing ICT-mediated interventions, using radio, mini digital recorders, CD-ROM-based materials, and linking with Community Learning Centers
- ✔ Strengthen the abilities of education policy makers to weigh costs, benefits, and strategic options in the use of promising ICT interventions in elementary schools
- ✔ Develop effective distance education programs to build institutional capabilities and improve learning

## Direct Project Beneficiaries

- ✔ Primary school students and teachers in Chhattisgarh, Karnataka, Jharkhand and Madhya Pradesh

## Marginalized Populations Reached

- ✔ Girls, scheduled caste (SC), scheduled tribe (ST) and children/teachers in remote areas

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Radio</b>	Instruction in math, social studies, science, local language and English	Programs in a variety of subjects based on the curriculum and targeting needs defined by teachers; IRI lessons engage students through local stories, songs and physical activities, while supporting teachers in developing student-centered teaching skills	Karnataka Grades 1-5; Subjects: math, social studies, science, Kannada language In 2007, programs expanded to include ESL for grades 1 – 3 in Chhattisgarh, Jharkhand and Madhya Pradesh  Total audience: 13 million students in 200,000 schools
<b>Video</b>	Educational Video programs used to cover difficult concepts through sharing best practices in project-based learning approach	Videos encourage students to form opinions and test hypotheses by engaging them in innovative and interactive group projects that utilize resources from inside and outside the classroom	Karnataka Grades 4 and 5: Subjects: mathematics, social studies and science  Life skills content development launched in 2007
<b>Group Teaching and Learning (GTL) Software</b>	Greater depth on difficult science concepts using resources both on and off the computer, including songs, IRI programs, lesson plans, videos and quizzes	Classes with large numbers of students; enables up to 20 students, working in teams, to learn on the computer.	Karnataka Grades 4-6: Subjects Science and Social Studies  To be expanded to other states in 2007-2008 academic years 4 software titles (in 3 languages:

## Technology Tools for Teaching and Training in India (T4 Phase I)

English, Hindi and Kannada):  
Animal Discovery  
Ecosystems and Habitats  
What is Disease?  
Sanitation and Hygiene (done in collaboration with UNICEF India)

Total audience: 1,500 students

### Digital Library (DL)

Online searchable collection of learning materials in audio, video and print produced by government and private/public sector providers in English, Kannada, Tamil, Telegu and Oriya languages

Materials developed by international and national organizations and donors remain accessible; national-level private organizations with similar objectives are being contacted to ensure regular updating and maintenance

Collection of 500 titles hosted by the National Informatics Center (NIC) Karnataka

## Training

	Intended Change	Beneficiary	Scale
Teacher training	Increase competency of teachers to use innovative teaching techniques, create materials and implement student-centered, active learning with the help of ICTs	Teachers	Karnataka: 6,705 male and 5,154 female participants trained Chhattisgarh: 4,889 male, 302 female Jharkhand: 32,000 male, 7,000 female
Training of administrators	Increase awareness and support of innovative student-centered teaching methods, increase skills in handling pedagogical, technical and financial factors of integrating ICTs into the learning process	Administrators	Karnataka: 3,408 male, 1,137 female Jharkhand: 80 male, 635 female Madhya Pradesh: 8,142 male, 1,778 female
Community mobilization training	Raise awareness of the importance of local ownership and support of the project activities, increase ability of the community to sustain technical interventions, including IRI	Community members, stakeholders	Karnataka: 1,140 male, 719 female Chhattisgarh: 908 male, 111 female Jharkhand: 335 male, 621 female
Script writer trainers/production-related training	New skills and knowledge in the field of educational IRI script writing, increased capacity to disseminate these skills to others	Script writer trainers and script writers	Chhattisgarh: 16 male, 99 female Madhya Pradesh: 27 male, 25 female
Master trainers training	Increase capacity of master trainers to disseminate pedagogical and technical skills and knowledge to a larger cadre of teachers	Master trainers	Bihar: 14 male, 14 female

## Instructional Materials

Educational video programs guide, Group Teaching and Learning Software, and a digital library were used.

## Activities

- Developed and implemented ICT-mediated learning systems focusing on context-appropriate technologies, such as audio (IRI), video (Education TV or Ed-TV) and CD-ROM-based software (GTL)
- Created student-centered content for ESL and other subjects for Grades 1-5 based on state and national curricula
- Trained teachers in pedagogical methods to improve the teaching and learning practices in their classrooms through face-to-face training workshops and reinforcement provided by ICTs such as video/teleconferencing, IRI, Ed-TV and GTL
- Implemented sound pedagogical strategies of multi-channel learning
- Promoted networking and partnerships with large-scale NGOs (Azim Premji, Pratham, etc.) and private sector corporations (Microsoft) through the USAID QUEST project for facilitating a cohesive ICT policy framework at the state levels

### Outcomes

#### Anticipated Outcomes

- ✔ Teachers and students using these tools are learning more and are learning better. Pre- and post-test results for 4th and 5th multi-grade students in Karnataka show over 20% learning gains in science. English pre- and post-tests for Class 1 and 2 multi-grade students in Chhattisgarh show a 20% gain in speaking skills, and a 25% gain in comprehension skills in the 05-06 academic year. Gains were consistent and sustained during each year that the programs have been broadcast.
- ✔ There is increasing awareness by state governments of quality in education, innovative uses of ICTs, student-centered pedagogic practices and incorporation of "interactivity" within static media delivery systems.

#### Unanticipated Outcomes

- ✔ The state of Madhya Pradesh, which was not part of the dot-EDU T4 Phase I proposal, requested to be added as a project state after conducting their own trial of the activities for the 2006-2007 academic year
- ✔ Significant cost-share from each of the State governments enabled rapid expansion from 300 pilot sites to state-wide (between 30,000 to 80,000 schools depending on the state) within one academic year

### Outputs

- ✔ 556 audio (IRI) programs reaching 13 million students
- ✔ 68 videos reaching 960,000 students
- ✔ Digital Library with 500 titles
- ✔ Comprehensive, state-wide annual assessments
- ✔ Case studies on IRI, GTL and ICT policy environment in India

### Sustainability Efforts

- ✔ Strong partnership with government of India's flagship program, Education for All (Sarva Shiksha Abhiyan or SSA)
- ✔ Memorandums of Understanding established early with all states
- ✔ State governments of all four involved states have taken up broadcast fees and teacher training costs. Printing costs are shared between the state government and the project
- ✔ State governments have replaced existing radio content with dot-EDU T4 India content; in this way the programs are integrated directly into ongoing academic instruction
- ✔ All content draws from the curriculum; focus on "hard spots" ensures acceptance and integration into daily teaching process
- ✔ State governments have requested technical support with new ICT-based programs to reach minority populations or raise awareness on issues of girls' education, teaching quality, community participation and life skills
- ✔ Digital Library contains all project deliverables, centrally located and available for downloading to teachers, teacher trainers and the general public at no cost

### Major Challenges

- ✔ Project funding was reduced dramatically, ending the project prematurely due to India's change in economic status
- ✔ Recruitment and retention of qualified staff
- ✔ Capacity of NGO partners varied depending on the state
- ✔ Implementing large-scale, state-wide monitoring challenging on a limited budget
- ✔ Balancing rapid scale-up with quality issues
- ✔ Ensuring quality teacher professional development and follow-up when using cascade model and working within government training system
- ✔ Transfer of government officials committed to promoting the use of ICT for primary and elementary education led to the abandoning or delay in the conceptualization, initiation or implementation of projects
- ✔ Poor broadcast signals in some parts of remote tribal and rural areas

### Comments

- ✔ This project tested and produced the country's first group learning software.
- ✔ The reach of the IRI program – more than 13 million students – is noteworthy, especially given the rigorous evaluation showing the effectiveness of the series in India.

# Technology Tools for Teaching and Training in India (T4 Phase II)

October 2006 – September 2011



**Country:** India

**Region:** Asia

**Award Amount:** \$7,300,531

**Language of Instruction:** English, Kannada and Hindi

**Coverage:** Karnataka, Chhattisgarh, Jharkhand, Madhya Pradesh, Bihar, Rajasthan

**Grade:** 1-8

**Subjects:** English as a Second Language, Hindi, Math, Social Studies and Science

**Partners:**

- EDC
- State governments of Karnataka, Chhattisgarh, Madhya Pradesh, Bihar and Jharkhand
- UNICEF
- The Quality Education and Skills Training Alliance (QUEST)
- AED

## Intervention Objectives

- ✔ Expand the use of T4 Phase I Interactive Radio Instruction/Interactive Video Instruction programs and training materials at the primary level in three additional states: Rajasthan, Madhya Pradesh and Bihar
- ✔ Create new learning materials for use in upper primary grades
- ✔ Create a professional development program for teachers and managers to instill effective instructional practices
- ✔ Integrate life skills concepts in dot-EDU T4 Phase II materials and create distinct life skills modules for upper-primary students
- ✔ Continue to use technology as a catalyst for educational innovation

## Direct Project Beneficiaries

- ✔ Students in grades 1-8, teachers and education managers

## Marginalized Populations Reached

- ✔ Girls and women, learners in rural populations

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>IRI – language, math, social studies</b>	Expansion of Phase I programs	IRI lessons in language, math/science and social studies	85 new programs implemented in new states: Rajasthan and Madhya Pradesh for grades 1-5
<b>IRI – English language</b>	Expansion of Phase I IRI to teach n English Language	Different levels of "English is Fun" IRI lessons	In Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan, and Bihar (level 3) and Rajasthan and Bihar (level 1)
<b>Multimedia - radio, video, computer</b>	Reach targeted populations; programs are tailored to the needs of the particular group	Programs for math/science, social studies and language (including Urdu) focused on active learning /problem-based approaches; Self-paced and group learning programs for teacher training	200 new programs to be used in Karnataka, Madhya Pradesh, Jharkhand, Chhattisgarh and Rajasthan for grades 6-8
<b>Interactive Video Instruction (IVI)</b>	Phase I success generated demand for more content	In the classroom to make learning more student-centered and active; in teacher training to demonstrate best practices	In Madhya Pradesh and in Rajasthan
<b>Group Teaching and Learning (GTL) software</b>	Utilizes the use of one computer per classroom, enables students and teachers to engage in active learning with technology	Software packages of the GTL were developed for use in the classrooms to teach and learn difficult concepts	20 software packages for grades 4-8 in Karnataka, Madhya Pradesh, and Chhattisgarh

### Training

	Intended Change	Beneficiary	Scale
<b>Teacher training</b>	Ability to use innovative teaching techniques, create materials and implement student-centered, active learning with the help of ICTs	Grade 1-8 teachers	In all targeted states
<b>Administrator Training</b>	Increase awareness and support of innovative student-centered teaching methods, increase skills in handling pedagogical, technical and financial factors of integrating ICTs into the learning process	Administrators and teachers	In all targeted states
<b>Script writer trainer training</b>	New skills in IRI script writing; increased capacity to disseminate these skills to others	Script writer trainers and script writers	In all targeted states

### Instructional Materials

- ✔ Three new training modules
- ✔ Print and multimedia materials for life skills
- ✔ Teachers' and students' IRI and IVI materials
- ✔ Materials for community members

### Activities

- ✔ Created applications for upper primary grades based on instructional design using a variety of ICT-based content delivery methods
- ✔ Implemented a “learning by doing” professional development program for teachers emphasizing constructivist pedagogical techniques facilitated by technology and applied to their needs as well as those of their students
- ✔ Worked with lower and upper primary levels to support decentralization and activation of teachers and communities, whose participation is critical to long-term success and sustainability
- ✔ Partnered with local NGOs and private-sector entities (including QUEST Alliance partners) to promote sustainability and create substantive linkages for government and other stakeholders to draw from
- ✔ Continued Phase I's established pattern of testing new interventions and products, formatively evaluating the results, sharing outcomes and impacts, and obtaining government-stakeholder buy-in and cost-share for scale-up and expansion
- ✔ Monitored regularly and comprehensively through quantitative and qualitative methods to track inputs and activities against indicators verifiable by stakeholders at any level of the education system

### Outcomes

#### Anticipated Outcomes

Phase I demonstrated learning improvements in schools that participated in the project. Phase II expects to replicate these outcomes: improved teacher practice and learning gains among students, through an expansion of the first round of activities.

#### Unanticipated Outcomes

Unknown at this early stage of the project.

### Outputs

Unknown at this early stage of the project.

## Sustainability Efforts

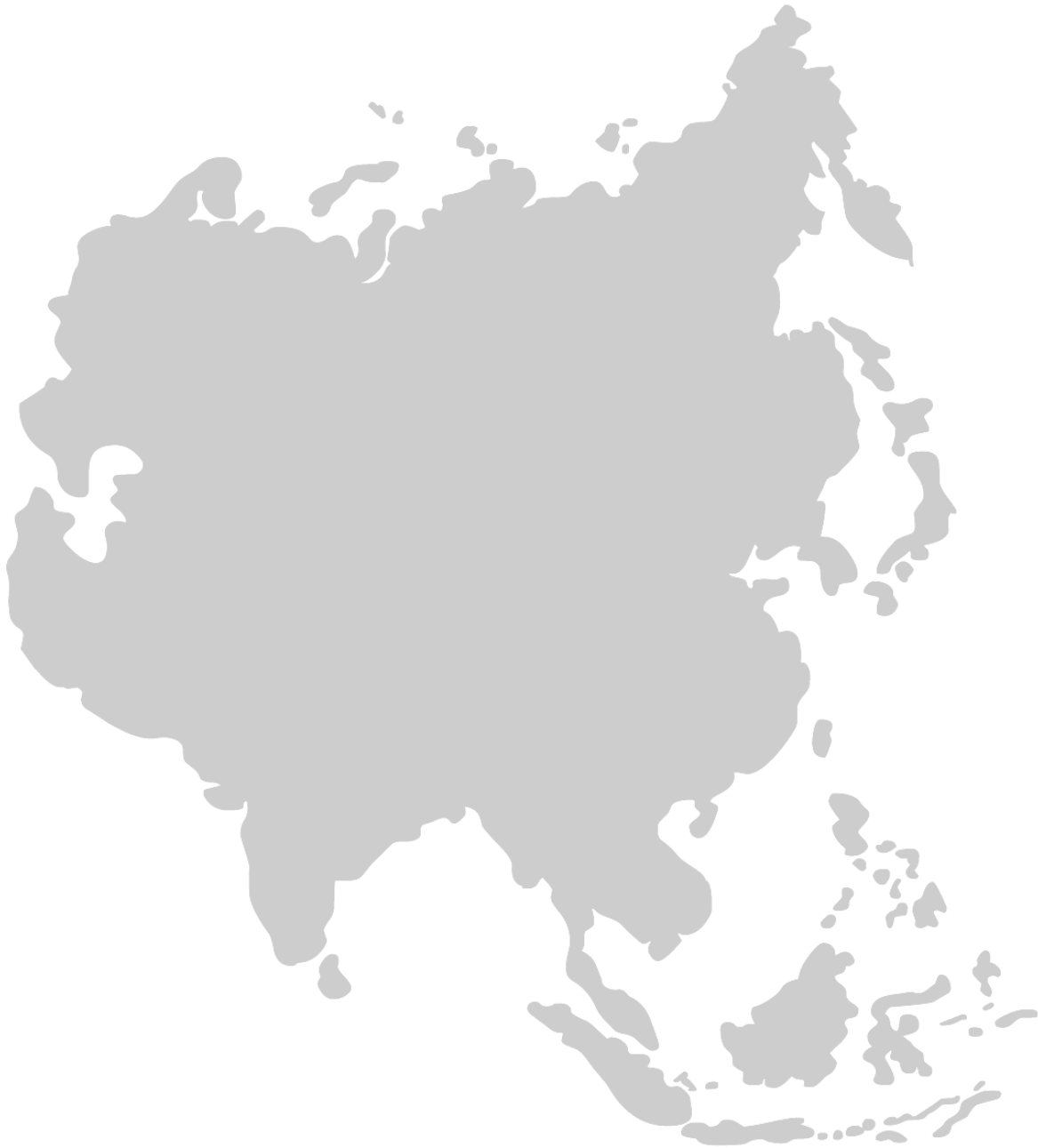
As a result of USAID significantly reducing the level of funding, the project began to actively recruit more involvement of the private sector. Results are still to be determined.

## Major Challenges

Due to a change in India's status with USAID, the project funding was dramatically reduced and many project activities were modified, scaled back or cancelled altogether.

## Comments


The dramatic reduction in funding created new challenges.





# Development of an ICT and Education Investment Program for the Kenya Education Sector Support Program (KESSP) – Phase One

May 2004 – July 2005



<b>Country:</b> Kenya	<b>Partners:</b> <ul style="list-style-type: none"><li>• EDC</li><li>• Kenyan Ministry of Education, Science, and Technology (MOEST)</li><li>• Academy for Educational Development</li></ul>
<b>Region:</b> Sub-Saharan Africa	
<b>Award Amount:</b> \$106,544	
<b>Language of Instruction:</b> N/A	
<b>Coverage:</b> National	

## Intervention Objectives

- ✔ Review and assess current and planned programs that use ICT to improve education in Kenya
- ✔ Conduct a review of international best practices that effectively use ICT for education that could be relevant to Kenya
- ✔ Consult with key stakeholders, including the MoEST, private sector and civil society, to gauge level of interest and gather information and recommendations for developing ICT and education programs
- ✔ Conduct a review of Government of Kenya and MoEST policies on ICT and Education, and ICT and Management. Identify gaps in the current policy framework
- ✔ Prepare a draft ICT and Education Options Paper for senior managers at the MoEST
- ✔ Consult with key stakeholders, both within and outside the MoEST, to solicit feedback on the draft Options Paper, and assist the MoEST to develop a consensus on strategic options

## Direct Project Beneficiaries

- ✔ Government of Kenya

## Activities

- ✔ Options Paper drafted focused on the incorporation of ICTs into the following main areas: Connectivity, school and classroom technology, curriculum enhancement, professional development, interactive radio instruction, education management information systems (EMIS), and community participation
- ✔ For each main area of investigation, the research team investigated: the current situation in Kenya, existing plans and strategies being considered by the MoEST, best practices and experiences from countries with conditions similar to Kenya, ICT and education programs and projects from public and private organizations within Kenya, and emerging technology options
- ✔ With key stakeholders, including MoEST staff, private sector and civil society leaders, the research team assessed the level and character of interest in, and perceptions about the use of ICT in education
- ✔ Analyzed the Government of Kenya and MoEST policies on ICT and Education identifying critical policy gaps
- ✔ Created a roadmap for developing and enabling policy for integration of ICT in education
- ✔ Assisted MoEST to gather feedback on draft Options Paper and developed consensus on strategic options presented in the Options Paper from key stakeholders

## Outcomes

### Anticipated Outcomes

The MoEST undertook the development and implementation of a National Strategy to incorporate ICTs in Education, most of which was derived from the completed Options Paper. Stakeholders reviewed and agreed to the policy, incorporating some of the research and work completed for the Options Paper at the national level as was intended from the outset of the activity.

### Unanticipated Outcomes

Feedback and response to the Draft Paper was significant taking into consideration the concise timeline applied to its development. Prior to the writing of the Options Paper, the Government of Kenya's ICTs in Education activities consisted of a number of disparate approaches and ideas, few of which responded to direct guidance from the MoEST. Nearly all stakeholders requested that the research team document the existing sector, highlight gaps between the various interventions, and provide guidance on how to move forward.

## Outputs

- 🌱 20 options presented and discussed in total considering the ways in which ICTs could improve educational outcomes including, Educational Access and Quality through IRI, Quality teaching and Learning through ICT, ICT and Skills Development, ICTs and EMIS, Policy and ICTs in Education, Improving Quality and Equity through Connectivity Growth, Total Cost of Ownership Models, Monitoring and Evaluation of ICTs in Education, as well as ICTs in Education in Kenya, and Local and International Best Practices.
- 🌱 Draft of Options Paper presented at a national stakeholder conference in Nairobi as well as in a number of smaller forums with the Government of Kenya, USAID, private sector organizations, local NGOs, and other development partners. Draft was also posted online for stakeholder review.
- 🌱 Stakeholder feedback incorporated into ICT and Education Options Paper and final draft submitted to the Government of Kenya.

## Sustainability Efforts

Process of analysis driven with eye towards education, rather than technology, enabling the consideration of a broad range of interventions, as well as creative ways for educators to use these tools to support teaching and learning.

## Major Challenges

While the final Options Paper was received well by many, constant turnover in high level officials and in the donor community itself made adoption of the recommendations unlikely.

## Comments

Certain members of the MOES demonstrated persistent interest in moving forward with the recommendations in the paper, however, over time, fewer champions of this effort remained and funding of the recommendations was never identified.

# Youth Communicating and Networking – Mediterranean (YouthCaN Med)

January 2003 – January 2004



**Country:** Lebanon

**Region:** Middle East

**Award Amount:** \$50,000

**Language of Instruction:** English

**Coverage:** Nabatieh, Saida, Beit Chabab and Bikfaya

**Grade:** 1-12 with emphasis on secondary-level students

**Subjects:** Environmental science and natural resource management

**Partners:**

- EDC
- iEARN (Implementing partner)
- Hariri Foundation
- The American Community School
- The Kamel Youssef Cultural Center in Nabatieh
- Rene Mouawad Foundation
- Ministry of Education
- Ministry of Environment

## Intervention Objectives

- 👉 Train a cadre of teachers to engage students in environmental projects, interacting with teachers and students locally and internationally
- 👉 Empower students to use new technologies to discuss environmental issues and to address them in their communities
- 👉 Promote landmine awareness through online communities in affected regions

## Direct Project Beneficiaries

- 👉 Teachers and students

## Marginalized Populations Reached

- 👉 Students with limited access to information about the environment and landmines

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Online forums and discussions</b>	Build a community of environmentally active teachers and students	Discussions were facilitated and moderated around specific environmental topics	International
<b>Videoconferencing</b>	Share information and build personal relationships	Exchange between students in Lebanon and the U.S.	International

### Training

	Intended Change	Beneficiary	Scale
<b>Face-to-Face</b>	Increase awareness and knowledge of environmental issues	Teachers	Four targeted regions
<b>Online</b>	Train teachers to teach effectively about environmental issues	Teachers and students	Four targeted regions

### Instructional Materials

- 👉 Conference handbook compiling all workshops
- 👉 CD-ROM compiling students' presentations, discussions, essays, artwork and other sample student contributions

## Activities

- ✔ 16 weeks of online training for teachers
- ✔ Seminars, hikes, and events around the country to raise environmental awareness throughout the year
- ✔ Week-long conference for 400 students with student presentations on projects. Was attended by US Ambassador, Minister of Education, and Member of Parliament as well as students, teachers, community leaders, and politicians

## Outcomes

### Anticipated Outcomes

Raised awareness and made students more active in environmental issues

### Unanticipated Outcomes

Throughout the project, Member of Parliament Bahia Hariri noted a positive change in the school environment and in the students' attitude, self-confidence, and optimism toward their community

## Outputs

- ✔ A video was made of the event and used for subsequent YouthCaN Med training and workshops. Teachers and students were able to use it to demonstrate their work to colleagues and to encourage their involvement in future projects
- ✔ YouthCaN Med conference was held and coincided with the YouthCaN Med event at the Museum of Natural History in New York. The conference gathered 400 students and teachers in Lebanon from 16 private and public schools. Videoconferencing linked them with their peers from the US, Lebanon, Morocco, and India

## Sustainability Efforts

Students from the YouthCaN team demonstrated leadership skills and participated in youth summit activities. One of them participated in Japan's Youth Summit and five applied to be part of the Youth Summit in Slovakia in July 2004. A YouthCaN student earned a full scholarship to participate in the Slovakia Summit. Three students earned partial scholarships to participate in the iEARN annual youth summit. Two students from the YouthCaN team were elected as youth representatives from Lebanon. These nominations and scholarships have continued to build the capacity of YouthCaN students to advocate for environmental awareness.

## Major Challenges

Technology as a communication tool was new to many teachers and students involved in the project.

## Comments

MP Bahia Hariri was fully engaged and supportive of iEARN-Lebanon and the YouthCaN project. In this partnership, MP Hariri was willing to extend the program to all schools in Lebanon, starting with schools in the South. iEARN-Lebanon worked with the Rene Mouawad Foundation to extend community service and environmental awareness to the North through its center in Mejdlaya.

# Macedonia e-Schools

August 2003 – March 2008



**Country:** Macedonia

**Region:** Europe and Eurasia

**Award Amount:** \$8,149,804

**Language of Instruction:**  
Macedonian & Albanian

**Coverage:** All 330 primary and  
100 secondary schools

**Grade:** 1-12

**Subjects:** All subjects taught  
at primary and secondary  
school level

**Partners:**

- EDC
- Government of the People's Republic of China (donated all computers)
- Ministry of Education and Science (MOES)

## Intervention Objectives

- ✔ Train teachers on active pedagogy and computer integrated classroom instruction
- ✔ Provide digital content based on the national curriculum
- ✔ Create an education portal for all primary and secondary schools
- ✔ Create an online Community of Practice as a destination for administrators, teachers, and students to communicate and share with one another
- ✔ Install computer labs and servers in all 460 primary and secondary schools in the country

## Direct Project Beneficiaries

- ✔ 214,175 Macedonian students and 12,372 teachers

## Marginalized Populations Reached

- ✔ Albanian and Turkish ethnic minorities

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computers</b>	Improve teaching practice	Computer labs installed in every primary and secondary school	5,300 computers
<b>ToolKID software</b>	Provide digital content for teachers and students	Teachers and students will have digital curriculum content to use on their new computers	2,262 teachers (1,548 Macedonian and 714 Albanian)

### Training

	Intended Change	Beneficiary	Scale
<b>Innovative use of technology (face-to-face and online)</b>	Teachers and students use computers to develop critical thinking and higher reasoning skills	Teachers improve practice and students improve thinking	6,964 primary teachers and 3,146 secondary teachers
<b>Communities of Practice</b>	Teachers participate in an online community to share thinking around ICT in education	Teachers	158 Teachers

## Instructional Materials

- ✔ 5 ToolKID software Manuals (Educational Games; Combining Information; Text and Sound; Graphics, and Algorithms)
- ✔ *Innovative Use of ICT in Primary Schools* teacher's manual
- ✔ *Integrating ICT in the Curriculum in the Secondary Schools* teacher's manual

## Activities

- ✔ Teacher training activities covering the entire country were conducted year round
- ✔ A Web portal was designed in both Macedonian and Albanian and will be handed over to the MOES at the end of the project
- ✔ Computer labs, each of which contained 20 PCs and a server were set up in 100 secondary schools; and primary school computer labs of 5-18 PCs and a server installed in 330 central and 30 satellite primary schools

## Outcomes

### Anticipated Outcomes

- ✔ Summative evaluation showed that teachers were using both active pedagogy and student-centered learning techniques integrating information and communication technology as a result of the project
- ✔ Interviews with students performed within the evaluation process showed that the students are eager to have classes in the computer laboratory and are more motivated and engaged in the learning process

### Unanticipated Outcomes

- ✔ Many teachers and students purchased computers at home after the teacher training and the classes held in the laboratory
- ✔ Collaboration and networking among colleagues through joint classes, exchange of lesson plans and other teaching materials
- ✔ Untrained teachers showed interest and started having classes in the computer laboratory, supported by their trained peers and even asked for their classes to be monitored

## Outputs

- ✔ 12,372 teachers trained
- ✔ 5,300 computers installed

## Sustainability Efforts

MOES was required to consider developing a National ICT Maintenance and Sustainability Plan to support the newly installed computer laboratories. MOES was trained in and assumed responsibility for the ongoing implementation of the online education portal.

## Major Challenges

Lack of a maintenance plan up front drew resources away from programmatic objectives.

## Comments

Macedonia was able to provide access to universal training and computer installation for all schools. Realities of maintaining such a network became clear about midway through the project, and the MOES and Government of Macedonia worked together with USAID and the project to determine ways to provide ongoing support for the country's school computer network.

# Technology in Support of Education Program (STEP)

January 2006 - January 2008



**Country:** Madagascar and Comoros  
**Region:** Sub-Saharan Africa  
**Award Amount:** \$2,530,000  
**Language of Instruction:** French, Malagasy, Shikamoor  
**Coverage:** Madagascar: Toliara, Fianarantsoa, and Toamasina provinces - 800 teachers per province, 200 schools. Comoros: Grand Comore, Anjouan, and Moheli islands – 4 Ministries of Education, 10 teachers per island

**Grades:** Madagascar: Grades 1-2  
 Comoros: Teacher Training and Education Research Institutes.

**Subjects:** Madagascar: Math, language.

**Partners:**

- EDC
- USAID/Madagascar
- National and Higher Education Ministry (MENRS)
- Comorian Ministry of Education (MEN)
- University of Grand Comore

## Intervention Objectives

### Madagascar:

- ✔ Develop a set of renewable, in-service teacher training resources in the form of Interactive Radio Instruction (IRI) programs designed to provide ongoing, on-the-job training to grades 1 and 2 teachers
- ✔ Develop radio programs (accompanied by face-to-face training and income-generating activities) for each target province aimed at educating parents and community members on how to organize support basic education in their communities
- ✔ Build central and regional capacity to use digital and computer technologies to document and analyze data on teaching practices as a first step in designing better professional development interventions and revitalizing Madagascar's Journées Pédagogiques

### Comoros:

- ✔ Provide audio-based teacher training materials to the Comorian National Ministry of Education (MEN), the island ministries of education, and the Teacher Training and Education Research Institutes (IFEREs) for further distribution to improve teaching practices
- ✔ Train key ministry personnel to support teachers in using audio/radio-based materials for professional development
- ✔ Provide equipment to two IFEREs to enhance their ability to adapt and broadcast radio-based teacher training programs

## Direct Project Beneficiaries

- ✔ **Madagascar:** Teachers, community members, MENRS personnel
- ✔ **Comoros:** Ministry of Education and Teacher Training Institute personnel, teachers

## Marginalized Populations Reached

N/A

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Radio hardware (Comoros)</b>	Upgrade existing recording and/or broadcasting capabilities.	Assess current production capability and create options to upgrade skills	2 teacher training institutions

### Training

	Intended Change	Beneficiary	Scale
<b>Comoros</b>			
<b>IRI planning and development</b>	Support planning, development, and implementation of training programs around use of audio programming	Key Comorian ministry personnel	Numbers not yet available
<b>Training module development workshops</b>	Assist development of training modules necessary to support audio programming	MEN and IFERE personnel	Numbers not yet available
<b>Madagascar</b>			
<b>IRI methodology</b>	Training in radio program production for Community Associations for School Support (FRAMs)	MENRS personnel	Numbers not yet available

<b>Teacher professional development</b>	Support in-service teacher professional development using IRI as vessel to deliver training content	Grade 1 and 2 teachers	Numbers not yet available
<b>Community support for education via radio and face-to-face training</b>	Prepare communities for application to small-grant funding for income-generating activities	Parents and Community Associations for School Support (FRAM) members	Numbers not yet available
<b>Data collection and analysis methods</b>	Improve system for documenting and understanding current instructional practices in primary schools	MENRS personnel from each target province	Numbers not yet available

## Instructional Materials

- ✔ 120 interactive radio instruction (IRI) programs based on the national curriculum and in support of competency-based learning for teacher training in primary grades one and two
- ✔ Teacher guides for primary grades one and two to be used in classrooms in conjunction with the radio programs
- ✔ IRI training guide for teachers and Ministry of Education officials
- ✔ 75 radio programs aimed at informing and educating parents and community member on ways to organize and provide support to basic education in their communities
- ✔ 600 Freeplay *Lifeline* wind-up radios

## Activities

### Madagascar:

- ✔ Provided technical assistance to guide MENRS personnel from the Direction Régionale de l'Education Secondaire et de l'Education de Base (DIRESEB) in planning and development of radio programming
- ✔ Identified scriptwriting team; developed and broadcast radio-based teacher training programs
- ✔ Collaborate with local actors (e.g. District Office of Education personnel, Pedagogical Supervision Zone directors, parents, etc.) in following-up on the use of the STEP radio-based training programs in schools
- ✔ Issued small grants to community members and Community Associations for School Support (FRAMs) to conduct income-generating activities in support of education
- ✔ Pursued government and private-sector partnerships to cover the radio-based training programs' recurrent broadcasting costs
- ✔ Built partnerships between MENRS personnel, local and international NGOs working with civil society, and local radio stations to stimulate community involvement and commitment to education
- ✔ Explored with government offices how computer and digital technologies could support locally-planned, long-term teacher professional development initiatives

### Comoros:

- ✔ Selected and localized audio programming
- ✔ Procured audio materials and English dictionaries for American corner at Grand Comore University
- ✔ Trained MEN and Teacher Training and Education Research Institute (INFERE) personnel in development of audio programming and accompanying teacher training modules
- ✔ Performed in-depth formative evaluation wherein teams of teachers introduced peers to topics addressed in audio program for feedback
- ✔ Planned MEN and INFERE conference to determine how audio and face-to-face training materials created under program will be used throughout primary school system in 2007-2008 school year
- ✔ Provided equipment for MEN INFEREs to upgrade existing recording facilities

## Outcomes

### Anticipated Outcomes

No data yet available as programs commence September 07. Project progress to date will be provided in mid-annual report expected in October 2007

### Unanticipated Outcomes

Ibid.

## Outputs

Ibid.

## Sustainability Efforts

Madagascar: MENRS negotiated the broadcast contract for IRI programs directly with Radio National du Madagascar, laying the groundwork for a strengthened and sustained relationship between partners.

## Major Challenges

Comoros: Security concerns have hindered travel by project staff and, subsequently, project implementation. Significant changes in the direction of the Comoros activity have not yet been made, though have not yet been finalized.



# Malawi Interactive Radio Instruction

May 2007 – February 2010



**Country:** Malawi

**Region:** Sub-Saharan Africa

**Award Amount:** \$5,300,000

**Language of Instruction:**  
English and chiChewa

**Coverage:** All 5,200 primary schools

**Grades:** 1-3

**Subjects:** Language skills, literacy, English, math, life skills

**Partners:**

- EDC
- Malawi Ministry of Education
- Malawi Institute of Education (curriculum and materials)
- Malawi College of Distance Education (radio production)

## Intervention Objectives

- ✔ Increase access to basic education and improve learning outcomes, especially for girls, orphans and other vulnerable children
- ✔ Support and reinforce the new national primary school curriculum
- ✔ Increase MOE's capacity to provide universal education for all primary level students
- ✔ Increase resources at the school level
- ✔ Improve teaching in schools
- ✔ Build local capacity around producing interactive radio instruction (IRI) programs

## Direct Project Beneficiaries

- ✔ Students and teachers

## Marginalized Populations Reached

- ✔ Out-of-school youth, orphans, and vulnerable children

## Inputs

### Technology Components

	Rationale	Application	Scale
Radio broadcasts	Provide universal access to early primary curriculum	Partnership with national radio broadcaster	National broadcast
Radio equipment	Provide embedded professional development	Wind-up radios for every primary school	16,000 radios

### Training

	Intended Change	Beneficiary	Scale
Technical	Regular and effective use of radio and IRI content	All teachers and students in standards 1-3	5,200 schools
Pedagogical	Active pedagogy and student-centered learning	All teachers and students in standards 1-3	5,200 schools

### Instructional Materials

Radio programming content and teacher manuals were used to support IRI instruction

## Activities

- ✔ Create 150 thirty-minute interactive radio episodes per grade (450 episodes total)
- ✔ Provide daily broadcasts during the school year beginning with standard 1 in year two and standards 2 and 3 in year 3
- ✔ Build capacity at the Malawi College of Distance Education to produce IRI programs beyond the life of the project

## Outcomes

### Anticipated Outcomes

- ✔ A majority of learners participating regularly in the IRI program exhibited significant learning gains
- ✔ Girls performed as well as boys on post-broadcast achievement tests
- ✔ Learners in rural schools showed similar post-broadcast results as those in urban schools, although probably significantly larger gains

### Unanticipated Outcomes

Project is too new at this point to identify any unanticipated outcomes

## Outputs

450 episodes and accompanying teacher materials

## Sustainability Efforts

- ✔ Ministry of Education to gradually take on cost of broadcast over three years, assuming all costs at end of project
- ✔ Local production team trained and assumed all programmatic responsibilities by the end of the project

## Major Challenges

- ✔ Ministry of Education and Malawi Broadcasting Corporation (MBC) do not have a strong history of collaboration. For this activity, MBC agreed to sign a binding contract guaranteeing a broadcast rate for 3 years
- ✔ Large class sizes required additional radios and instructors be added to schools and that the MOE consider developing a policy on repeaters and over-age learners to maximize benefit of the program

## Comments

This project benefitted greatly from staff in neighboring Zambia, where another IRI project was implemented. Zambian staff came to the Malawi project and provided training to local scriptwriters and producers, which allowed for a quick and efficient startup. Another fortuitous point was the timing. As the project began, Malawi was in the process of rolling out its new primary curriculum on which the IRI programs were based. The goals of this project coincided with the Government of Malawi's efforts to provide universal access to primary-level education. The new curriculum and the radio content work together toward this goal.

# University-to-University Linkages – Mali

July 2002 – September 2003



**Country:** Mali

**Region:** Sub-Saharan Africa

**Award Amount:** \$652,752

**Cost Share:** \$111,959

**Sponsor:** Howard University, Michigan State University, World Space Foundation

**Language of Instruction:** French

**Coverage:** University of Bamako

**Grade:** University staff & students

**Subjects:** Information and Communications Technology

**Partners:**

- EDC
- University of Bamako
- Michigan State University (MSU)
- Howard University
- Management Systems International (MSI)
- CEFIB Internet
- Comanet

## Intervention Objectives

- ✔ Train University of Bamako Wireless and Local Area Network (WAN and LAN) administrators
- ✔ Train teachers and students in Internet use
- ✔ Train selected University webmasters in web page development and maintenance
- ✔ Develop and implement a pilot program for faculty members to integrate information technology in their academic curricula
- ✔ Establish Internet user groups in each department of the University of Bamako to ensure sustainability and creativity in the use of information technology in an academic environment
- ✔ Establish Education and Information Technology Planning, Use and Evaluation Unit
- ✔ Develop a plan for establishing a computerized Information Resource Center/University information portal, which provides the University of Bamako with the ability to :
  - Capture information resources on IT sponsored by the University
  - Gather, organize, and provide accessibility for research, lessons learned, results, and best practices on the general process of introduction of IT utilization in the University of Bamako

## Direct Project Beneficiaries

- ✔ University of Bamako – faculty, students, staff

## Marginalized Populations Reached

- ✔ Women

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Internet towers</b>	Improve connectivity of previously installed antennas to establish Internet access	Poles holding antennas replaced by towers and repositioned, Network reconfigured to support new layout	University-wide
<b>Free software provided on CD-ROM</b>	Avoid long download time and overcome connectivity issues	For use by University faculty in training, included learning modules for integrating ICT in teaching.	

## Training

	Intended Change	Beneficiary	Scale
<b>University LAN and WAN network administration</b>	Enable designated staff to plan, install, configure, administer, and support University's Windows 2000 LAN and wireless WAN network	Selected LAN and WAN administrators	5 LAN and 1 WAN administrator
<b>ICTs and education</b>	Understanding of software as a basic productivity, teaching and research tool	University faculty	220 faculty members
<b>Training of trainers</b>	Familiarize trainers with advanced	Selected Internet trainers	204 trainers

Internet usage and online modules effective in training of Internet initiates

<b>Web page development</b>	Understanding of web page development including creating, managing and updating University and department web sites	University webmasters	63 webmasters
<b>Internet user training</b>	Gain basic proficiency in Internet usage including email, web searching, and sending attachments	University students	1,140 students

### Instructional Materials

Developed over 800 pages of curriculum for the professors/trainees in the form of lecture notes, PowerPoint presentations, examples, and exercises. These were made available either in hard copy, electronic form, or on CD-ROMs that were distributed to each establishment.

### Activities

- 🔧 Repaired improperly installed network antennas. Addressed issues related to poor frequency and bandwidth
- 🔧 Trained Internet trainers, students, and faculty in basic computer and Internet usage geared towards educational activities
- 🔧 Developed Policies and Procedure Manual for administration of University's WAN and LAN network. Provided technical assistance and training to University LAN and WAN administrators as well as web developers in network administration and maintenance and University website development, respectively
- 🔧 Facilitated workshop for University faculty to begin University's ICT Action Plan

### Outcomes

#### Anticipated Outcomes

- 🔧 Almost one-half of respondents (45.1%) reported using at least one email account for more than six months since project inception
- 🔧 92.2% (47/51) of respondents felt the training they attended was useful citing such reasons as access to research funding, improved research and teaching opportunities, and dissemination of research findings
- 🔧 78.4% of respondents reported an increase in their use of Internet Communication Technologies since participating in at least one of the training workshops
- 🔧 Prior to training, 66.7% (34/51) of respondents did not incorporate any form of ICT in their classroom. After training, roughly the same number of participants (32/51) plans to incorporate some form of ICT in their classroom instruction during the next school year
- 🔧 A project assessment showed faculty trainees' post-test scores were 29% higher than pre-test scores

#### Unanticipated Outcomes

University of Bamako became the first truly wired higher learning institution as a result of the project. Consequently it gained stature and value to the region and was considered a leader in connectivity and ICT integrated learning.

### Outputs

- 🔧 Repositioned antennas and replaced equipment to improve University's Internet connectivity by 90%
- 🔧 University staff trained in LAN and WAN administration and maintenance
- 🔧 3 pilot projects launched by University faculty: an online psychology teaching module, an online education technology training module, and a resource site for mathematics
- 🔧 Internet User Groups established to provide on-going electronic support, via online discussion forum in French, tailored to the needs of each group
- 🔧 6-month action plan developed categorizing results needed to ensure functioning and use of the Internet connection at the university
- 🔧 6 LAN/WAN administrators, 224 faculty members, 204 trainers, 63 webmasters, and 1,140 students trained

## Sustainability Efforts

Internet User Groups were established by Michigan State University, which committed to providing the resources necessary to remain directly involved with University of Bamako staff and contribute electronic technical support following project closure. Howard University hosted a planning meeting with the Ambassador of Mali to the United States and his Second Counselor to establish grounds for continuing collaboration between the universities.

## Major Challenges

- ❑ Network antennas installed by a previous USAID initiative—upon which the project relied—were discovered to be inoperable and in need of reconfiguration
- ❑ Sporadic and slow connectivity, due to insufficient bandwidth from the University's Internet provider, severely impaired trainings offered by partner universities
- ❑ Lack of consistency in training approaches from both Michigan State University and Howard University
- ❑ Staff not remunerated by the university for training time contributing to lower and/or inconsistent attendance rates

## Comments

Project evidences the successes of training to new users of ICT, as well as the strengths of university-to-university partnerships.



# Initiative for Namibian Education Technology (iNET)

February 2003 – August 2005



**Country:** Namibia

**Region:** Sub-Saharan Africa

**Award Amount:** \$994,996

**Language of Instruction:**  
English

**Coverage:** Namibia's Colleges of Education: Ongwediva College, Windhoek College, Caprivi College, and Rundu College

**Grade:** College students and educators

**Subjects:** Integrating ICTs into Education

**Partners:**

- EDC
- NIED
- Academy for Education Development

## Intervention Objectives

- ✔ Improve professional development for Ministry of Basic Education, Sport, and Culture (MBESC) officials through ICT
- ✔ Develop structures and support systems to facilitate ongoing policy discussions on effective uses of ICT for education
- ✔ Improve policy and planning through decentralization of the Ministry's Education Management and Information System (EMIS)

## Direct Project Beneficiaries

- ✔ MBESC officials: teachers, principals, advisory teachers, inspectors, and regional and head office staff
- ✔ Faculty and students in the four Colleges of Education

## Marginalized Populations Reached

- ✔ Concerted outreach to female students attending colleges of education

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Student computer labs</b>	Promote student familiarity and use of computers and Internet	20 Linux-based workstations for student use; lab supplied with Internet	1 student computer lab installed in each of four Colleges of Education
<b>Faculty computer labs</b>	Enable faculty to develop, produce and share ICT course materials	10 Windows PCs installed for faculty use; lab supplied with Internet	1 faculty computer lab installed in each of four Colleges of Education
<b>EMIS web interface</b>	Make current EMIS data available online for regional education planners	Web interface developed and EMIS catalogues available in HTML, PDF, and spreadsheet formats	Developed: <a href="http://emis.edsnet.na">http://emis.edsnet.na</a>
<b>Regional education offices networked</b>	Enable all regional offices with ICTs to access online EMIS data	Enable shared printing and connectivity in all regional offices	74 individual offices in the 13 regional offices 68 computers networked
<b>Laptop procurement</b>	Ensure all regions have necessary tools to access school data available for educational planning	Laptops issued to MBESC Regional Education Planners to more readily access EMIS	All regional educational planners

### Training

	Intended Change	Beneficiary	Scale
<b>Teacher Resource Center (TRC) resource use planning</b>	Help TRCs expand client base, increase income, identify equipment to procure, and plan ways for additional resources to enhance capacity and support sustainability	Teacher Resource Center managers and staff	TRC managers and staff at each of 4 colleges
<b>ICT support to established TRCs</b>	Build foundational ICT aptitude and skills in computer center management, troubleshooting, networking and web site development	Computer Center Assistants (CCA)	1 or 2-week training for 1 CCA in each of 4 colleges
<b>Harvard WIDE World online course</b>	Improve teaching through technology integration; Classroom-based activities provide supplement skills acquired in online course	Teacher educators from Colleges of Education and education offices from NIED	82 participants
<b>Digital data collection and analysis</b>	Use current data sets to improve abilities in data collection, analysis, and reporting of school information	Ministry's regional education planners and inspectors of education	6-month training for all regional education planners

## Instructional Materials

- ✔ Expanded Ministry of Education website ([www.edsn.net](http://www.edsn.net)) to house nearly all syllabi, curricula, and teachers' guides, as well as sample lesson plans, HIV/AIDS information, mother tongue and English readers, and pronunciation sound clips
- ✔ Content also available in platform-independent, browser-based CD format

## Activities

### Objective 1: Improve professional development for Ministry of Basic Education, Sport, and Culture (MBESC) officials through ICT

- ✔ Conducted visits to colleges and other key stakeholders to discuss requirements and requests for Teacher Resource Center (TRC) site readiness, lab equipment (hardware/software), faculty training, and computer lab staffing
- ✔ Erected computer labs in each of Namibia's four Colleges of Education and provided corresponding training
- ✔ Enabled expansion of educational content available via [www.edsn.net](http://www.edsn.net)

### Objective 2: Develop structures and support systems to facilitate ongoing policy discussions on effective uses of ICT for education

- ✔ Assisted the Namibian ICT and Education Steering Committee in articulating comprehensive goals for utilizing ICT in education
- ✔ Assisted NIED in developing a formal agreement with its service provider to improve the provision of IT infrastructure

### Objective 3: Improve MBESC policy and planning through decentralization of Ministry's EMIS to all regional education offices and circuit offices within Basic Education Support program regions

- ✔ Conducted preliminary needs assessments to determine networking possibilities and requirements
- ✔ Installed cable infrastructure and enabled printing and network connectivity in all regional offices
- ✔ Procured laptops for all regional education planners
- ✔ Developed EMIS web interface

## Outcomes

### Anticipated Outcomes

- ✔ Teacher participants showed a significantly higher frequency of using ICTs with student teachers (54%) when compared with those teachers who had not participated on the project (19%)
- ✔ All computer centers established at colleges reported full capacity
- ✔ Following WIDE course, over 80% of all teacher educators reported using ICT facilities for preparation and/or research; nearly 60% of participating college lecturers reported integrating ICTs into their lessons

### Unanticipated Outcomes

In developing the ICT Policy for Education, partnership between iNET and the Ministry fostered a positive, "can-do" attitude among members.

## Outputs

- ✔ Increased computer center use, client input, income, and management capacity, meeting objectives of enhanced and sustainable services in targeted TRCs
- ✔ The expanded NIED website ([www.edsn.net](http://www.edsn.net)) hosts curriculum documents, syllabus guides, BETD and schools syllabi, subject policies, textbook catalogues, lower primary readers and pronunciation sound clips along with many locally produced lesson plans (Website was nominated for a World Summit on the Information Society [WSIS] eContent award). Web content was also transferred to CD, allowing resources to be accessed offline
- ✔ 80% of 82 Namibian participants enrolled in Harvard's WIDE world online course successfully completed the course. Three course graduates trained to coach successive course participants
- ✔ Coordinated early efforts in development of ICT Policy for Education. Policy finalized and publicly launched by Prime Minister
- ✔ Technical High School Feasibility Study to Ministry of Education developed and delivered. Study used to form the development of Schools of Excellence proposals in Namibia
- ✔ Developed professional support to the Ministry's Regional Education Planners and Inspectors of Education
- ✔ Development and delivery of EMIS web interface to provide up-to-date access to EMIS data in the regions

## Sustainability Efforts

Training and support offered to participants bolstered their confidence in working with ICT and in supporting ICTs in Namibia. Work under iNET contributed to a small body of skilled, interested, and committed staff and educators in the colleges, TRCs, and the Ministry.

## Major Challenges

- ✔ Ministry hiring procedures severely delayed hiring of key positions built into project design
- ✔ Establishing reliable, affordable Internet connectivity
- ✔ College of Education computer lab rollout and establishing connectivity took longer than expected
- ✔ Lack of facilities and computer hardware at the colleges resulted in insufficient access to technology for teachers and students
- ✔ Limited time to document project activities, achievements, and lessons learned
- ✔ No key officials involved in development of iNET at Planning and Development Directorate were still with directorate at project start-up
- ✔ Distances and differences between target regions made it difficult to attend to all the needs and challenges

## Comments

Despite uncertainty about the future of ICTs and education, particularly with funding, iNET fostered excitement and enthusiasm for the continued expansion of ICTs and education in Namibia. However, challenges between and within organizations persisted during the project.

# Namibia SchoolNet GDA

May 2003 – May 2006



**Country:** Namibia  
**Region:** Sub-Saharan Africa  
**Award Amount:** \$999,372  
**Cost Share:** \$2,463,850  
**Sponsor:** SchoolNet Namibia  
**Coverage:** 47 off-grid schools in North Central Namibia (Oshana-kati, Ondangwa, Okahao, Ohsangwena, Ogongo, Uutapi)  
**Subjects:** Basic computer and Internet usage

## Partners:

- EDC
- SchoolNet Namibia
- Telecom Namibia
- The National Institute for Education Development
- Peace Corps
- Swedish International Development Agency
- Academy for Educational Development

## Intervention Objectives

- ✔ Promote development of computer skills in Namibia's most disadvantaged schools and extend Internet access to these schools
- ✔ Provide at least 50 remote schools with computer centers and 30% of those with 24-hour wireless Internet and datacasting services
- ✔ Ensure all teachers at target schools are able to use bundled educational content and software, browse Internet for research and learning purposes, and use email--75% of students to acquire same skill set
- ✔ Train 600 young volunteers to refurbish and maintain computers, maintain computer networks, develop software, and assume related management responsibilities. At least 15% of those trained to take full-time employment in Namibian ICT sector
- ✔ Adapt open-source software to provide affordable and stable options for educational content delivery

## Direct Project Beneficiaries

- ✔ Teachers, Students

## Marginalized Populations Reached

- ✔ Remote, "off-grid" schools, teachers, and students

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Refurbished computers</b>	Increase access to low-cost computer hardware	Labs established with 10 computers and 1 new server in each target school	47 schools
<b>Free Internet access; wireless Internet</b>	Increase user access to and usage of Internet	Schools equipped with infrastructure to support (wireless) Internet service	46 target schools provided with Internet; 26 provided with wireless infrastructure
<b>Open-source software</b>	Increase user access to computer applications	Established labs supplied with computer hardware	47 schools
<b>Open-source call center software</b>	Improve intake, logging/reporting, and follow-up/resolution of school service requests at SchoolNet Help Center	SchoolNet utilizes software to improve response to IT service requests from participating schools	From June 2005 to May 2006, over 9,000 service calls logged

## Training

	Intended Change	Beneficiary	Scale
<b>Basic IT skills, innovative use of ICT</b>	Improve educational delivery using ICTs	Teachers	All teachers at target schools offered training
<b>Maintenance and management</b>	Increase local capacity to maintain established computer labs	Young volunteers	471 trained in computer maintenance and help desk/maintenance support; 35 trained in network administration; 496 in support services to schools
<b>Alumni exchanges, interview and application assistance</b>	Support to SchoolNet volunteers seeking employment or higher education opportunities	SchoolNet volunteers	314 trainings/meetings/exchanges (1/3 formal, 2/3 informal)



## Instructional Materials

- ✔ Service Level Agreements and Center Policies and Procedures Manual developed, validated, approved, and executed.
- ✔ Localized comic strip developed to promote use of computers and Internet, as well as to publicize Help Desk services.

## Activities

- ✔ Developed for remote Namibian schools wireless and satellite-based Internet solutions previously unavailable in Africa
- ✔ Procured and installed computer equipment, as well as open-source software, in labs for targeted schools
- ✔ Adapted open-source software to provide an affordable and stable option for content delivery
- ✔ Provided computer training to teachers and students benefiting from established computer centers
- ✔ Trained young volunteers in computer and computer network maintenance, software development, and computer center management

## Outcomes

### Anticipated Outcomes

- ✔ Increased use of Internet at labs, particularly in those supplied with 24/7 Internet access
- ✔ At least 50% of trained teachers using ICT-based teaching-learning materials to support project-based learning
- ✔ At least 50% of trained teachers using ICT-based resources to support own professional development

### Unanticipated Outcomes

3 SchoolNet volunteers achieved certification to develop Linux-certified programs, providing expanded opportunities for others to also become Linux-certified in Namibia

## Outputs

- ✔ 3 satellite SchoolNet offices established to better serve target schools
- ✔ 47 Schools received computer equipment, installation services, and Internet access
- ✔ Established sufficient wireless infrastructure for 24/7 Internet access in over 30% of target schools
- ✔ Open-source call center software developed, tested, and deployed
- ✔ School staff and learners provided training in basic computer literacy and application use
- ✔ Selected school staff provided with center management skills
- ✔ 212 SchoolNet volunteers have found employment or have moved into tertiary education

## Sustainability Efforts

The Total Cost of Ownership (TCO) model and standards for donated technology were brought to the forefront of policy discussions, requiring NIED and the Ministry of Education to consider costs of computer center maintenance and operation alongside costs of equipment purchase and to think through deployment models strategically.

## Major Challenges

- ✔ Exchange rate fluctuation significantly reduced number of target schools eventually reached with available funds
- ✔ Structure of agreements between USAID and partners proved cumbersome (costs and time inefficiencies involved)
- ✔ Improved communications throughout the project's timeline and, in particular, the planning phase, would have helped to ensure expectations were clear and commitments and deadlines reasonable. Greater coordination and involvement with the Ministry of Education, especially in the initial phases of the project, would also have contributed to these objectives
- ✔ Institutional capacity within SchoolNet stretched thin
- ✔ Billing system for flat-rate connectivity remains unresolved with Telecom Namibia (schools each charged different rates). Additionally, SchoolNet is not recognized by Telecom Namibia as an entity to be billed on behalf of schools (school connectivity sometimes suspended for alleged "non-payment")
- ✔ Either unaware of its existence or support services, schools still hesitant to report all problems to Help Desk

## Comments

Evidence collected at the end of the intervention suggest that volunteer and teacher training, availability and response of Help Desk, and public awareness campaigns to promote technology use all contributed to the sustainability of labs beyond the life of the project. Volunteers were seen as an effective vehicle for delivering technology training to a large corps of teachers. The Total Cost of Ownership (TCO) model and standards for donated technology contributed to planning and policy discussions. The project met particular successes in technology installation, including the use of open source software.

# Peru CAPTIC: Strengthening Pedagogic Practices through the Application of ICTs

January 2004 – March 2005



Photography: Karli Grobl

**Country:** Peru

**Region:** Latin America and the Caribbean

**Award Amount:** \$400,000

**Language of Instruction:** Spanish

**Coverage:** 11 localities in 4 regions (Cerro de Pasco, Oxapampa, Región Junín, Región Ucayali)

**Grade:** All primary school grades

**Subjects:** Integration of Technology and Student Centered Methodologies across all subjects

**Partners:**

- EDC
- The Concord Consortium
- MoE-Programa Huascarán

## Intervention Objectives

Peru CAPTIC (Comunidades que Aprenden con Apoyo de Tecnologías de Información y de Comunicaciones)

- 🌱 Supplement the Ministry of Education (MoE) effort (Programa Huascarán) to implement pedagogic changes that built on student-centered, intercultural, inquiry-based and collaborative learning environments that creatively integrate ICTs with other learning resources on the primary school level.

## Direct Project Beneficiaries

- 🌱 Primary school teachers, students, administrators, community members (parents)

## Marginalized Populations Reached

- 🌱 Girls and women

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computer with Internet connection</b>	Schools already equipped by the Huascarán project, teachers easily connected through this medium	Online training for teachers and educational leaders	One server and ten networked computers per school

### Training

	Intended Change	Beneficiary	Scale
<b>Online Training</b>	Increased competence in facilitating online communications	Teachers and teacher trainers	Offered three times to reach all 60+ participants
<b>Face-to-face Training:</b>			
1. <i>Project-based learning</i>	Increased ability to design and implement collaborative projects		One two-day training session with online follow-up provided to all Participants
2. <i>Community of Practice/Video Workshop</i>	Use of video and other technologies in working with students, for example conducting “genuine conversations” with students, recording best practices and sharing them with other teachers	Teachers and teacher trainers	Training provided to a group of lead teachers from all schools
3. <i>Gender Equity Workshop</i>	Increase awareness about gender issues, promoting equity		Workshop provided to all participants;

## Peru CAPTIC: Strengthening Pedagogic Practices through the Application of ICTs

<b>Online Follow up</b>	Skills development in project based learning and in maintaining community of practice with other educators	Teachers and teacher trainers	Offered to all participating teachers and teacher trainers
<b>Face-to-Face Follow up</b>	Continuing professional development	Teachers and teacher trainers	Bi-weekly meeting at each school
<b>Community Outreach Fair</b>	Community involvement and sustainability enforcement	Students and teachers, parents, local education authorities, and community	One community fair per region

### Instructional Materials

CD-ROM, online forums, teachers' guides and manuals and video studies were used.

### Activities

- ✔ Instructional needs assessment
- ✔ Teacher and teacher trainer professional development
  - Face-to face trainings and workshops
  - On-line follow up and continuous professional development and support
  - Face-to-face follow up in schools
- ✔ Complementary strategies for sustainability (community outreach)
- ✔ Monitoring and Evaluation

### Outcomes

#### Anticipated Outcomes

- ✔ Teachers' capacity in using collaborative learning methodology increased. For example, each teacher implemented two school-wide collaborative projects that involved all students in the school
- ✔ Teachers' competency in the use of online tools (e-mail, search engines) increased - they learned how to search for educational materials which in turn helped improve their teaching
- ✔ Teachers started transforming their pedagogical practices with the introduction of problem-centered and collaborative activities

#### Unanticipated Outcomes

Improvement in general computer and Internet literacy among community members

### Outputs

- ✔ Using student-centered, project-based activities, 345 future teachers and 11 teacher trainers in 4 teacher training institutes were trained as well as 51 primary school teachers in 13 primary schools in the use of ICTs
- ✔ The project reached 1,422 primary school students

### Sustainability Efforts

The national coordinator of CAPTIC was invited to join the MOE Programa Huascarán. Programa Huascarán will continue to carry on activities developed and implemented by the project at the national level.

### Major Challenges

- ✔ Fragile technology infrastructure: connectivity problems, pirated software. Diagnosing and resolving technical problems took a long time, phone connections were weak or unstable
- ✔ Low level of teacher preparedness
- ✔ Participants' time commitment

### Comments

Programa Huascarán is still active in Peru, it uses many teacher training and other activities developed and introduced by the project.

# Enlace Quiche – Guatemala

June 2002 – February 2004



**Country:** Guatemala

**Region:** Latin America and the Caribbean

**Award Amount:** \$999,955.57

**Cost Share:** \$406,947

**Sponsor:** Microsoft Corporation

**Language of Instruction:** Spanish and Mayan

**Coverage:** 20 Bilingual Intercultural Education Technology Centers in and around the Quiche region

**Grade:** primary school grades and teacher training high school grades

**Subjects:** Spanish and indigenous (Mayan) language

**Partners:**

- EDC
- Academy for Educational Development

## Intervention Objectives

- ☑ Improve quality of bilingual (Spanish and indigenous Mayan) intercultural education through the use of ICTs
- ☑ Improve access to bilingual education for students, educators, parents and community members in Quiche and neighboring areas
- ☑ Broaden impact of ICTs on Guatemala's education system

## Direct Project Beneficiaries

- ☑ Rural indigenous (Mayan) communities

## Marginalized Populations Reached

- ☑ Rural Mayan communities - indigenous population

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computers, Internet, digital cameras, scanners</b>	Enable teachers and students to develop new materials, use existing software and content, and share experiences and best practices in bilingual intercultural education with each other and other schools	For teachers: development, sharing, and use of Mayan-language materials; bilingual professional development; For students: computer training and collaborative projects with interactive bilingual software	20-25 computers at each CETEBI and 10-12 at each mini-CETEBI

### Training

	Intended Change	Beneficiary	Scale
<b>Technology use for bilingual education</b>	Capacity and commitment to use technology in CETEBI for class material development, teaching, and professional development	Teachers	170 teachers trained
<b>Computer basics</b>	Understanding of technology, its role, uses, and benefits	Parents	86 parents attended a 20-40 hour long course
<b>Story book software</b>	Use of this CETEBI-developed resource used nationally	Student-teachers	294 student-teachers trained
<b>Internet use and teacher practice</b>	Capacity to use Internet for connecting with other educators, sharing experiences and materials, using on-line resources for teaching	Teachers	141 teachers trained in how to use Internet, 32 in how to integrate Internet resources into classroom
<b>Intro to Windows, Word, Power Point</b>	Use of computers and software to develop new materials, implement projects, learn and teach using ICTs	Center administrators, teachers, students, and teachers from rural schools with mini-CETEBIs	75 CETEBI administrators and users (teachers and students) trained and 20 rural teachers trained
<b>Front Page, computer maintenance, administration</b>	Increase capacity to maintain technical equipment of each CETEBI	Center administrators and selected members of the technical team	25 CETEBI administrators trained

## Instructional Materials

- ✔ Weaving the Mayan Language - 4 CD set (developed with Mayan Languages Academy of Guatemala)
- ✔ CEBETI created Quchak (Our Work) 2 CD set
- ✔ Virtual community and web portal ([www.enlacequiche.org](http://www.enlacequiche.org) and [www.ebiguatemala.org](http://www.ebiguatemala.org))
- ✔ Jun E (A Destiny) software designed to link classroom methodologies and materials, in Mayan language, developed for grades K-3 (developed with Access to Intercultural Education Project - PAEBI/USAID )
- ✔ "Let's Broaden Our Thinking" software designed for older students and teachers
- ✔ The Translation to Mayan Languages : A Self-study Virtual Guide (developed with OKMA - Mayan Linguistic Association)

## Activities

- ✔ Established and maintained CETEBIs. School administrators, teachers, and students were introduced to the technology
- ✔ Encouraged school communities to open CETEBIs them to the community on a fee-for-service basis to make them more sustainable. Some communities embraced the idea, while others chose to have CETEBIs reserved for students only. All CETEBIs had a system of user fees (\$4 per month for students) for computer course training
- ✔ Created bilingual interactive digital materials to be used via Internet or CD-ROM. Enlace worked with students and teachers to create and use print and digital materials in the classroom. Also worked with local partner institutions to build capacity in digital material production.
- ✔ Trained teachers, students, student-teachers, parents, other community members, and CEBETI administrators in how to use computers and other technology for more effective bilingual intercultural teaching and learning
- ✔ Built capacity in local partner organizations - OKMA - Mayan Linguistic Association, the Mayan Language Academy, and others
- ✔ Created a network or "virtual community" of bilingual teachers ([www.ebiguatemala.org](http://www.ebiguatemala.org)) and teacher-trainers that can provide support and resources to educators throughout the country

## Outcomes

### Anticipated Outcomes

- ✔ Improved quality and access to bilingual education in the Quiche region of Guatemala. According to the impact evaluation, of 700 students who regularly used CETEBIs, 63% consider that the project helped bilingual education in the community
- ✔ Teachers and students started using ICTs in the classroom and for homework assignments. The impact evaluation showed that 66% of students consider CEBETI an integral part of the curriculum, and 57% use school materials created in the CETEBIs for assignments
- ✔ The overall impact on the community is also positive - 85% of the respondents reported that they consider the presence of a CEBETI in their community to be beneficial

### Unanticipated Outcomes

The Jun E software program was recognized by the World Summit on the Information Society as one of the top digital content programs in the world, bringing "a new dimension to bilingual intercultural education".

## Outputs

- ✔ Establishment of 15 CETEBIs in and around the Quiche region of Guatemala in addition to 5 (Phase I) CETEBIs. 7 were installed in bilingual teacher-training schools and 8 were based in rural Mayan primary schools
- ✔ Implementation of 45 bilingual intercultural school projects
- ✔ Production of 2-CD set (Quchak - Our work) and two websites ([www.ebiguatemala.org](http://www.ebiguatemala.org) and [www.enlacequiche.org.gt](http://www.enlacequiche.org.gt)) with resources for bilingual intercultural education
- ✔ Production and distribution of 2,800 copies of "Blossoming of our grandparents' words," oral tradition storybook created by teachers and students
- ✔ Creation of the virtual community ([www.ebiguatemala.org](http://www.ebiguatemala.org)) full of resources, links to other useful websites, and a discussion space
- ✔ Training of 1,954 students, teachers, parents and partners in bilingual education, pedagogy, technology, and materials development
- ✔ Foundation of "Association Ajb'atz' Enlace Quiche" - a local NGO tasked with continuing to build capacity in the region in the use of ICTs for bilingual intercultural education after the project ends

## Sustainability Efforts

- ✔ Guatemala's Ministry of Education supported this effort because it was a part of national education reforms began in 1997, which were designed to address bilingual education. The Ministry took up distribution of some of the materials developed in the CETEBIs at its own cost. The Ministry has also filmed a teacher training video on ICTs in education featuring CETEBI-developed materials.
- ✔ The Enlace Quiche website is still functioning and is updated often with new materials, events, and discussions that go on in CETEBIs today, after the project has officially ended (see [www.enlacequiche.org](http://www.enlacequiche.org)).

## Major Challenges

- ✔ Maintenance and support of connectivity: keeping the local area networks functional
- ✔ Maintenance and repair of old (donated) computers
- ✔ Weak center administrator technical skills, some administrators needed a lot of support and training

## Comments

CETEBIs continue to exist and function as effective centers of teachers' professional development, student work centers and a place that attracts community members to educational intercultural events.

# Kigali Institute of Education Connectivity – Rwanda

July 2002 – July 2004



**Country:** Rwanda

**Region:** Sub-Saharan Africa

**Award Amount:** \$484,958

**Language of Instruction:**  
English and Bantu

**Coverage:** Kigali Institute of Education (KIE)

**Grade:** Teacher training (in-service and pre-service)

**Subjects:** ICT and Pedagogy

**Partners:**

- EDC
- World Links

## Intervention Objectives

- ✔ Improve administrative and financial management of KIE
- ✔ Enable collaboration with other educational institutions
- ✔ Promote innovative instructional design
- ✔ Enhance the effectiveness of distance training provision to pre-service and in-service secondary school teachers (in Distance Training Centers - DTC) in order to provide a more qualified secondary school teaching workforce

## Direct Project Beneficiaries

- ✔ Kigali Institute of Education academic and administrative staff and students

## Marginalized Populations Reached

- ✔ Teachers and student teachers in remote areas

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computers with software and connectivity:</b> 1. Internet access 2. LAN-to-LAN 3. Voice over IP	Help KIE staff and students increase the effectiveness of KIE's work and meet the project objectives	Used by KIE staff and students to improve administrative and financial management, enrich professional development, and establish collaborative projects with other educational institutions, and to create effective distance learning teacher training programs	110 computers and accompanying equipment installed in a local area network, covering 10 buildings of the KIE campus and 4 distance training centers

## Training

	Intended Change	Beneficiary	Scale
<b>Technical</b>	KIE IT staff and remote DTC managers' increased proficiency in LAN and WAN network administration and troubleshooting	KIE IT staff and DTC managers and administrators	Intense 2-week long training for 5 key technical network administration staff
<b>Pedagogical</b>	Increased competency in integration of technology into curriculum and production and delivery of interactive teacher training modules and training sessions	KIE academic staff	Four phases of World Links Teachers Professional Development program delivered to 27 KIE academic staff members

## Instructional Materials

Training materials and handouts were used to support technical skills for administrators and pedagogical practices of teachers

## Activities

- ✔ Procured and installed computers, accompanying equipment and software, and provided connectivity
- ✔ Trained IT staff in technology and network administration and maintenance
- ✔ Provided pedagogical training to academic staff in KIE and DTC
- ✔ Tested and configured the entire network for optimal performance and sustainability

## Outcomes

### Anticipated Outcomes

- ✔ KIE benefited through increased capacity in providing effective in-service and pre-service teacher training to its students and teachers in remote areas.
- ✔ Teacher training materials and curriculum improved with KIE's new capability to provide training in ICT integration into curriculum.

### Unanticipated Outcomes

N/A

## Outputs

- ✔ 110 computers installed and connected to a network in 10 KIE campus buildings and 4 DTCs
- ✔ 5 KIE and DTC IT staff trained in network administration and maintenance
- ✔ 27 KIE academic staff trained in ICT integration into curriculum, and interactive modules development

## Sustainability Efforts

KIE made a commitment to extend the program and work with computer labs in 16 secondary schools to expand its distance learning outreach program.

## Major Challenges

The original bid for the equipment supply within Rwanda was canceled due to the fact that all bidders quoted prices too high, which would translate into procuring 65 computers rather than 110 as planned.

## Comments

KIE is now one of the progressive Institutes of Education in the region and offers online resources and materials to its students found on their Web site: <http://www.kie.ac.rw/>.

# Somali Interactive Radio Instruction Program (SIRIP)

September 2005 – September 2008



**Country:** Somalia

**Region:** Sub-Saharan Africa

**Award Amount:** \$6,000,000

**Language of Instruction:** Somali and English

**Coverage:** Somalia, Somaliland, Puntland

**Grade:** 1 - 5

**Subjects:** Reading, Math and Life skills (health, conflict prevention and mediation, democracy-building)

**Partners:**

- EDC

- The Transitional Federal Government
- Ministry of Education
- The Ministries of Education in Somaliland and Puntland
- The Ministries of Communication and Information
- Puntland: KAALO, ADRA, SAACOM, TASS
- Somaliland: HAN, CARE, SC-D, SC-UK, NRC, Gurmaad
- South/Central: SAFE, SOFEL, IDPs, SOFEN, LORDO, COSV, ACECOD, SAREDO, IAS, CONCERN, WFL, World Vision, Shabelle Educational Umbrella, NFE, Small Schools, SOFE

## Intervention Objectives

- ✔ Provide access to curricular content for grades 1-5
- ✔ Design, test and implement a radio-based instruction program for grades 1-5
- ✔ Reach children inside and outside the formal education system
- ✔ Increase girls' enrollment and community participation
- ✔ Build capacity of local educators

## Direct Project Beneficiaries

- ✔ Grade 1-5 students

## Marginalized Populations Reached

- ✔ Out-of-school children, girls, Quranic schools, and undereducated adults

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Shortwave Radio</b>	Ensure national coverage	National broadcast	Somali populations in Somalia, Somaliland and Puntland
<b>FM broadcast</b>	Improve quality of reception and expand reach of broadcast  Encourage FM stations to support education in the region	FM and Shortwave broadcast of identical content	Urban centers and areas with larger populations
<b>Radios for schools</b>	Radios are most widely used means for communication in the region	School and community use	4,460 to be purchased and distributed

## Training

	Intended Change	Beneficiary	Scale
<b>Face-to-face</b>	Effective use of radio for IRI	Teachers	1,177 teachers (in 2007) 2,066 teachers (in 2006)
<b>Embedded in radio content</b>	General teaching strategies	Teachers and students	3,243 teachers; 119,229 students



## Instructional Materials

Teachers guides, alphabet books, story books were used.

## Activities

- ✔ Identify and use a network of public, private, and non-governmental education organizations for IRI delivery
- ✔ Develop and provide teacher/facilitator training to use IRI
- ✔ Develop, test, produce, and disseminate IRI programs in reading, math, and life skills for grades 1-5

## Outcomes

### Anticipated Outcomes

Improved reading, math and life skills for approximately 400,000 Somali children

### Unanticipated Outcomes

The shadow audience (i.e. listeners not targeted by the project such as shopkeepers and parents) that benefit from the programs continues to grow; some parents decided to use the radio programs as a way to teach their children and their neighbors' children at home, and some shopkeepers listen to the programs to improve their literacy and basic arithmetic

## Outputs

- ✔ IRI episodes: Grade 1: 120 in math and 80 in reading. Grade 2: 120 in math and 80 in reading. Grade 3, 4 & 5: 100 in math and 80 in reading
- ✔ 1,177 teachers trained in 2007; 2,066 teachers trained in 2006
- ✔ 119,229 students reached
- ✔ 3,584 teachers' guides and 1,722 alphabet books distributed

## Sustainability Efforts

- ✔ Building capacity of local NGO, Educators and community leaders to continue with IRI after the project
- ✔ The project equipped the Ministry of Information with a digital studio to continue to produce IRI radio programs
- ✔ Teachers trained in active learning, child-centered, and other sound pedagogies--skills they will carry with them throughout their teaching careers

## Major Challenges

- ✔ Securing radio broadcast partners from year to year
- ✔ Local radio broadcasters lack the means to cover the whole country, so shortwave is used for primary distribution
- ✔ Security of staff and equipment
- ✔ Lack of adequate means of transportation to cover such a wide territory
- ✔ Navigating between the different local authorities in the three different zones

## Comments

The project strengthened the role and capacity of local NGOs, educators and community leaders to replicate the IRI model. The project also offered equipment to local radio stations to enhance their broadcast capacity.

# Sudan Radio Service (SRS)

March 2003 – September 2007



**Country:** Sudan

**Region:** Africa

**Award Amount:** \$8,487,773

**Language of Instruction:** Arabic, English and local languages (Nuer, Dinka and others)

**Coverage:** All of Sudan, with focus on southern Sudan and the Three Areas; international through Internet streaming

**Grade:** Adults at all levels, including out-of-school

**Subjects:** Civic education, current events (news), health, general education, agriculture and animal husbandry, culture, etc.

**Partners:**

- EDC
- Merlin/VT Communications

## Intervention Objectives

- ✔ Educate citizens about the Comprehensive Peace Agreement (CPA) and interim constitutions
- ✔ Educate citizens about general civic concepts—such as minority rights, rule of law, checks and balances—in the Sudanese context
- ✔ Increase participation of southern Sudanese in governance and development processes
- ✔ Provide accurate and non-partisan current events information
- ✔ Provide programming in Simple Arabic and several other local languages in order to get information to a wider segment of the Sudanese population
- ✔ Highlight successful peace efforts and share success stories

## Direct Project Beneficiaries

- ✔ Sudanese citizens within Sudan and the Diaspora

## Marginalized Populations Reached

- ✔ Rural residents, internally displaced persons (IDPs), and refugees

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Shortwave Radio</b>	Provide unfettered access to a large area from outside the country	Radio broadcasting and Internet streaming/podcasting	Radio broadcasts cover all of Sudan and Internet downloads available internationally
<b>Digital Radio Studios, Recording Equipment</b>	Better sound quality that is easier to edit and store	All audio for use in radio programs is digitally recorded and archived	6 hours of programming each day produced using 3 fully-equipped studios and a dozen field recording kits
<b>Internet-Based FTP</b>	System of sending content faster than sending CDs or tapes via mail, in order to ensure that content is as current as possible	File Transfer Protocol used to send digital audio from studios in Nairobi, Kenya to the London-based transmission provider; allowed SRS to upload programs just minutes before they are broadcast	Each week, 43 hours of radio programming uploaded

## Training

	Intended Change	Beneficiary	Scale
<b>Technical</b>	Create a local workforce of radio producers and technicians	Local engineers and radio producers	48 (staff who have worked directly for SRS)
<b>Journalistic</b>	Contribute to the creation of a professional journalism corps	Local journalists	138 (other journalists, stringers, technicians, etc.)

## Instructional Materials

SRS has created a number of journalism training materials related to audio and radio production, news reporting, ethics in journalism and the role of drama in radio. These materials are generally in the form of handouts and are used during training activities.

## Activities

- Established an entire infrastructure for a community radio service, including studio construction, transmission infrastructure (through satellite uplink), staff and journalist training
- Delivered independent news and information to broadcast education, conflict resolution and health news and information

## Outcomes

### Anticipated Outcomes

- Increased awareness of issues and news by southern Sudanese able to access SRS broadcasts
- Participation of NGOs and others to use SRS as a means of disseminating information

### Unanticipated Outcomes

Tremendously popular amongst Sudanese in the Diaspora, thanks to the SRS website

## Outputs

Broadcast output:

- July 2003 – December 2003: two hours per day (6 to 8 p.m.); second hour is repeat of first hour
- January 2004 – April 2004: four hours per day (6 to 8 a.m. and 6 to 8 p.m.); evening broadcast is a repeat of mornings
- May 2004 – December 2006: six hours per day (6 to 9 a.m. and p.m.); evening broadcast is a repeat of mornings
- January 2007 – Present: five hours per day (6 to 8 a.m. and 6 to 9 p.m.); 7 to 8 a.m. programming is simulcast on two frequencies; programming repeats, but on varied schedule. Thus, morning and evening broadcasts each day are unique. 8 to 9 a.m. and weekend programming is produced by SRS but supported by other partners. Under this format, most programming is in Simple Arabic language.
- SRS website ([www.sudanradio.org](http://www.sudanradio.org)) launched in April 2004.

## Sustainability Efforts

SRS has been able to generate some revenue by providing production and broadcast services to other NGOs. For example, SRS worked with one NGO to create radio content about HIV/AIDS. SRS was compensated for its production services and for providing broadcast air time. SRS has also been able to generate some revenue by charging air time for other information announcements such as job advertisements.

## Major Challenges

- Due to instability in Sudan, the production activities have been based out of Nairobi. Initially, all production was to move into Sudan after two years, but this has not yet been feasible. Being based in Nairobi continues to present advantages and disadvantages.
- Publicizing SRS and its frequencies is difficult in such a huge country with poor infrastructure and insecurity.
- Shortwave broadcasts were the best option in the beginning, but FM stations in larger towns are eclipsing SRS as people's most popular Sudanese radio outlets.

## Comments

SRS regularly receives praise from listeners who say it is their only trusted source of reliable news in Sudan. SRS' choice of music and culturally-oriented programming is also very much appreciated. Shortwave radio stations have always declined in areas where there are FM stations. This is why the BBC and VOA, for example, set up FM repeaters or partner with local FM stations wherever they can, so SRS will need to do the same to remain a strong voice in urban areas. Marketing in rural areas will keep that segment of listeners secure. Greater financial sustainability could be achieved by transforming SRS into a producer of programming that could sell its programs to interested FM stations. However, it will be some time before FM stations in Sudan will be able to afford to buy programs, as they are also struggling in markets with almost no advertising revenue.

# Assessment to Create and Design Sudan Independent Radio Station

December 2002 – January 2003



**Country:** Sudan

**Partners:**

**Region:** Sub-Saharan Africa

- EDC

**Award Amount:** \$74,365

**Language of Instruction:**

English

**Coverage:** Region of southern Sudan

## Intervention Objectives

- ✔ Create a strategy and make recommendations on station ownership and structures, station location, languages of broadcast and program schedule, staffing, and timeline
- ✔ Determine programming priorities and interests from southern Sudanese stakeholders

## Direct Project Beneficiaries

- ✔ The people of southern Sudan

## Marginalized Populations Reached

- ✔ Refugees in countries neighboring Sudan and IDPs within Sudan

## Activities

- ✔ Met with representatives of local and national government, as well as local and international NGOs working in southern Sudan and UN agencies in the region to hear concerns and their views on how a radio service could enhance their work
- ✔ Consulted with broadcast service provider about transmission and program delivery options
- ✔ Looked at office properties and met with attorneys regarding EDC and project registration options
- ✔ Gathered cost information related to rent, staffing, etc.

## Outcomes

### Anticipated Outcomes

A blueprint for establishing an independent radio station serving the people of southern Sudan

### Unanticipated Outcomes

The result of this initial needs assessment is the establishment of the Sudan Radio Service – the region's only independent source of local news and information serving not just people in Sudan but members of the Sudanese Diaspora as well.

## Outputs

A strategy document containing recommendations on implementation of an independent radio station targeting southern Sudan

## Sustainability Efforts

See Sudan Radio Service Project Profile.

## Major Challenges

The infrastructure within southern Sudan remains very poor and political stability is uncertain, so the service has had to continue working from its base in Nairobi, Kenya, rather than relocate to southern Sudan.

## Comments

See Sudan Radio Service Project Profile.

# Southern Sudan Interactive Radio Instruction (SSIRI)

June 2004 – June 2009



**Country:** Sudan

**Region:** Sub-Saharan Africa

**Award Amount:** \$15,469,303

**Language of Instruction:**

English, with instructions for teachers to translate into local languages

**Coverage:** southern Sudan, with special focus on the Three Areas (Southern Kordofan, Southern Blue Nile, Abyei)

**Grade:** 1-4, adult education, and teacher training

**Subjects:** Math, literacy, English, peace building, life skills; professional studies for teachers

**Partners:**

- EDC
- Ministry of Education, Science and Technology (MOEST)
- Miraya FM radio broadcaster
- VT Communications

## Intervention Objectives

- ✔ Complement and accelerate learning in core curriculum areas including English, initial literacy, and numeracy
- ✔ Improve teaching practices
- ✔ Improve English skills and understanding of civics education

## Direct Project Beneficiaries

- ✔ Teachers and untrained mentors, children of school age both in and out of school, adult learners

## Marginalized Populations Reached

- ✔ Out-of-school youth and undereducated adults

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Primary school radio broadcasts</b>	Overcome geographic challenges	Shortwave and FM broadcast; wind-up/solar-power radios for primary schools	40,000 students
<b>Teacher training radio broadcasts</b>	Provide instructors with professional development	Provide wind-up radios to primary schools	200 teachers
<b>VSAT/Internet teacher training</b>	Enable teacher trainers to communicate with other educators and to identify good instructional materials	VSAT at teacher training institutes	Up to three Teacher Training Institutes (TTI) and one County Education Center (CEC)
<b>English language instruction</b>	Reach mass audience	Shortwave and FM broadcasts	10,000 in groups plus potentially large but unknown number of casual listeners

## Training

	Intended Change	Beneficiary	Scale
<b>Technical</b>	Regular, effective use of radio for IRI content	Teachers and students	832 teachers and 343 schools
<b>Pedagogical</b>	Active pedagogy and student-centered learning	Teachers and students grades 1-4	832 teachers and 343 schools

### Instructional Materials

Teacher guides were used to support IRI broadcasts of curriculum content and to support IRI teaching methodology of student centered learning.

### Activities

- 📌 The Learning Village: 100 daily half-hour programs for each grade 1-4. Followed the Southern Sudan primary school syllabus in the core subjects of English, local language literacy, and mathematics, as well as life skills, land mine awareness, and peace education. Lessons for grades 1-3 broadcast on short-wave radio through southern Sudan and the Three Areas, and on FM throughout much of southern Sudan
- 📌 TERBIA (Teaching English through Radio Based Instruction for All - TERBIA also means education in Arabic): Beginning to advanced English language instruction for youth and adults, engaging the learners in important issues around the Comprehensive Peace Agreement (CPA), civic education, health and numeracy. Two levels of TERBIA with a total of 240 half-hour programs. Three lessons of each series broadcast every week
- 📌 Professional Studies for Teachers: A radio-based distance learning course developed to improve the teaching practice of southern Sudanese teachers and to help them earn credit toward certification. The program is based on the MoEST in-service teacher training program. The first 12-week course, called Professional Studies (PS) 101, focused on effective classroom management. Participants were expected to complete assignments following each weekly broadcast and were provided support by local instructors
- 📌 SSIRI to provide VSAT/Internet service to teacher-training institutions to enhance communication and expand access to educational materials

### Outcomes

#### Anticipated Outcomes

- 📌 100,000 primary school children reached; 115,000 youth and adults through the TERBIA English programs
- 📌 1,800 teachers trained in Interactive Radio Instruction; 350 teachers trained as part of the teacher training program
- 📌 110 education officials trained in managing SSIRI programs

#### Unanticipated Outcomes

- 📌 Due to the success of grades 1-3, the project was extended to include grade 4
- 📌 Availability of FM to reach the majority of the population in southern Sudan
- 📌 Participation of military and police as learners

### Outputs

- 📌 400 lessons for grades 1-4 (100 half-hour lessons per grade)
- 📌 240 English language radio programs, including civic education, health, and mathematics
- 📌 One series of 12 radio-based teacher training programs; additional series may be developed
- 📌 VSAT/Internet installation plus training and support at four learning centers

### Sustainability Efforts

Instructional radio content is based on the curriculum of the Ministry of Education, Science and Technology and is expected to complement that curriculum for years to come. SSIRI was integrated as a formal unit within the department of Alternative Education Systems, where it receives strong support. SSIRI is also an integral part of the new national literacy campaign.

### Major Challenges

There is plenty of good will at all levels, but the education system in the region is still being created after years of disarray and turmoil, especially at the state level. There are still problems around capacity and resources. Also, although there is progress on infrastructure such as roads, communications, and banking, the infrastructure is weak, which places constraints on implementation activities.

### Comments

By its end, the project should reach most of the primary schools and adult learning centers throughout the country. An estimated 600,000 children will benefit from the primary school programs, and likely even more out-of-school youth and adults. The radio-based teacher education program should expand and be an integral part of the Ministry's in-service teacher education program. The long-term goal is for SSIRI programs to be fully incorporated into the Ministry structure and programs from the central level to the classrooms.

# Connectivity for Educator Development Phase II (Connect-ED)

October 2003 – September 2005



**Country:** Uganda

**Region:** Sub-Saharan Africa

**Award Amount:** \$1,284,076

**Language of Instruction:** English

**Coverage:** 8 Primary Teacher Colleges across Uganda and Kyambogo University

**Grade:** College educators

**Subjects:** Integrating ICTs into instruction

**Partners:**

- EDC
- Academy for Educational Development
- Kyambogo University (KyU)
- Primary Teacher Colleges (PTCs): Bushenyi, Gulu, Kibuli, Ndegeya, Shimoni, Soroti, Lira, and Mukuju

## Intervention Objectives

Connect-ED Phase I was funded as an educational development and democracy initiative. It was designed as a pilot activity to build internet points of presence throughout the country and to expand access to quality educational materials for teachers in rural Uganda. Connect-ED Phase II (2003-2005) consisted of the same Ugandan team and built on the successes of Phase I but broadened the scope of ICT-in-education activities to achieve the following:

- ✔ Develop approved ICT-in-Education policy at institutional and national level
- ✔ Create and implement a business plan for each college's computer resource center to cultivate financial self-sustainability
- ✔ Develop and implement an IT strategy at Kyambogo University (KyU)
- ✔ Enable Primary Teacher College (PTC) tutors and other educators to incorporate technology into student-centered teaching and learning
- ✔ Increase capacity of PTC tutors and pre-service teachers to design and develop ICT-based educational resources and contribute to online versions of teacher training curriculum
- ✔ Fully design websites for each college and KyU, with maintenance strategy and decentralized capacity for maintenance
- ✔ Increase number of online PTC curriculum units

## Direct Project Beneficiaries

- ✔ Educators within targeted Primary Teacher Colleges, Kyambogo University, and the Uganda Ministry of Education and Sports

## Marginalized Populations Reached

- ✔ Rural Primary Teacher Colleges

## Inputs

### Technology Components

	Rationale	Application	Scale
Internet-connected computers	Provide an interface and network for online collaboration and learning	Computer-based and online tutorials and training	Instructors from eight primary teachers colleges

### Training

	Intended Change	Beneficiary	Scale
Harvard WIDE World online course: <i>Teaching to Standards with New Technologies</i>	Enable educators to create and refine a lesson plan using technology to target conceptually difficult areas within curriculum.	Educators from PTCs and KyU	70 master teachers
Post-WIDE workshop	Reflect on the teaching for understanding framework and share	Educators from PTCs and KyU	35 educators

## Connectivity for Educator Development Phase II (Connect-ED)

	experiences of using skills acquired from course.		
<b>Website creation</b>	Enable educators with capacity to design and develop websites. Training addressed designing interfaces, linking, working with web images, object linking and embedding, updating and uploading web pages, with a focus on educational content delivery.	PTC educators	All PTCs
<b>Digital educational resources development</b>	Educators to re-examine content available via online curriculum, design and collect educational materials for use in online curriculum, and integrate technology in teaching.	Subject matter specialists	All PTCs
<b>Website maintenance</b>	Build decentralized capacity at each PTC to enhance and maintain PTC websites.	PTAs and counterparts	All PTCs

### Instructional Materials

- ✔ Educational resources were created by PTC tutors in resource development workshops and added to online curriculum established by Connect-Ed Phase I. Curricular areas addressed included science and health, foundations of education, math, language, culture education, and social studies
- ✔ Training manual developed detailing training in development and maintenance of educational websites for teachers and PTC websites

### Activities

- ✔ Facilitated workshops and meetings with various stakeholders and collaborated with expert consultants to sensitize stakeholders, build consensus and formulate ICT-in-education policies at the college and Ministry levels
- ✔ Created and implemented sustainability models for each PTC's computer resource center to operate independently of USAID funding
- ✔ Created an ICT strategy for Kyambogo University articulating the purposes and objectives of IT at the university, appropriate uses of IT within the university context, as well as short- and long-range plans for IT deployment and maintenance
- ✔ Supported KyU delegation visit to Namibia to conduct comparative analysis of online course success in African country context.
- ✔ Sponsored enrolment of KyU teachers in Harvard WIDE online course
- ✔ Supported website development for each of the PTCs and KyU
- ✔ Expanded number of curriculum units available online via workshops focusing on curricular review and the design and development of digital educational resources

### Outcomes

#### Anticipated Outcomes

- ✔ In developing business plans, Primary Teacher Colleges have made efforts towards sourcing funds for the sustainability of their computer resource centers independent of USAID-assistance. The project reports an average of 71% of computer center operations costs were covered by each PTC in the final year of project implementation
- ✔ 12 of 14 surveyed PTC tutors reported believing their participation in Harvard WIDE training "significantly" enhanced student learning and understanding in their classrooms. The remaining 2 felt this enhancement was "dramatic." 9 of 14 surveyed PTC tutors reported believing their overall professional practice had improved significantly as a result of course participation with the remaining 5 believing this improvement to be "dramatic." The majority of respondents also responded positively to improvements in communicating with students about their own learning, overall curriculum design, and curriculum unit design, as well as to the usability of course content in practice and an understanding of how to incorporate online tools into practice
- ✔ Training PTC tutors to develop educational resources and contribute them to the PTC online curriculum is reported to have increased ownership and use of the curriculum



### Unanticipated Outcomes

Despite a heavy focus on developing sustainability models for the PTC computer centers, and enthusiasm among participants, generating enough revenue and capacity to sustain the project remained elusive. Increasing costs for connectivity and maintenance took a significant and unexpected toll on the project.

### Outputs

- ✔ ICT committees were formed at PTCs and internal ICT policies and operational guidelines were created
- ✔ All PTCs developed business plans for computer resource centers by March 2005. Local partnerships were pursued at PTCs. Cost analyses of implemented business plans were performed for each center
- ✔ Kyamobogo University's Information Systems and Services Policy, Strategy and Master Plan officially launched in September 2005. (Available at: <http://www.dot-com-alliance.org/dotedu/uganda/deliverables/>)
- ✔ Over 80% of participants enrolled in Harvard WIDE course passed all requirements to receive certificates of achievement
- ✔ Each participating PTC, and KyU, created its own institutional website
- ✔ 6 units from the PTC curriculum were enhanced with interactive quizzes and activities, online resources, readings, content, illustrations, and images and posted online. 107 units were produced pertaining to Mathematics Education, Cultural Studies, Language and Literature Education, Science and Health Education, and Professional Education Studies

### Sustainability Efforts

The project made specific efforts to support self-sustainability of currently USAID-funded computer centers at target PTCs. As a result of Connect-ED, PTCs have systems in place to maintain and sustain centers, but the initial capital investment for procurement of hardware and rollout is still reliant upon partner donor contribution.

### Major Challenges

- ✔ In April 2005, all PTCs faced closure due to budget constraints. Funding was reinstated, but resources available for ICT-in-education efforts remained undefined.
- ✔ Stakeholder input towards draft ICT-in-education policy was not particularly forthcoming. Ministry of Education needs the commitment and support of a wide range of stakeholders if national-level ICT in Education policy is to be successful, and before it is put forth to the Permanent Secretary.

### Comments

While the accomplishments of Connect-ED II were extensive, the project supports MoE's and USAID's continuing efforts to impact increasing numbers of PTCs (only 8 out of 47 have computers with connectivity). Additionally, any further interventions in ICT-in-education in Uganda should focus on advancing the educational priority areas of the country and rapid deployment of quality teachers for primary and secondary schools.

# Internet for Yemeni High Schools (IYHS)

June 2003 – March 2007



**Country:** Yemen

**Region:** Middle East and North Africa

**Award Amount:** \$699,983

**Language of Instruction:** Arabic

**Coverage:** Sana'a, Aden

**Grade:** Secondary

**Subjects:** Math, science, and literacy

**Partners:**

- EDC
- iEARN
- WorldLinks
- SOUL

## Intervention Objectives

- ✔ Improve teachers' ability to facilitate student-centered lessons, including inquiry teaching and cooperative learning, through the use of the Internet
- ✔ Improve student learning by allowing Yemeni students, and girls in particular, to perform research, access information, and share information with and learn from other students in Yemen, the region, and the US
- ✔ Assess the impact of the use of Internet as a teaching and learning tool in the selected schools in Yemen
- ✔ Create professional development networks for Yemeni educators, especially female teachers and students with limited mobility

## Direct Project Beneficiaries

- ✔ High School students

## Marginalized Populations Reached

- ✔ Girls

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Computers</b>	Increase access to resources and open channels of student-to-student dialogue	Student research activities and online communities/peer-to-peer exchange with overseas students	Ten secondary high schools in Sana'a and Aden governorates
<b>Internet</b>	Expand available resources and introduce new communication methods	Teachers and students used the Internet to conduct research and communicate with each other	Access was provided to a total of 19,970 students and 793 teachers

### Training

	Intended Change	Beneficiary	Scale
<b>Face-to-face and online</b>	Improve student-centered learning and pedagogy through computer and Internet-based teaching	Teachers and Principals	793 (591 female) teachers and 10 principals (1 from each of the 10 schools) trained

### Instructional Materials

Teachers used guidebooks to support computer- and Internet-based teaching

## Activities

- ✔ Installed Internet connectivity and computer labs in ten high schools in Sana'a and Aden
- ✔ Trained teachers in student-centered instruction, including developing lesson plans, pedagogy, and effective integration of computers and the Internet in teaching
- ✔ Conducted a study on the barriers to female student ICT use

## Outcomes

### Anticipated Outcomes

- ✔ 10 schools equipped with computer labs
- ✔ 51 Master Trainers trained on student-centered learning and computer and Internet based teaching
  - 14 female teachers – 5 principals, 7 male teachers (Sana'a)
  - 10 female teachers – 5 principals, 10 male teachers (Aden)

### Unanticipated Outcomes

- ✔ Private sector committed to expanding the project to more schools in more communities
- ✔ According to teacher surveys, project training increased the trust of the teachers in their professional development activities. The report found that “after this particular computer training program, teachers got more interest and trust in school training activities and promptly joined the training programs offered by their schools”

## Outputs

- ✔ Ten schools were fully wired for Internet and computer lab use
- ✔ 793 (591 females) teachers trained
- ✔ Ten principals trained in student-centered and computer-integrated instruction

## Sustainability Efforts

A culminating summit resulted from the project and brought together representatives from government, private sector, and donor communities to discuss a national ICT strategy for Yemen. The event also produced three independent offers from the private sector to continue the work of IYHS.

The project trained the 10 principals from the schools in Sana'a and Aden in an attempt to ensure their commitment in the implementation of the activities of the project and also to ensure that the equipment and the training received would be used.

## Major Challenges

The scale of the project was small, even for a demonstration project and so conclusions are not definitive.

## Comments

The private sector has offered to provide matching funds to expand the project. A national strategy is being developed that will build on the models deployed through this activity and lessons learned.

# Zambia Interactive Radio Instruction Program for Out-of-School Children

February 2003 – September 2004



Photography: David Bebbler

**Country:** Zambia

**Region:** Sub-Saharan Africa

**Award Amount:** \$2,400,000

**Language of Instruction:** English

**Coverage:** National (all nine provinces)

**Grade:** 1 - 5

**Subjects:** English language, mathematics, science, social studies; life skills and HIV/AIDS

**Partners:**

- EDC
- Educational Broadcasting Services
- Zambian Ministry of Education
- US Peace Corps
- Local and international NGOs and Faith-Based Organizations (FBOs)
- Local communities

## Intervention Objectives

- 📌 To reach out of school youth, including orphans and other vulnerable children affected by HIV/AIDS
- 📌 To establish a rigorous monitoring and evaluation system for collecting related data

## Direct Project Beneficiaries

- 📌 Out of school youth

## Marginalized Populations Reached

- 📌 Orphans and other children affected by HIV/AIDS

## Inputs

### Technology Components

	Rationale	Application	Scale
Radio	To reach as many out of school youth as possible	Broadcast received and instruction delivered in community learning centers	647 Community Learning Centers established

### Training

	Intended Change	Beneficiary	Scale
IRI implementation	Facilitation of IRI programs and improvement in quality of classroom instruction	Face to face and embedded professional development to support use of the programs among community mentors	National
Writing and production for Interactive Radio Instruction	Build capacity to produce IRI programs	Educational Broadcasting Services	EBS staff grew from 3 to 21

### Instructional Materials

- 📌 Teachers guides for each grade from 1-5
- 📌 IRI Training guide

## Activities

- ✔ Built institutional, technical and technological capacity at the national Educational Broadcasting Services to produce IRI programs
- ✔ Provided technical assistance to the Zambian Ministry of Education in the design, development and evaluation of instructional programs for the primary grades
- ✔ Developed a system of community-based radio learning centers
- ✔ Trained a team of Provincial Outreach Coordinators to systematically collect data
- ✔ Trained community mentors to facilitate daily instructional lessons in the areas of basic skills, literacy and numeracy as well as life skills education relative to HIV/AIDS awareness and prevention
- ✔ Sensitized communities to the need for education and the purpose served by the IRI program

## Outcomes

### Anticipated Outcomes

- ✔ Establishment of an alternative system of learning that is student-centered and available to those who would not otherwise have access to education, including children who have been orphaned by HIV/AIDS
- ✔ Create a national cadre of community mentors to support the project's goals and implementation

### Unanticipated Outcomes

- ✔ Peace Corps Zambia appointed an Assistant Peace Corps Country Director and 8 full-time volunteers for the initiative
- ✔ NGOs, FBOs, and communities provided additional support in the form of feeding programs, training funds, community mobilization, income generating activities, and more
- ✔ Learners in IRI centers performed as well as those in formal schools in achievement tests
- ✔ As a result of receiving the IRI instruction, some learners were admitted into Grade 6 in government schools
- ✔ Adult learners participated in the program
- ✔ Enrolment of underage learners, the development of a large shadow audience, and the spontaneous creation of unofficial IRI centers
- ✔ Though initially intended for the out of school, the effectiveness and popularity of the program led to a demand for the same program to be introduced in government schools, especially those in remote areas that are short-staffed or lack trained teachers

## Outputs

- ✔ 1,360 IRI programs written, produced, and aired for grades one through five
- ✔ 647 community radio centers established
- ✔ 38,513 learners reached

## Sustainability Efforts

MOE covered cost of airtime for broadcasting lessons. Communities were involved in managing the learning, supporting mentors, and delivering instruction.

## Major Challenges

- ✔ With the addition of new grades each year and increasing numbers of centers and learners, finding a steady supply of qualified mentors proved to be problematic. 46.4% of mentors had not received any type of training in 2004. Observers reported that well-trained mentors not only performed well in their classes but had more confidence, enjoyed the program, and had a much lower turnover rate than their untrained counterparts
- ✔ Establishing and maintaining a rigorous monitoring and evaluation plan proved to be a challenge. Outreach and data collection staff required regular, intensive training on using instruments to ensure accuracy, which was not always possible or delivered
- ✔ Underage learners continued to enroll in the program throughout its lifecycle, increasing numbers of students per class and posing additional challenges for mentors/instructors

## Comments

Results from monitoring and evaluation activities often show a direct correlation between community support and student performance, and thus the importance of these efforts cannot be overestimated. Sensitizing and recruiting communities to support the initiative is essential to its success at the local level. Also, monitoring and evaluating to feed information back into the production and overall strategy of the initiative was vital.

# Quality Education Services through Technology (QUESTT)

September 2004 – September 2009



Photography: David Bebbler

**Country:** Zambia

HIV/AIDS

**Region:** Sub-Saharan Africa

**Partners:**

**Award Amount:** \$12,729,816

- EDC
- Ministry of Education (MOE)
- US Peace Corps
- Freeplay Foundation

**Language of Instruction:**  
English

**Coverage:** National

**Grade:** 1 - 7

**Subjects:** Math, Science, Language, Literacy, Health with special emphasis on

## Intervention Objectives

- ✔ Improve the quality of basic education delivery systems and mitigate the impact of HIV/AIDS on primary education
- ✔ Increase the capacity of communities and local NGOs to support education and retain volunteer teachers
- ✔ Develop the capacity of the Ministry of Education's (MOE) Directorate of Distance Education (DODE)
- ✔ Test new technologies, including cell phones and MP3 players, for delivering instruction and teacher professional development
- ✔ Develop a pilot activity to provide MP3 based resources to rural communities to improve education delivery

## Direct Project Beneficiaries

- ✔ Teachers and students in community and government schools

## Marginalized Populations Reached

- ✔ Orphans and others affected by HIV/AIDS
- ✔ Teachers and students in rural, hard-to-reach areas

## Inputs

### Technology Components

	Rationale	Application	Scale
<b>Radio</b>	Extend national reach of education content and improve quality of teaching	Curriculum based instruction for all primary grades delivered via radio broadcast	Over 80,000 children in community schools and 120,000 in government schools served with 12,000 radios
<b>MP3 pilot</b>	Overcome limitations of broadcast and provide on demand option and supplementary materials for teachers	MP3 players connected to portable speakers and foot-powered generators	Pilot test distributed 12 units
<b>Cell phone pilot</b>	Provide student teachers with access to each other and tutors as an additional resource	Teachers have regular conversations with each other and tutors to share tips and address classroom challenges	54 student teachers

## Training

	Intended Change	Beneficiary	Scale
<b>Face-to-face mentor training</b>	Effective community-level use of IRI equipment and content	Volunteer community mentor teachers	Over 2000 community schools and 2500 community school teachers
<b>Face-to-face teacher training</b>	Use of IRI and improved teaching practice	Teachers and students	3000 government teachers trained

### Instructional Materials

- ✔ Mentor's guides
- ✔ Instructional Posters
- ✔ Mentor training manual
- ✔ Manual for practical science teaching accompanied by CD-ROM
- ✔ 36 modules for Zambia Teacher Education Course by DODE

### Activities

- ✔ Support in-service and pre-service teacher training through Interactive Radio Instruction in community and government schools
- ✔ Provide radio based instruction to students in community and government schools
- ✔ Sensitize communities on issues of HIV/AIDS, orphans and vulnerable children
- ✔ Implement technology based interventions in zonal teacher resource centers
- ✔ Promote active participation of communities in education

### Outcomes

#### Anticipated Outcomes

- ✔ 240,000 learners in community schools will be reached with the instructional content with a gender ratio as close to 50/50 as possible
- ✔ 2,400 community schools will use the IRI programming
- ✔ 3,000 government schools will use the IRI programming

#### Unanticipated Outcomes

The program was extended with additional funds and through Education for All (EFA) – Fast Track Initiatives (FTI) and the President's Emergency Plan for AIDS Relief (PEPFAR)

### Outputs

1,125 hours of radio content produced

### Sustainability Efforts

Educational Broadcasting Services (EBS) and the Department of Distance Education (DODE) were targeted for capacity development through this project. Over the course of the project, assistance gradually reduced as EBS producers received on-the-job training and learned to design, develop, produce, review, and evaluate IRI programs. The Provincial, District, and Zonal structures of the Ministry are being trained to assume the training, coordination, supervision, and monitoring of the IRI program.

### Major Challenges

- ✔ Cell phone service often not working
- ✔ There is a high turnover rate of teachers and many leave the program at IRI community schools which (for election campaigning and due to AIDS related illness, for example) creates problems of program continuity
- ✔ The numbers of children in need is sometimes greater than the capacity of schools and resource centers
- ✔ Poor radio reception in some areas and in some seasons

### Comments

- ✔ This project started as a modest IRI pilot activity but scaled up quickly due to the success of the initial IRI radio programs and has become a model for other projects with similar goals.
- ✔ To overcome some of the geographic challenges, 812 bicycles were distributed to Zonal In-service Coordinators for use in monitoring and supervising teachers using IRI in their zones.