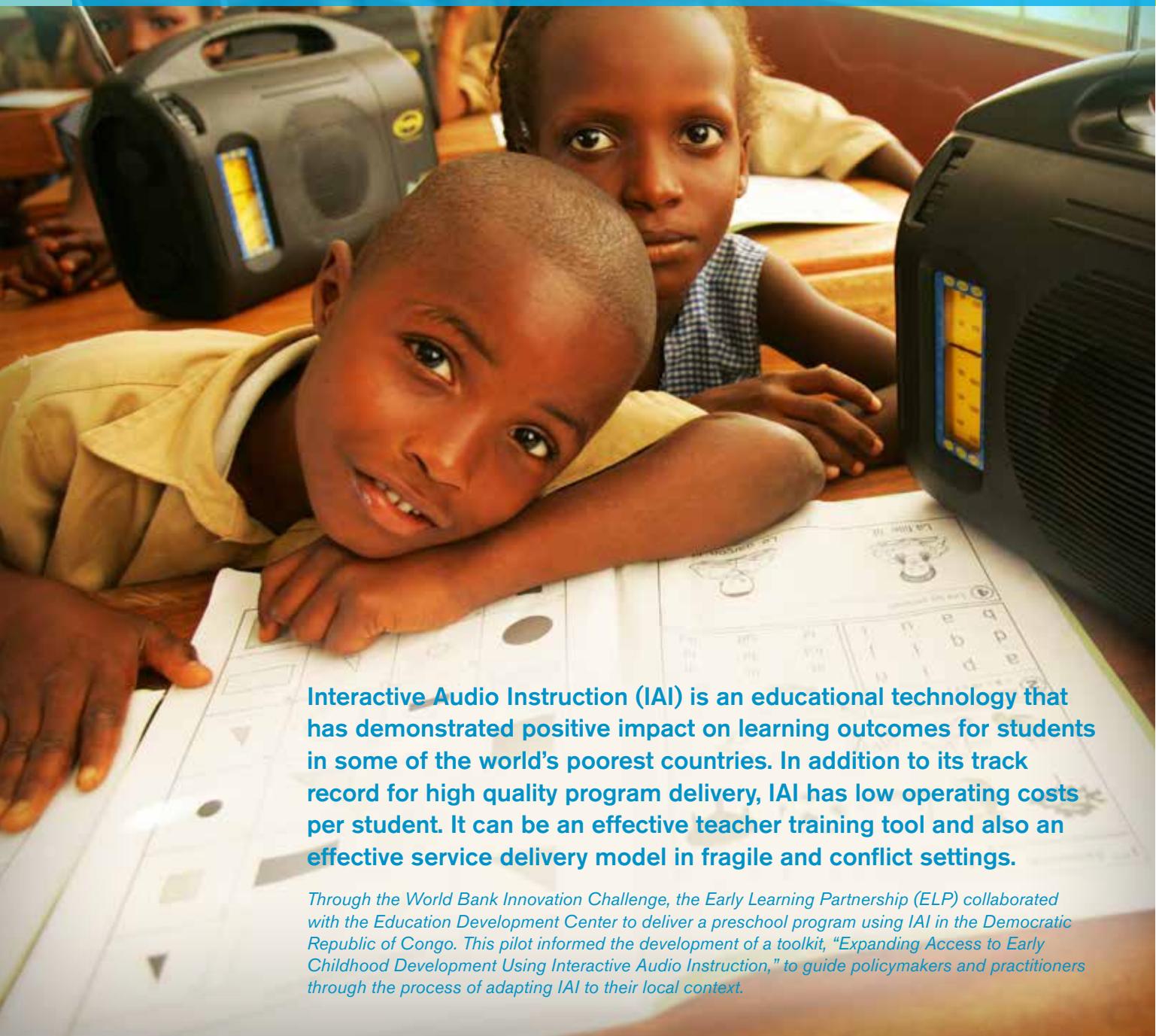


Expanding Access to Early Childhood Development USING INTERACTIVE AUDIO INSTRUCTION



Interactive Audio Instruction (IAI) is an educational technology that has demonstrated positive impact on learning outcomes for students in some of the world's poorest countries. In addition to its track record for high quality program delivery, IAI has low operating costs per student. It can be an effective teacher training tool and also an effective service delivery model in fragile and conflict settings.

Through the World Bank Innovation Challenge, the Early Learning Partnership (ELP) collaborated with the Education Development Center to deliver a preschool program using IAI in the Democratic Republic of Congo. This pilot informed the development of a toolkit, "Expanding Access to Early Childhood Development Using Interactive Audio Instruction," to guide policymakers and practitioners through the process of adapting IAI to their local context.

7 THINGS TO KNOW ABOUT INTERACTIVE AUDIO INSTRUCTION

1. Extremely low cost and highly scalable

Recurrent costs of delivering an IAI program are extremely low. IAI programs have high capacity to scale once the initial investment in training of staff and production is made.¹

2. A reliable way to improve learning outcomes

After almost four decades of experience, the ability of IAI to improve learning outcomes is well documented. Evaluations have yielded consistent and significant evidence that IAI can increase learning.^{2,3}

3. Feasible service delivery model in fragile and conflict-affected states

Since its origination in 1974, IAI has been used in low-income, fragile, and conflict affected countries, including:

- **South Sudan**, both prior to and after independence—for primary schooling, teacher training, and youth and adult civic education
- **Mali**—for primary schooling and teacher training
- **Zambia**—for orphans and vulnerable children
- **Nigeria**—in Qur’anic schools
- **Tanzania**—for child laborers integrating into formal schools
- **Malawi**—for isolated rural children to access early childhood development programs
- **Pakistan**—to improve the teaching of English in public schools
- **Afghanistan**—to improve teaching practice in isolated and challenging contexts
- **Nepal**—to increase access to early childhood development programming

4. Can be used to train teachers and as an alternative certification mechanism

IAI can provide training to community facilitators, support providers in upgrading existing skills, and enable teachers to learn new skills and approaches for advanced levels of certification.

5. Accessible Technology adapted to context

Episodes may be broadcast over radio, distributed via MP3 or CD, or recorded on a memory card and played on a mobile phone attached to a solar-powered speaker. Local procurement is recommended.



6. Tailored to local language

Programs can be recorded in the mother tongue of learners—whether the target population is a majority or a minority group within the country.

7. Possible to institutionalize

IAI programs have provided the foundational structure for sustained government distance learning bodies and non-governmental networks of providers in a range of contexts including Zanzibar, Zambia, and Honduras.

FOOTNOTES

1. Between 2006 and 2011 date, the Government of India in partnership with the Education Development Center reached 42 million students through its T4 project Technology Tools for Teaching and Training, dot-EDU. 2011. "T4 India Final Report." Education Development Center, Washington, DC.

2. Murphy, Paud, Stephen Anzalone, Andrea Bosch, and Jeanne Moulton. 2002. "Enhancing Learning Opportunities in Africa: Distance Education and Information and Communication Technologies for Learning." World Bank, Washington, D.C.

3. Ho, Jennifer, and Hetal Thukral. 2009. "Tuned in to Student Success: Assessing the Impact of Interactive Radio Instruction for the Hardest to Reach." Education Development Center, Washington, DC.

A REPLICABLE PROCESS FOR PRODUCING IAI PROGRAMS

The process of developing an IAI program for scale up involves four main phases. A map of these four phases is outlined below, along with a description of what this entailed in a pilot conducted in the Democratic Republic of Congo in 2014.

PHASE 1: PREPARATION

Introduction and engagement with stakeholders.

This stage involves audience research; analysis of the educational context (including identification of a target population and that the content of the program aligns with existing curricula and national policies on early childhood education); assessment of technology options and production resources; and program design. The end product of this stage is a program design document.

What this looked like in DRC

- A technology scan assessed the most appropriate way to distribute the IAI programs. Mobile phones with SD card and sturdy speakers were selected.
- Curriculum analysis was conducted and a scope and sequence for the programs was approved by the Ministry of Education.
- Pilot sites that represented rural and urban environments in which Lingala was used as a language of instruction were approved by the Ministry of Education.



PHASE 2: DEVELOPMENT

This stage involves scriptwriter training; scriptwriting; and formative evaluation that prepare for the production of final use-ready episodes and supporting materials.

What this looked like in DRC

- Scriptwriters with a background in early childhood education or lower primary education were recruited locally and scripts were written according to the scope and sequence.
- Each script was tested with actual teachers and children to ensure:
 - > Clarity and appropriateness of content;
 - > Appeal and effectiveness of characters, music, sound effects, and story lines;
 - > Effectiveness of timing and pacing;
 - > Ease and effectiveness of use.

PHASE 4: DELIVERY

This stage involves training teachers/caregivers in the use of IAI; mobilizing the host community; and delivering the program via radio, MP3, mobile phone, or other technology.

What this looked like in DRC

- Teachers were trained to use the phones and to organize their classrooms appropriately for IAI programming.
- Awareness meetings for parents and communities hosting the pilot schools were held by the Ministry with project support.

PHASE 3: PRODUCTION

This stage involves local production of audio episodes and preparation of supplementary learning materials for the program. Local production in a studio that has been built for the purpose, leveraged from the government's media system, or obtained from a private or non-profit source will both build local capacity and allow for intensive quality assurance on site during production.

What this looked like in DRC

- Episodes were recorded in a local studio and bundled onto SD cards using EDC's Stepping Stone multimedia lesson-building software. Local artists with appropriate vocal skills and accents are used to record each episode.
- Teachers' guides and resource-development kits were prepared.

TECHNOLOGY OPTIONS FOR DELIVERY OF IAI

There are a range of options and issues to consider when selecting the appropriate technology to deliver IAI in your context.

	Radio	Mp3 or CD	Mobile phone	Mobile phone using IVR technology
Description	Programs are broadcast over radio at a certain time. Listeners tune in to the live programs.	Programs are recorded on reusable media for playback on a specific device at the initiative of the teacher.	Programs are recorded on SD cards for playback on mobile phones with or without speakers at the initiative of the teacher.	Users call in to a call center to access pre-recorded programs on their own schedule. Playback is over mobile phones with or without speakers.
Costs (not including development of programming)	Broadcast costs; costs of radios for users; electricity (solar power or crank-charged) or battery charging costs	Costs of playback devices and of digital media recording and distribution; electricity or battery charging costs	Costs of mobile phones and of SD card recording and distribution; battery charging costs	Costs of mobile phones and of toll-free line (if IVR is funded by the government) or of telecom use (if users must pay costs); battery charging costs
Convenience	Radios are widely accessible	CD/Mp3 players can be procured fairly easily; not tied to a broadcast schedule; more flexible use and reuse by teachers	High level of mobile phone availability; less bulky than radios/playback devices (some phones may include radios); not tied to a broadcast schedule; more flexible use and reuse by teachers	High level of mobile phone availability; not tied to a broadcast schedule; more flexible use and reuse by teachers
Coverage	Limited to number of hours of broadcast that can be secured/ paid for; limited by radio network coverage and the availability of radios.	Limited by device availability and electricity availability (for charging, if not for playback)	Limited by device availability and electricity availability (for charging, if not for playback)	Limited by mobile phone network coverage, device availability, and availability of electricity for charging.
Monitoring	Difficult to monitor usage	Difficult to monitor usage	Programs built in some software can track usage on the SD cards in phones. If SMS is available, can also use phones to collect data on usage, retention of information, impact and user satisfaction.	Easy to monitor usage through call logs; SMS addition can easily collect data on retention of information, impact and user satisfaction.
Other considerations	Engages a potentially large shadow/secondary audience when broadcasts are on-air, thus raising awareness of ECD issues and of what high-quality ECD sounds like; crank and solar-charging radios are available.	Crank and solar-charging devices are available.	Reach and volume may be limited without speakers, but recording can partially address these challenges.	Reach and volume may be limited without speakers, but recording can partially address these challenges.