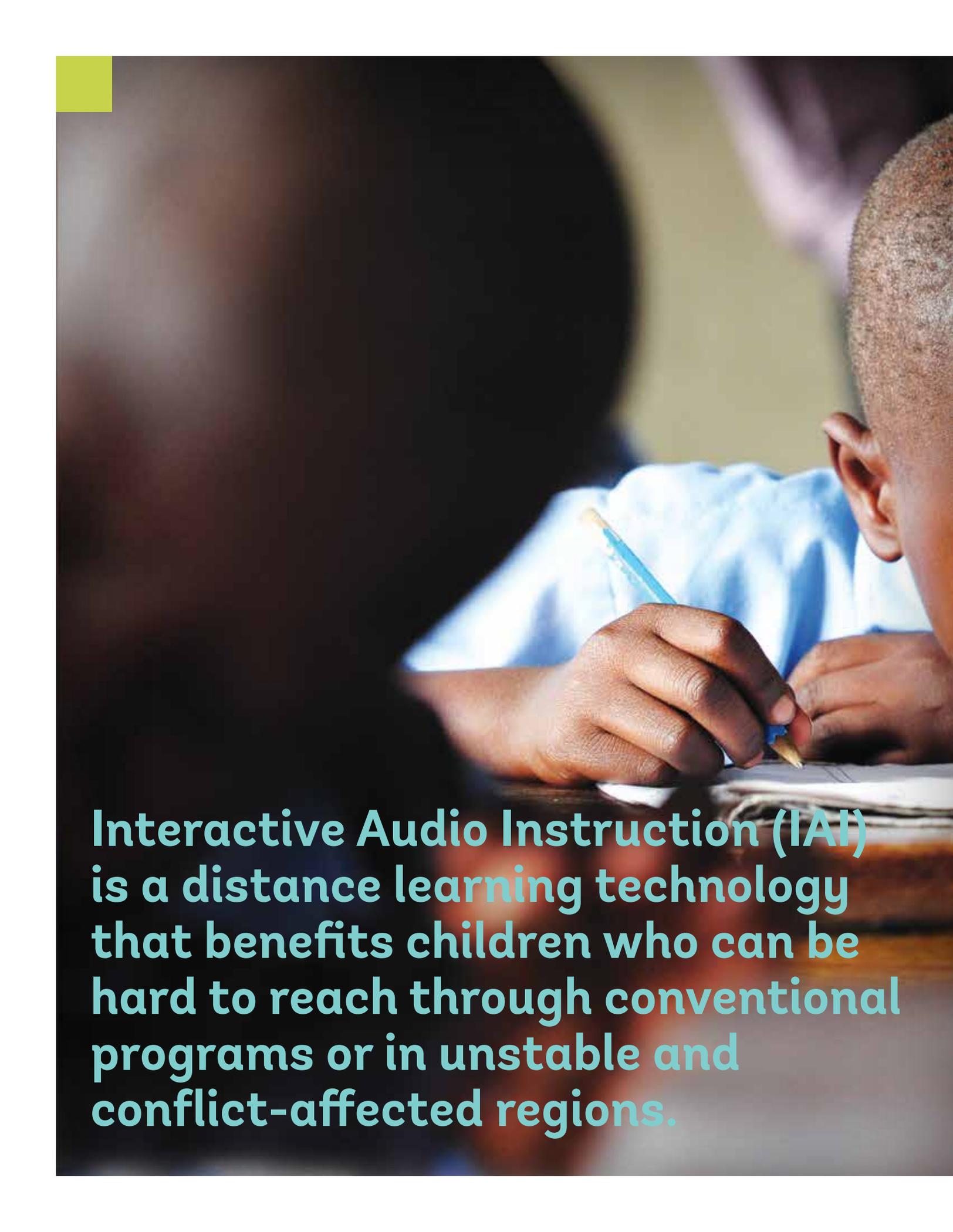


Expanding Access to Early Childhood Development USING INTERACTIVE AUDIO INSTRUCTION

94010

A TOOLKIT AND GUIDELINES FOR
PROGRAM DESIGN AND IMPLEMENTATION

FEBRUARY 2015

A close-up photograph of a young child with dark skin, wearing a light blue shirt, sitting at a desk and writing in a notebook with a blue pencil. The child's head is bowed, and their hands are focused on the task. The background is blurred, showing other people in a classroom setting. A small yellow square is visible in the top left corner of the image.

Interactive Audio Instruction (IAI) is a distance learning technology that benefits children who can be hard to reach through conventional programs or in unstable and conflict-affected regions.

**A TOOLKIT AND GUIDELINES FOR
PROGRAM DESIGN AND IMPLEMENTATION**



This project was a collaborative effort of the World Bank and Education Development Center, Inc. (EDC). The work was led by Amanda Devercelli, and supported by a core World Bank team including: Sunita Kosaraju, Sabiti Kalindula, and Alexandra Solano Rocha. The toolkit was authored by EDC's Rachel Christina and Nathalie Louge.

The team is grateful to counterparts at the Ministry of Education in the Democratic Republic of Congo who supported this effort and guided the work in DRC; to Dung Kim Pham for her inputs and guidance; to Peter Materu for his management and support; to Hortense Bulungu, Nathalie Kabedi, and the DRC pilot school teachers for their hard work and enthusiasm; and to Suzanne Simard for her insightful review.

The views expressed in this paper are those of the original authors and do not reflect the opinions of the World Bank or any of its affiliated organizations.

Photos courtesy of EDC.

The Early Learning Partnership (ELP) is a World Bank initiative to improve young children's development and learning through programs that are successful, sustainable, and scalable. The ELP aims to catalyze change in countries to promote high-quality ECD and early learning opportunities, especially for the most disadvantaged children.

In December 2013, the ELP was awarded a grant through the World Bank Innovation Challenge for a proposal entitled "Expanding Access to Early Childhood Development Using Interactive Audio Instruction." This document is a product of that grant and the team gratefully acknowledges the support from our colleagues at the FY13 Innovation Challenge. This toolkit is intended to be a user-friendly guide for program managers interested in developing high quality technology-enhanced early childhood programming, particularly in challenging, low-resource contexts.

TABLE OF CONTENTS

Executive Summary	- 1
Introduction to IAI for ECD	- 3
ECD IAI Programming Cycle:	- 5
Phase 1: Preparation	- 6
Phase 2: Development	- 14
Phase 3: Production	- 17
Phase 4: Delivery	- 18
Monitoring And Evaluation	- 21
Sustainability	- 22
Annexes	- 27
Annex 1: Timeline for development of 1 year of ECD IAI programming	- 28
Annex 2: Personnel required for an ECD IAI program and their respective roles	- 30
Annex 3: ECD IAI program inputs and outputs	- 32
Annex 4: Cost categories and considerations for ECD IAI programming	- 33
Annex 5: Common pitfalls in ECD IAI program development	- 36
Annex 6: Case studies of ECD IAI: Honduras, Paraguay, Zanzibar, Nepal, and Malawi	- 38
Annex 7: Sample ECD IAI script: Malawi Tiyende! Episode 1	- 43
Recommended References	- 53





18%

Enrollment in early childhood education is just 18% across Africa, with disproportionately high enrollment from children in urban areas and from wealthier families.

EXECUTIVE SUMMARY

The returns to investments in ECD are manifold and can include improved school readiness, reduced drop-out rates, higher labor force productivity and greater social cohesion. Despite these high returns, enrollment in early childhood education is just 18% across Africa, with disproportionately high enrollment from children in urban areas and from wealthier families.

Interactive Audio Instruction (IAI) is a distance learning technology that can deliver low-cost, culturally appropriate education via radio or mobile audio technology. It is a highly effective tool to reach children who can be hard to reach through conventional programs, including the rural poor and children with disabilities. IAI can also be an effective form of service delivery in unstable and conflict-affected regions.

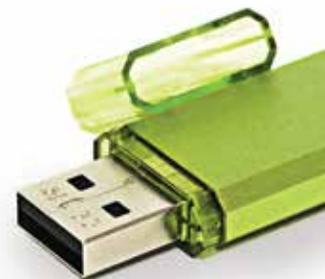
IAI has been shown to dramatically improve the quality of teaching and learning in a range of contexts across subject matter, age, gender and location. However, despite the strong evidence base supporting IAI programs, scale up from pilot phase to long-run permanent phase is rare.

This document provides guidance for program designers and managers who may be interested in using IAI for early childhood development programming. Taken in tandem with the [2005 Africa Region Working Paper](#), *Improving Educational Quality through Interactive Radio Instruction*, it provides solid evidence for the viability of the IAI approach and outlines the process for designing and implementing an IAI program specifically for early childhood contexts – from initial start-up in a given community, to large scale expansion in a country. It highlights the main steps in the production cycle, the roles and responsibilities of government and communities, and provides useful tips for practitioners at each stage of the process.

The toolkit outlines the four phases in the IAI program cycle as they pertain to ECD programming in a facilitated group setting (early childhood classrooms, non-formal community learning centers, or other adult-led group childcare settings), with a particular focus on community-based early learning initiatives as a means of increasing access. These phases are summarized as follows:

- **Phase 1: Preparation** This stage introduces IAI to a context and provides initial engagement with stakeholders. This stage involves audience research; analysis of the educational context; assessment of technology options and production resources; and program design. The end product of this stage is a program design document.
- **Phase 2: Development** This stage involves scriptwriter training; scripting; production of draft audio episodes and formative evaluation that prepares for the final production of use-ready episodes and supporting materials.
- **Phase 3: Production** This stage involves final production and post-production of audio episodes and preparation of supplementary learning materials for the program.
- **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.

Annexes provide more detail on processes, players and costs of an ECD IAI program, as well as a list of common pitfalls and means of avoiding them or minimizing their impact.



IAI for ECD Lesson on
shapes in Zanzibar.



Recent analyses project that, not including benefits related to health and child survival, “increasing preschool enrollment in Sub-Saharan Africa would generate an estimated \$33 in wages for every \$1 invested.”

Psacharapolous, George. “Benefits and Costs of the Education Targets for the Post 2015 Development Agenda,” Copenhagen Consensus Center, July 17, 2014, p. 27.

INTRODUCTION TO IAI FOR ECD

A large body of solid evidence demonstrates the significant effects of early childhood development (ECD) interventions¹ on children's success in school, long-term social integration, and improved life chances.² Short-term and longitudinal studies on program effects and research on the impact of early education on human brain development provide strong support for increased investments in high-quality ECD programming. Indeed, good early childhood education can be a key contributor to narrowing social and economic gaps and driving development, particularly in low-resource, disadvantaged communities.

Governments, private sector entities, and civil society organizations in most developed economies have responded to evidence of the importance of early childhood experiences by increasing access to high-quality programs, particularly for low-income families with the greatest need. Resources in lower-performing economies have been harder to redirect to early childhood, however, and the numbers of children who lack access to high-quality programs remains vast. In the poorest and most challenging contexts, citizens' opportunities for success are thus further limited by this

early exclusion from stimulating, learning-promoting programming.

Interactive Audio Instruction (IAI) provides one solution to the challenge of providing high-quality early childhood education at scale and at reasonable costs. The IAI medium allows for the development and delivery of both teacher and caregiver training and direct instruction, using best practices in early childhood education, and has demonstrated powerful results in contexts as diverse as Honduras, Nepal, El Salvador, Indonesia, Zanzibar, Malawi, and Paraguay. As a low-cost, high-reach, renewable and reusable teaching and learning medium, IAI provides an ideal mechanism for early childhood programming. IAI packages for early childhood include lessons designed to promote comprehensive child development and school readiness in a logical, research-based scope and sequence that also serves as professional development scaffolding for the adult who is leading the group. Content is delivered through CD, MP3, mobile phones, or radio, with the assistance of a classroom teacher or group facilitator, who is coached by the recorded "teacher facilitator" to implement active, child-centered instruction that is highly relevant to the daily lives of the young participants. Warm and appealing characters lead the audience through songs, stories, and dramatic themes that provide an engaging framework for literacy, math, life skills or other learning content. The participatory nature of the guided lessons engages students in multiple ways -- cognitively, physically, emotionally, creatively and socially.

IAI's recorded audio programs, accompanying teacher guides, student materials, and training for teachers and caregivers provide a dual-pronged program of high-quality instructional content for children and guided-practice professional development for teachers and



Using counting sticks (simple local materials) to solve a math problem the radio teacher has posed in Madagascar.

1 This toolkit is designed to refer to ECD interventions with a primarily educational purpose delivered to children prior to the age of primary school entry. While we touch on the potential of IAI as a medium for providing early childhood programming that is not explicitly focused on child learning and development (for instance, IAI dramas for parents), we do not present a model for those activities.

2 See, for example, Christina, R. (2011). *First Principles: Designing Effective Education Programs for Early Childhood Development* (Compendium). Washington, DC: EQUIP1/American Institutes for Research; Heckman, J. (2006, January 10). Investing in disadvantaged young children is an economically efficient policy. http://www.ced.org/images/library/reports/education/early_education/report_2006prek_heckman.pdf; and Nores, M., & Barnett, W. S. (2010). Benefits of early childhood interventions across the world: (Under) investing in the very young. *Economics of Education Review*, 29(2), 271–282.

caregivers, transforming classrooms and centers and promoting strong early childhood development. Audio content, particularly when delivered over radio, also makes learning more transparent for families and community members, who may otherwise not understand what their children are learning if they themselves cannot read. This transparency is a particular advantage in contexts where ECD is newly available, as parent support and buy-in is critical to increasing ECD access.

This document was commissioned by the World Bank's Early Learning Partnership to provide a resource for staff and counterparts who support the expansion of ECD efforts in low-resource contexts, particularly but not necessarily exclusively in Africa. It builds on and

supplements the 2005 publication, "Improving Educational Quality through Interactive Radio Instruction," by integrating lessons learned from the past decade's IAI efforts, focusing specifically on IAI programming for ECD, and providing evidence and resources from a range of ECD IAI implementation contexts.

The document outlines a general approach to high-quality IAI production for ECD. It also provides technical recommendations for how to scale-up production and delivery in challenging contexts, including an outline of necessary steps and components, estimated costs of a program with broad reach and content depth (including a financial model for production and program implementation), and a results monitoring and evaluation framework.

**Testing IAI programs
in community child
care centers, Malawi.**



ECD IAI PROGRAMMING CYCLE

Preparation, Development, Production, Delivery, Evaluation, Sustainability

This section of the toolkit outlines the steps in the IAI program cycle as they pertain to ECD programming in a facilitated group setting (early childhood classrooms, non-formal community learning centers, or adult-led group childcare settings), building on the general IAI development model articulated by Anzalone and Bosch (2005). Inputs and processes are described, and cost considerations are highlighted for each phase.

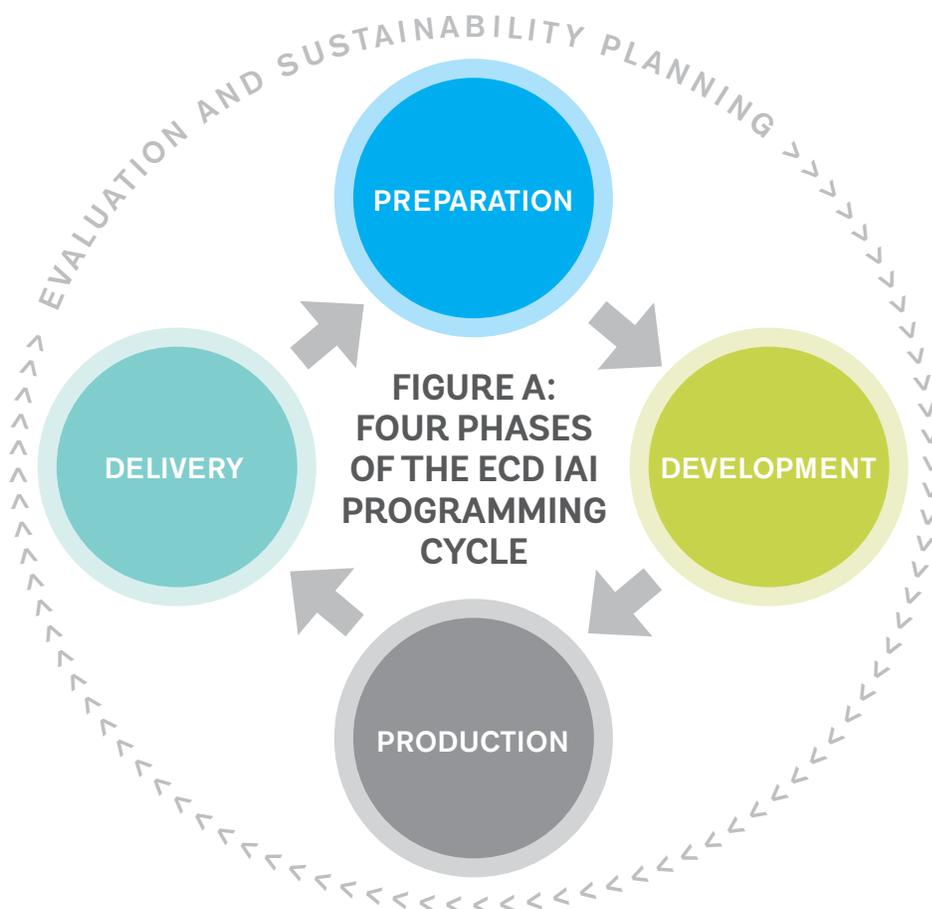
Phase 1: Preparation This stage introduces IAI to a context and provides initial engagement with stakeholders. It involves audience research; analysis of the educational context; assessment

of technology options and production resources; and program design. The end product of this stage is a program design document.

Phase 2: Development This stage involves scriptwriter training; scriptwriting; production of draft audio episodes and formative evaluation that prepares for the final production of use-ready episodes and supporting materials.

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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 phones, or other technology.



PHASE 1: PREPARATION

Preparing for an ECD IAI program in a new context involves the following steps:

- a. Audience research-** a study of the cultural, social, and linguistic context into which an IAI ECD program will be infused;
- b. Analysis of the educational context,** to ensure that the program is targeted at an appropriate population and that the content of the programs is appropriate and not in opposition to any existing curricula and teacher training programs or to national policies on early childhood education;
- c. Assessment of technology options and production resources,** which ensures that the program will be cost-effective and implementable;
- d. Program design,** which integrates the contextual research findings with curricular planning to map out the desired IAI development process and learning results. At the end of the preparation phase, design documents for each subject and

grade level of instruction will have been created, including a scope and sequence for the programs, along with guidelines for evaluation of program quality.

Preparation for an IAI program should be highly participatory, engaging a range of stakeholders and building the capacity of host country counterparts in the theories and methods underpinning IAI in general and in the specific ECD domains that will be covered by the program. In contexts where early childhood education has not been as well resourced as other segments of the education and social service system, engaging in IAI program preparation provides both a professional development opportunity for participating government staff and a platform for broader discussion of the importance of ECD for individual and social development.

Sufficient resources need to be dedicated to the preparation phase to ensure that appropriate data are collected and conclusions

Student responding to instructions from the radio teacher.



Audience Research: Negotiating Language of Instruction in the Democratic Republic of Congo

In the DRC, audience research revealed that parents in communities targeted for ECD IAI programming were uncertain about the program's proposal to prepare episodes in Lingala, the local language of the pilot regions. Although the DRC's official language policy specifies instruction in local language in the early grades, these parents viewed French as the language of power and success, and they wished to provide access to that language to their children as early as possible. Ministry personnel and IAI program staff held community meetings in which they explained the importance of early learning in the language with which children are most familiar; outlined the research demonstrating benefits for both first and second language acquisition; and reinforced the cultural and social value of Lingala as an educational language. At the end of the DRC project, these same parents provided very positive feedback on the use of Lingala, after having had the rationale for it explained and having heard it in action.

and design decisions can be fully justified. Technical experts in participatory research for IAI program development should facilitate sample selection, protocol design, and data collection, alongside counterparts from whichever government agency will be leading and ultimately sustaining the ECD IAI program effort. Development of the design document, in particular, requires specialized technical expertise in instructional design for interactive audio, but it should be done in partnership with designated counterpart staff to build their capacity through supervised practice. The design process rolls into the development stage, as scriptwriters, once trained, continue with audience research and program adjustment that allow for the development of characters and scenarios that feel real and meaningful.

a. Audience research for ECD IAI

High-quality IAI programming links not only to national curricula but also to community contexts and resources, to ensure that it is meaningful for and appealing to users (both adults and children). Policies, structures, resources, and practices related to ECD vary widely across countries, and in many

cases the aspirations of policy makers and early childhood activists, even if reflected in policy, are far from the practical reality of services for children and families. Audience research for an ECD IAI program provides an opportunity to better understand current contexts and to begin and/or facilitate a dialogue among families, communities, and system actors about what good ECD in a particular context looks like and what the desired early childhood outcomes for children in that context are.

ECD IAI audience research should include information collection from:

- early childhood providers (including teachers/facilitators/caregivers);
- families and community members; and
- young children themselves.

Surveys and focus groups with selected informants can provide important information on what these groups typically do in an ECD setting, and on the kinds of local resources available to inform the development of engaging and enriching IAI programming.

Questions in the research program should provide a social and cultural map of the oppor-

tunities and challenges that will be faced when implementing high-quality research-based ECD programming through an audio medium in a particular context.

Issues to consider may include:

- **Language patterns and preferences:** What languages are usually used for ECD programming? Are these languages with which children are usually familiar before entering ECD programs? What languages do families prefer to have used? Why? Are they languages in which early childhood teachers are comfortable and confident themselves? How much variation is there among dialects within the same language, and what is the relative perceived importance and acceptance of the various dialects?
- **Character development resources:** Who are the role models for children in this age group? Are they different for boys and girls? What are their primary positive characteristics?
- **Physical and cultural resources:** What types of resources are readily available in ECD program centers (books or other types of materials, slates, chalk, etc.)? What local natural and reusable resources (such as sticks, stones, leaves, bottle caps, sacks or boxes) can be used in ECD games and learning activities? What games do children play? What songs or cultural activities would be well-received if integrated into the programs? What are the expectations about gender interactions in early childhood? Which activities are gender-neutral and which are gendered?

Character development and activities resources research should continue throughout the program development phase, as well, to inform scriptwriting.

As scale is often a goal of IAI programming, it is important to use the audience research phase as a foundation for “discovering ways to reach [a] large and diverse audience without perpetuating negative stereotypes,

while achieving a feel that the radio program is local” and for “integrat[ing] social and cultural connection points in ways that appeal to the diverse audience.” (Anzalone and Bosch, 2005: p.77) Early childhood experiences frame children’s expectations for social interaction among people who are different from each other, and the pro-social messaging in an IAI program can be a strong contributor to a tone of tolerance and mutual respect among varied individuals and groups.

b. Educational context analysis for ECD IAI

ECD programming in developing country contexts is often a diffuse and complicated web of options, offered by multiple types of providers, overseen by multiple ministries, and responding to multiple sets of standards (or to none at all). Design of an IAI program for ECD needs to consider the existing framework and expectations and identify points of best alignment and integration with the system. Educational context analysis helps with this process through document review and analysis and qualitative interviews and focus groups that consider:

- **Curricula:** For what levels of early childhood programs are there established curricula (for example, is there an officially-endorsed kindergarten or nursery program)? Are these levels of education the appropriate target for the IAI program? To what extent can the proposed IAI program complement and enrich the existing curriculum? To what extent can it align with language policies and support language learning goals?
- **Teacher/caregiver preparation, training, and practice:** How are teachers/caregivers for the target level prepared to work with young children? Are they employed within the formal education system or outside it? What kinds (if any) of ongoing training do they receive? Do they use the official curriculum in their programs and/or are there other packages or resources that are more likely



Sorting during an IAI lesson in Zanzibar.

to be implemented? How do they perceive themselves relative to the education system? How are they perceived?

- **Non-curricular objectives for ECD programming:** What are the access goals for early childhood programs? Is there an explicit or implicit focus on gender issues that is being addressed by increasing ECD programming through IAI? Are health and nutrition or conflict resolution a focus of any ongoing initiatives for children? Are there particular groups of children/communities that are priorities for investment through the IAI program? Why?
- **Parent ability and willingness to pay:** In what ways do families and communities currently support ECD programming? Do they pay for services? If so, how much do they pay, on average? If not, do they contribute to center operation in any way? How much might they be willing to pay or contribute in order to obtain quality services?

c. Technology options and production resources assessment for ECD IAI

The development of low-cost digital technology and the increasing penetration of mobile phones in Africa and elsewhere provide an opportunity to consider options for program delivery that supplement, extend beyond or replace radio (the traditional vector for IAI program delivery). Using non-broadcast delivery allows teachers to stop programs and start them again when they are ready, which gives them more time to engage all children in the activities. Caregivers/teachers can also listen to the programs in advance in order to prepare to use them more effectively in the classroom. Finally, programs can be listened to over and over again, as desired. However, radio broadcast should not be dismissed out of hand simply because it is old fashioned. The different modes of technology have different benefits, some of which are outlined in the following table.



Technology Options for Interactive Audio Instruction for Early Childhood Development.

	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.

Technology options assessment for an ECD IAI program should consider the pros and cons of the various possible technology configurations and collect data on the relative costs of implementing those that are most favorable in a given context. Existing household survey data may provide information on the availability of radios and mobile phones in targeted communities. If such data are not available, a scan of radio and mobile technology in the local market should be conducted, to ensure that the devices used to deliver the IAI programs will be cost-effective and rational for sustained use and capable of delivering the desired content. Assuming that governments will not be able to assume recurrent costs of equipment for IAI programming, device selection should ensure that devices are locally-available and within the purchasing power of the average ECD provider.

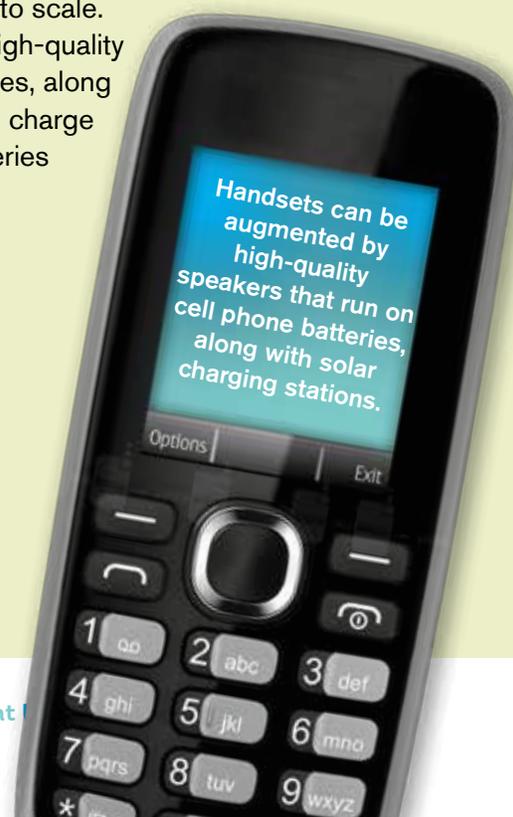
Production resources assessment should include an exploration of the existing recording options in country, including government and private studios. If a government studio exists, its capacity relative to that of private recording studios should be explored. Investing in the development of a high-quality government-run studio and human resources to staff it may be more politically desirable than contracting production out to a private provider, but its cost-effectiveness and long-term impact may be low. The long term ability of the government to sustain media production and use the studio resources efficiently should be considered when determining the production plan and choosing whether or not to invest in public sector production capacity.

Technology Assessment and Design: Considering Mobile Phone Options for the DRC

Technology assessments help to highlight opportunities for sustainability and cost reduction within local markets, as well as to manage expectations about what can be achieved over the life of a funding initiative. In DRC, for instance, a scan of mobile technology in the local market identified locally-available phones that were affordable for the average Congolese and could reasonably be accommodated in Ministry budgets if programming went to scale. These handsets were augmented by high-quality speakers that run on cell phone batteries, along with solar charging stations that would charge both the phones and the speaker batteries quickly and easily.

Devices selected included:

- **Telephone:** Nokia 112
- **Speaker:** GOgroove
SonaVERSE BX
Rechargeable Portable
3.5mm Stereo Speaker
- **Charging source:** FatCat
FC-SOLII Solstice Portable
Solar Battery Pack



d. ECD IAI design document generation

The design document pulls together the findings of the audience research, the educational context assessment, and the technology assessment; serves as the point of reference for all project activities; and ensures that the many moving pieces of an IAI program are coherently related and smoothly engaged. *Indeed, “the design document guides every aspect of program development and maps out the learning process for the students and teachers. It plots the curriculum, the characteristics of the programs that are designed to engage participants, the evaluation process, the connections of the I[A]*

I program to other instructional materials, and teacher training.” Anzalone and Bosch (2005)

Design documents should outline the pedagogical foundations for the programs and the local contextual factors that will make them engaging and relevant. They should include a scope and sequence for the IAI programs and guidelines for formative evaluation of program quality, along with training strategies for teachers and identification of supplemental materials that are to be integrated with the IAI programs.

Similar to many early primary grade programs, an ECD IAI program is typically one full year of instruction, covering multiple subjects in a single daily lesson of around 30 minutes in duration. Usually, ECD IAI program content includes

IAI “student” character (from Madagascar): child actor and her corresponding character from student materials



Production Capacity Assessment and Planning for Sustainability: Unit Building in the Zanzibar Ministry of Education and Vocational Training (MoEVT)

A strong example of productive investment in government capacity is Tanzania's Radio Instruction to Strengthen Education (RISE) and Zanzibar Teacher Upgrading via Radio (ZTUR) Early Childhood IAI Projects, which served as the foundation for the establishment of a distance and open learning division (the eLearning Division) within the Zanzibar MoEVT. Eleven MoEVT technical staff were seconded to and trained by the projects. These staff formed the startup cadre for the eLearning Division, and they have since expanded the scope of the division to 14 staff who continue the development and broadcast of IAI programs; train the staff of all MoEVT divisions and sections in information and communication technologies (ICT), including schools, teaching colleges, and libraries; integrate ICT into teaching and instruction; conduct seminars and training (long and short-term) on how to use ICT in Ministry work (i.e. communications and management); and ensure that MoEVT divisions are working together in the areas of ICT.

early literacy, early numeracy, and lifeskills such as health, nutrition, safety, and hygiene; but additional subject matter such as social studies and science may be included if it is appropriate and can be feasibly delivered over audio in the available timeframe.

Design document generation should be a highly collaborative process that engages ECD experts and curriculum development experts, IAI specialists, scriptwriters, production personnel, and evaluators. The process can take from a few weeks to several months, and should not be rushed, as it provides the critical

foundation for the production and use of the IAI programs themselves and sets the work up to be evaluable and to succeed. In contexts where investment in ECD has not been a government priority, capacity of government staff to contribute to design may be limited. Therefore, resources from the private and/or nonprofit sectors may also need to be engaged. However, it is essential to include government personnel in a learning-by-doing process of professional development to support IAI design, as sustainable local programming will need to be a government responsibility.

PHASE 2: DEVELOPMENT

As the design document is being developed, ECD IAI program development should also be initiated, including the following processes:

- a. Scriptwriter training;**
- b. Scriptwriting, and initial episode production;** and
- c. Formative evaluation** that prepares for the final production of use-ready episodes and supporting materials.

One goal of this process is to build the capacity of government personnel and other local resources to continue to produce and use IAI programs after the release of the initial series. Sufficient technical assistance from experienced IAI developers should be incorporated into program design to ensure that the process produces the desired capacity development results and that the products are of high quality.

a. Scriptwriter training for ECD IAI

The quality of ECD IAI programming depends heavily on the quality of the program's scriptwriters. Ideally, scriptwriters should have a background in early childhood or lower primary education, to ensure that they understand the populations they will write for. Even with this background, however, intensive training of scriptwriters will be required to guarantee a quality end product. This training should be led by an experienced technical advisor who has produced quality IAI programs in the past.

The training should be at least two weeks in length, be reinforced by ongoing support during actual production and formative evaluation, and cover the following objectives:

- **Gaining understanding of the concept of IAI and its application in an ECD classroom.** Most writers arrive at the
- **Experiencing interactive activities to build learning and teaching objectives.** The key to good scriptwriting is visualization

training with little (if any) prior knowledge of IAI. They may understand the concept of radio but will probably not have been exposed to an interactive audio program, especially not one designed for early childhood classrooms. To help them gain this understanding, it is advised that they experience ECD IAI through direct participation in an actual IAI program or by watching a video of it being applied in a classroom.

- **Establishing a common understanding of quality ECD.** Reviewing literature on best practices in ECD serves as a basis for drawing up collective profiles of the ideal ECD teacher and an average pre-primary student. These activities help scriptwriters develop an understanding of the population the programs will serve and the skills and competencies the programs will aim to build. These profiles, mapped against the national curriculum, will become the basis for program objectives. A typical pre-primary classroom setting in the target country should also be described in detail, including the materials that are readily available and used, typical classroom layout, average class size, etc. Scriptwriters need to understand a pre-primary classroom setting, and understand how it is different from (and often under-resourced in comparison to) primary classrooms. They also need to learn to write to and for the communities of the geographic areas that are being targeted by the IAI programs (for instance, rural isolated communities), which may be different from their own familiar environments. This shared understanding will also contribute to the development of the series' context and characters.



Scriptwriters taking notes for adjustments during formative evaluation in Madagascar.

-- when a scriptwriter is able to visualize what an activity looks like in the pre-primary classroom, it becomes easier to write down the steps it takes to guide the teacher to smooth execution of that activity. A good way to help writers develop this capacity to visualize is by having them experiencing the same activities they will thereafter learn to represent in scripts.

- **Understanding the production cycle.**

Writers need to understand the process of program production from beginning to end, because scriptwriters often end up doing much more than just scriptwriting. In most cases, writers draft scripts, listen to programs for quality control, formatively evaluate the programs in actual early childhood centers and incorporate modifications to the scripts post-testing. Therefore, it is essential that they familiarize themselves with the process.

- **Learning to write scripts and practice writing and acting out scripts from master plans.** Learning to write scripts is straightforward when quality examples and templates are provided. After writers have

familiarized themselves with the production cycle, a 2-day writer's workshop using script templates and pre-developed master plans for an IAI ECD series should be undertaken. Writers should each produce at least one script during this portion of the workshop. After their scripts have been written, they should observe someone else reading them aloud with a partner who will execute the instructions provided. This is to ensure that the instructions are clear, the necessary pauses are integrated, that interactivity is present in every segment, and that activities and language used are appropriate and engaging for this age level.

b. Scriptwriting

IAI scripts for an ECD program provide all of the information that will be needed for a studio to produce and record the programs. Dialogue, music, sound effects, and pauses needed for user response are detailed and timed, and represented in written form. See appendix 7 for an example of an ECD IAI script from the Malawi *Tiyende!* early childhood series.



Scriptwriting in the Democratic Republic of Congo.

Scriptwriter asks for teacher feedback on a script after testing in Madagascar.



c. Formative evaluation of ECD IAI scripts

Formative evaluation of IAI scripts is an essential quality control element of the development process. Each script must be tested with actual potential users (teachers and children) to determine the following:

- whether the content is clear and at the right level of difficulty for the targeted users;
- whether the characters, music, sound effects, and story lines are engaging and understood as intended;
- whether the timing of the script (including pauses for listener response and activity) is effective;
- whether there is enough physical and oral activity;
- whether the content and delivery are gender balanced;
- whether the interactivity engages all children;
- whether the teacher is able to prepare and manage the resources and materials needed for the lesson;
- whether the teacher and students learn from the program.

Formative evaluation can be conducted by a range of actors, including program designers, scriptwriters, local government counterparts, and/or an external research team (although if this approach is selected, scriptwriters should still accompany evaluators so that the feedback loop is completed on site). All evaluators should be trained by an IAI evaluation specialist in the research methods (observation, interview, focus group, skills assessment) used for formative evaluation prior to engaging in the process. **For an ECD application of IAI, it will be important for the training to include information on child development and best-practice ECD, as well as data from audience research and educational context assessment, to provide evaluators with a framework of appropriate expectations for teacher and student performance when using the IAI programs.**

Timelines for scriptwriting and formative evaluation for a year-long ECD IAI program can range from three to six months, depending on the skills and previous experience of the scriptwriters (and their availability, if they are government staff); the overall number of scripts to be produced; and the extent of changes required after formative evaluation.

PHASE 3: PRODUCTION

Production includes the following aspects:

a. Audio production

b. Supplementary materials production

a. Audio production

Local production of IAI programs 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. However, recent advances in digital transmission technology make it more possible to outsource editing if local costs are excessive, local capacity is limited, or timelines are short.

Performers with both appropriate vocal skills and the requisite accents of the language used in the IAI programs are much more likely to be available locally.

Local musicians can ensure that the music used is appropriate for the context. The number and type of performers depends on the design of the scripts and is affected by the number of characters included in the program and the extent to which music is incorporated. At a

minimum, 4 voices should be included in the programs: an adult male, an adult female, a male child, and a female child. The fewer actors that can be used to produce these voices, the better, for reasons of cost and continuity.

In any scenario, selection of a production facility and staff (producer, editors, and technicians) should be based on their ability to provide highest-quality audio product. If listeners cannot hear or understand the programs due to production quality issues, they will simply stop listening, and the value of the program will be lost.

Programs may go through at least two rounds of recording to accommodate changes due to formative evaluation, so appropriate budget for re-recording must be allocated in advance to ensure quality. Depending on program length and complexity, an average of 1 to 2 production days per program should be budgeted.

b. Supplementary materials production

National teaching and learning materials for ECD are often in sparse supply, so additional resources can be produced to enhance and complement the IAI programs if budget allows. Supplementary materials should include a teacher's guide and, where possible, a supplementary activities packet. Printed posters and manuals for the development of learning resources using locally available low-cost or no-cost resources (such as manipulatives made from bottle caps and natural materials like sticks, stones, and leaves; and charts and games made from old sacks, boxes or other packaging) are also recommended. These should be produced at the same time that scripts are being written, to ensure close alignment between scripts and materials.



Preparing materials for use in IAI programs in Tanzania.



Recording IAI programs in the Democratic Republic of Congo.

PHASE 4: DELIVERY

Delivery includes the following aspects:

- a. Teacher/caregiver training**
- b. Community sensitization and mobilization**
- c. Delivery**
- d. Marketing and engaging audiences**

a. Teacher/Caregiver Training

IAI programming is by design a dual-channel intervention, providing teachers with professional development while also providing children with high-quality instruction. Nevertheless, program effects are greatly increased when teachers are oriented to the content, the pedagogy, and the technology in advance. The length of training should depend on an assessment of the extent of teachers' prior training in best-practice ECD and their familiarity with the technology selected for the IAI intervention. In many contexts, ECD teachers have relatively little training when compared to primary teachers – some may have no training at all in education or in early childhood development. Depending on the profile of the teachers who will be using the programs, two to four days of training may be needed.

Training should provide teachers with an introduction to and explanation of the value of the active learning methods through which they will be guided by the programs; guidance on setting

up early childhood environments to make best use of the IAI programs; initial training on creating no-cost/low-cost learning materials, as they will be asked to do in the programs; and experience operating the technology, to ensure that they will be able to effectively implement the programs. The latter point is particularly important when using a non-broadcast vector, as the delivery of content from a mobile phone, for instance, is different from simply making a phone call.

If teachers are unable to access a face to face training, guidance and orientation can also be provided by radio or another digital medium. Face to face training is preferable, but the same principles of active learning and engagement that are reflected in the IAI instructional series can be used to create a distance-learning training package.

b. Community Sensitization and Mobilization

Early childhood is a particularly sensitive arena in which to introduce innovation, as it addresses the needs of very young children and is very often not associated with formal schooling in the minds of the community. Sensitization of the communities in which programs will be implemented begins in the preparation stage, with audience and context research serving as an initial point of engagement around the value of early childhood development programming, the ways in which it might be implemented in a given community, and the roles of families and community members in delivering and sustaining programs. Parent and community representatives can also be invited to participate in formative evaluation of IAI episodes, to help them become familiar and comfortable with the content and format of the programs and help them appreciate the potential of IAI.

Where a community-based preschool model has been selected as the approach for the ECD program, community engagement will need to begin very early on in the program cycle,

Teachers being trained to use IAI over mobile phones with speakers in DRC.



Community Engagement to Expand ECD through IAI: Zanzibar's TuTu Centers

A significant component of the Radio Instruction to Strengthen Education (RISE) project in Zanzibar was the establishment of over 180 TuCheze Tujifunze (TuTu) early childhood learning centers (TuTu Centers) in areas with poor access to ECD services. TuTu Centers offered non-formal preschool and Standard 1 education to the most vulnerable children in remote communities in two of Zanzibar's ten districts. Prior to starting up community preschools, community mobilization meetings were held to arrive at a joint management plan for establishing and supporting the center, including the identification of class mentors and the provision of a learning space. School management committees were also trained to ensure that they were supporting TuTu Centers. RISE staff trained local community members as mentors to guide learners through the TuTu broadcasts and post-broadcast activities in non-formal settings identified by the community. This community preschool model has been successfully sustained by the MoEVT following the close of the program. 179 of the original 180 TuTu Centers are still in operation 6 years after RISE closed, and 52 new TuTu Centers are scheduled to be established. Salaries for the preschool mentors have been fully absorbed within the MoEVT budget.

during the preparation or development stages, particularly if communities are being asked to identify facilitators and provide learning spaces for the children.

More intensive outreach efforts should be conducted as programs are readied for delivery, to ensure that parents and communities understand what to expect and understand how they can contribute to the success of the programming. Facilitated workshops in which IAI episodes are shared and stakeholders' questions addressed should be held in communities targeted for programming, with appropriate representation from ministry personnel, if possible. Key community figures (traditional leaders, religious figures, local civil society representatives, and business leaders) should be invited and encouraged to attend, along with parents.

Where a program design team has decided to recruit community contributions to the programs (whether cash or in-kind), this outreach should begin well in advance of the distribution of the IAI episodes. This is particularly true where communities are being asked to supply learning

spaces and facilitators for community ECD centers, as those facilities will need to be readied and facilitators engaged and trained before programming can roll out.

c. Delivery (possible through varying devices and technology)

Delivery of ECD IAI by radio

Radio delivery of IAI is the most traditional approach. If radio is selected as the desired technology, based on the technology assessment described above, program delivery will need to be coordinated to ensure adequate range of broadcast coverage; an appropriate broadcast schedule; and consistent delivery in line with that schedule. Regular programming depends on good radio station organization (scheduling and logistics), and a well-functioning intermediary (the radio station) is key to program distribution. If the government has an educational radio service through the Ministry of Education or an alternative national public broadcast network, these can be engaged to provide broadcast



Community-built preschool center in Zanzibar.

time at low or no cost as part of ongoing public service programming. If public radio is not an option, private and/or community radio stations will need to be used. Every effort should be made to ensure that the smallest possible number of stations required to provide adequate coverage is used – engaging with a large number of broadcasters significantly complicates broadcast scheduling, cost control becomes challenging, and it becomes increasingly difficult to monitor actual delivery. Ideally, no more than 5 stations should be broadcasting an IAI series at once. If it is impossible to achieve the desired coverage without significantly increasing the number of participating stations, alternative means of delivery should be explored. Distribution of supplementary materials can be coordinated during teacher training prior to initial broadcast. If using a broadcast medium, startup of delivery can also be phased, with broadcast beginning as soon as one-third of the programs are ready.

Delivery of ECD IAI by CD or Mp3

CD or Mp3 files for use in a playback device are an alternative to radio broadcasts that allows for sharing of materials and for repeated use of programs by teachers on their own initiative. The technology options assessment step should determine whether equipment to play such media is already available or will need to be procured to support the program. Distribution of audio files (and, if funded, playback equipment and supplementary materials) can be accomplished in coordination with Ministry officials who supervise early childhood facilities, at teacher training/orientation, or through designation of a central pickup point (such as a selected preschool, a clinic, a food distribution depot, or another commonly-accessed location) for teachers in regions where programming is being used.

Delivery of ECD IAI by mobile phone

Mobile phone delivery makes IAI programming much more portable, and content creation tools like Stepping Stone allow for the integration

of teacher guides with audio programming on the same device, and (like CD or Mp3 delivery) allows teachers to reuse programs as they need or desire. Loading programs and supporting materials onto SD cards for insertion into phones is fairly simple, and the cards can be delivered directly to teachers during training or distributed through mobile phone providers that also provide access to phone credits and equipment. Mobile phone volume may be increased with the use of portable easily charged speakers, if desired, but recording at high volume can also largely compensate for the noise interference that may be encountered in ECD settings.

d. Marketing and engaging audiences

An IAI program should draw listeners to it, not be imposed upon them (indeed, the power of listeners to simply tune out if not satisfied cannot be overestimated). Planning for the marketing of a program is therefore an important part of its development. While primary school IAI may be easily marketed to potential users, given the established status of formal schooling and a desire to improve its quality in many contexts, early childhood IAI programs can require particularly nuanced and careful approaches. Where ECD programs are not part of the established educational landscape, or in contexts where early education is narrow in scope (for instance, focused on religious education), concerns about the purpose of the programs, the content, and their appropriateness for young children may be encountered. Marketing efforts should be developed with local advisors and draw carefully on the audience research of the program preparation stage, in order to allay concerns, highlight the advantages of the programming, and encourage interest in both the IAI intervention and ECD more broadly. Where possible, marketing should engage local champions (community and religious leaders, entertainers and public figures) to help convey the positive messages about the programs and encourage families to allow their children to participate.

MONITORING AND EVALUATION

Monitoring and evaluation of an ECD IAI program supports quality, ensures appropriate use of funds, and provides evidence for adaptation and/or expansion.

Monitoring of the fidelity of program implementation can occur through broadcast and listener logs (and for mobile phone users, usage tracking data) and periodic classroom observations that document whether the programs are being listened to as scheduled and whether teachers are using them as intended and directed. Monitoring visits should ideally be conducted by government ECD personnel, as part of a routine cycle of support to early childhood institutions. Training on fidelity monitoring will build the capacity of these staff to support their assigned schools. If government personnel are not available, community monitors from within the communities that house preschools can be trained, or outside contractors can be engaged to conduct site visits.

Evaluation of an ECD IAI intervention includes both the formative evaluation process that informs the development of the actual audio programs and supporting materials, and more summative assessments that track the effects of the intervention over time. The design of an evaluation framework for an intervention should reflect its particular context and goals, but potential measures of performance may include the following:

Student-level, teacher-level, and parent-level outcomes:

- Positive changes in student enrollment and attendance as compared to baseline
- Student and teacher retention and comprehension of IAI content (based on cohort pre and post assessment)
- Increase over time in student and teacher behavior that is consistent with IAI's active learning methodology, pro-social interaction modeling, and life skills messaging (observational data)
- Parent and teacher satisfaction

System-level outcomes:

- Accurate replication of process after piloting for uptake in other regions of the target country
- Government willingness to expand the program
- Generation of public and private resources for expansion
- Confirmation of low operating costs and high rate of return on investment (demonstration of value for cost relative to other possible interventions).

Costs for monitoring and evaluation activities will vary depending on the responsible parties, the scope of the intervention, and the size of the evaluation sample. Ideally, government counterparts should be involved from the start in the development and implementation of the monitoring and evaluation plan, to ensure their long-term commitment to the process of results documentation and quality control.

Tikichuela: Evaluation of IAI for early childhood mathematics

The *Tikichuela* program in Paraguay included a rigorous randomized control trial of the curriculum and materials. 3,000 students across 265 schools were randomly assigned to treatment and control groups, and assessment tools mapped to the learning outcomes of the program

were administered as pre- and post-tests. Data analysis included not only the performance of students in control versus experimental schools, but also considered gender, mother tongue, language of instruction, class composition (multigrade versus single grade), teacher experience

and specialization, and location of schools. Results provided inputs to support not only program validation and extension but also broader policy discussions about early childhood goals for students and teachers in this multilingual, multicultural context.

SUSTAINABILITY

The sustainability of an IAI initiative depends upon a number of factors, most important among which is the extent to which the program engages and pleases its users (as Anzalone and Bosch put it, “a quality I[A]I program will generate a following or constituency that expects the programs to continue.” [2005, p. 29]). A checklist of elements that support such a high-quality product is included in the following table.

Sound pedagogical design; engaging and relevant characters, story lines and activities; and high-quality production set up a program for success and help it to build an audience that wants more of the same. In an ECD application, where not only the IAI methodology but also the principles and structures of early childhood education may be unfamiliar to many, quality of production and sensitivity to local needs and norms are particularly important. Careful audi-

ence research, thoughtful and engaging marketing to communities and families, and enlistment of program champions and advocates to encourage participation and help share positive results will support buy-in, use, and sustainability.

Indeed, engagement of stakeholders from the very start of an ECD IAI initiative is critical. Government and community counterparts and partners who are part of the development and implementation process and understand and support the concept of IAI for ECD will be better able to advocate for and sustain it moving forward. Training government counterparts through learning by doing throughout the project cycle builds their capacity to continue programming after external funding ends, promotes a supportive and enabling environment, and supports effective planning for long-term ownership and cost management.

IAI lesson in Zanzibar.



Minimum Quality Assurance Checklist for ECD IAI Projects

- ✓ **Ministry validation of all design documents.** This includes scope and sequence, master plans, and teachers guide templates. Once designs are approved, the Ministry must also validate scripts as they are produced. However, not all scripts will require validation (the revision process is laborious and Ministry personnel have limited time). Experience shows that 5% of scripts can be made available for review by the validation committee.
- ✓ **IAI and ECD Specialist review of every script (both pre- and post-test) and teachers guide.** The Specialist must have a solid background in teaching and learning specific to ECD; expertise in IAI program development; and a good knowledge of the context for which the IAI programs are being adapted.
- ✓ **Scriptwriter testing of every program,** prior to its distribution. Scriptwriters must observe every program, and testing should include short interviews with teachers and students to ensure that program content is appropriate and relevant and pinpoint any necessary corrections.
- ✓ **Testing of procured technology, prior to distribution.** This can be done simultaneously with the testing of the programs to assure that technology is both useable, appropriate, and will function effectively for the purpose of IAI program use in ECD classrooms.
- ✓ **Quality review of all printed and audio materials, prior to distribution.** The quality of deliverables from printers is sometimes not what is promised at quote submission. Therefore, it is imperative that printed materials be periodically reviewed as they are duplicated so that quality of printing is assured. Scriptwriters must also listen to every final corrected audio file to ensure quality.
- ✓ **Quality assurance of teacher equipment use.** The programs will not be heard if teachers are not comfortable using the selected devices. Training should confirm that they understand and can use the technology, and follow up should ensure that they are doing so and provide support if they are not.
- ✓ **Support and monitoring of program use after launch.** Clear and informative protocols for usage monitoring and the provision of support for teachers who are having issues are critical for ensuring success. This is especially true in the initial phase of the programs when teachers are getting used to using IAI as a medium of instruction.



IAI has been shown to dramatically improve the quality of teaching and learning in a range of contexts across subject matter, age, gender and location.

**A TOOLKIT AND GUIDELINES FOR
PROGRAM DESIGN AND IMPLEMENTATION**





ANNEXES

Annex 1: Timeline for development of 1 year of ECD IAI programming

Annex 2: Personnel required for an ECD IAI program and their respective roles

Annex 3: ECD IAI program inputs and outputs

Annex 4: Cost categories and considerations for ECD IAI programming

Annex 5: Common pitfalls in ECD IAI program development

Annex 6: Case studies of ECD IAI: Honduras, Paraguay, Zanzibar, Nepal, and Malawi

Annex 7: Sample ECD IAI script: Malawi Tiyende! Episode 1



ANNEX 1 | TIMELINE FOR DEVELOPMENT OF 1 YEAR OF ECD PROGRAMMING

The timeline for implementation of an ECD IAI program will vary depending on the inputs needed; these include the extent to which a government partner is ready to adopt the program approach; whether or not studio construction and equipping is part of the plan; the existing capacity of government staff who will be trained through the program; the extent to which community sensitization and mobilization is needed; and the total number of programs to be produced.

An illustrative timeline for the development of a full year of ECD programming is provided below. This timeline assumes that 100 30-minute programs will be produced; that a studio is already available; and that the IAI delivery device will be mobile phones. If the delivery will be via broadcast instead of through mp3s or phones, this timeline would move more quickly: broadcast would begin with 50 programs completed (at around month 7), with teacher training in month 6 and community mobilisation and sensitisation beginning in month 1 or 2.

Activity	Person responsible	Target	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8	M 9	M 10	M 11	M 12	Product/ Outcome
Audience and context research conducted	STTA* and ministry counterparts	Preschool teachers and students	█												Audience and context research conducted and data aggregated
Conduct local technology scan	Local consultant with STTA	Local markets	█												Technology scan data collected and aggregated
Design document developed	STTA with local counterparts	Program managers and staff	█												Design document developed
Training of scriptwriters on how to write an IAI lesson (2 weeks, plus refresher after 2 months)	STTA	12 Scriptwriters	█			█									Scriptwriters trained
Training of technicians on how to build an IAI lesson	STTA	2 Studio technicians	█												Technicians trained
Selection of the series title and series design (characters, scene, main objectives, template for each lesson)	Ministry validation committee and scriptwriters	Preschool teachers	█												Title selected and production document finalized
Development of teachers guide page and script templates	Scriptwriters	Preschool teachers	█												Layout of teacher guide finalized Template for script finalized
Creation of the introduction song for the series	Musicians	Preschool teachers and students	█												The song is produced
Identification of actors for each series character	Scriptwriters and technicians	Actors	█												Actors hired
Scope and sequence for 100 lessons are mapped	STTA and scriptwriters	Scriptwriters	█												Scope and sequence finalized
Scope and sequence for 100 lessons are validated	Ministry validation committee	Preschool teachers	█												Scope and sequence validated
Production Plan for 100 lessons prepared	STTA and scriptwriters	Scriptwriters and studio technicians	█												Production plan finalized

* Short-term technical assistance

Activity	Person responsible	Target	M 1	M 2	M 3	M 4	M 5	M 6	M 7	M 8	M 9	M 10	M 11	M 12	Product/ Outcome
Technology for distribution identified and procured.	Procurement officer	Preschool teachers													Technology ready for use
Master plans drafted for each lesson (10 at a time written)	STTA and scriptwriters	Scriptwriters													Master plans completed
Scripts drafted, reviewed and timed (5/week written)	STTA and scriptwriters	Scriptwriters													Pre-test scripts completed
Recording of pre-test scripts (5/week recorded)	Studio technician in collaboration with actors and scriptwriters/ testing team	Scriptwriters and/or team responsible for testing													Pre-test programs are available for testing
Testing of pre-test programs in local school and subsequent modifications to programs and teachers guide pages integrated (10 tested/wk)	STTA, Scriptwriters and/or team responsible for testing	Scriptwriters and/or team responsible for testing													Modifications to pre-test programs and teacher guide pages made
Scriptwriters and community sensitization team trained on mobilization/sensitization	STTA, scriptwriters and training team	Scriptwriters and/or team responsible for training													Sensitization team trained
IAI and community sensitization materials drafted and recorded and finalized	STTA, Scriptwriters and/or team responsible for training	Scriptwriters and/or team responsible for training													IAI community sensitization materials drafted and recorded and finalized
Studio technicians record modifications to pre-test programs in studio	Studio technician in collaboration with actors and scriptwriters/ testing team	Scriptwriters and/or team responsible for testing													Post-test programs available
Community sensitization process initiated	Scriptwriters and/or team responsible for training	Community members													Community sensitization process under way
Community preschool facilitators identified and community support resources mobilized	Training team	Community members/ teachers													Community facilitators identified/ resources leveraged
Final quality control to verify modifications and programs have no issues	Scriptwriters/ testing team	Preschool teachers and students													Final versions are available in digital format
Recordings are built into bundling format for phones	Studio technician/ programmer	Preschool teachers and students													Lessons are available to load onto mobile phones
IAI teacher training materials drafted and recorded and finalized	STTA, Scriptwriters and/or team responsible for training	Scriptwriters and/or team responsible for training													IAI teacher training materials drafted and recorded and finalized
Teachers guide printed	Procurement officer	Preschool teachers and students													Teachers guides available for distribution
Lessons and teachers guides distributed	Logistics officer	Preschool teachers and students													Lessons and teachers guides distributed for use
Conduct initial IAI training with preschool teachers	STTA, Scriptwriters and/or team responsible for training	Preschool teachers													Initial teacher training completed

ANNEX 2

PERSONNEL REQUIRED FOR AN ECD IAI PROGRAM AND THEIR RESPECTIVE ROLES

Phase	Personnel	Responsibilities/roles
Start-up	STTA*: IAI Specialist/ Technical Advisor	Develop design document in collaboration with staff Liaise with government validation committee for approval of design documents Train scriptwriters
	STTA: IT Consultant (IAI technology)	Training studio technician in IAI production
	STTA: ECD Technical Advisor	Supports IAI Advisor to ensure that design reflects best ECD practices
Planning and pre-production	Scriptwriters	In collaboration with IAI Specialist, draft curriculum map, scope and sequence, production document Conduct audience research and technology scan
	STTA: IAI Specialist/ Technical Advisor	Draft curriculum map, scope and sequence, production document Draft initial master plans, script and teachers guide templates Liaise with government validation committee for approval of technical documents
	STTA: ECD Technical Advisor	Supports IAI specialist and scriptwriters to ensure that curriculum, plans, scripts and teachers' guides reflect ECD best practices
Production	Scriptwriters	Draft pre-test and post-test scripts. Participate in the formative evaluation of each program. Conduct quality checks of each program. Supervise recording of scripts in studio In collaboration with IAI Specialist, draft teacher training and community sensitization guides. Manage actors' recording schedules. Liaise with Ministry validation committee to approve final products.



Creating sound effects in the studio in Madagascar.

* Short-term technical assistance

PERSONNEL REQUIRED FOR AN ECD IAI PROGRAM AND THEIR RESPECTIVE ROLES *(continued)*

Phase	Personnel	Responsibilities/roles
Production <i>(continued)</i>	STTA: IAI Specialist/ Technical Advisor	In collaboration with ECD Advisor, review pre-test and post-test scripts and teachers guide pages In collaboration with ECD Advisor, support scriptwriting team as needed (refresher trainings, pedagogical advice) In collaboration with ECD Advisor, draft teacher training and community sensitization guides.
	STTA: ECD Technical Advisor	In collaboration with IAI Advisor, review pre-test and post-test scripts and teachers guide pages In collaboration with IAI Advisor, support scriptwriting team as needed (refresher trainings, pedagogical advice) In collaboration with IAI Advisor, draft teacher training and community sensitization guides
	Studio technician	Record, edit, and export pre-test and post-test programs.
	Actors and musicians	Record pre-test and post-test programs. Record music for programs.
	Programmer	Build final programs into the distribution format.
	Procurement and/or logistics officer	Obtain quotes and purchase from printers for the teacher guide production. Obtain quotes and purchase from providers for SD cards and phones*. Obtain quotes and select distributor(s) for delivery of materials. Draft distribution plan.
Training and monitoring	Scriptwriters or training team	Train teachers on IAI. Conduct community sensitization meetings. Monitor usage and technical implementation issues.
	IT officer	Monitor technology to ensure functionality.

* Depends on technology identified for distributing IAI content.

ANNEX 3 | ECD IAI PROGRAM INPUTS AND OUTPUTS

Phase	Input (materials; not including labor)	Output (product)
Studio set-up*	<ul style="list-style-type: none"> Computer Audio production software (ie. Live, Protools), Mixing board High quality microphones External Hard Drive Soundproofing 	Functional studio
Production/Program Development	<ul style="list-style-type: none"> High-functioning photocopier Printers (color and b&w) Office supplies (paper, flipchart, highlighters) One computer for every scriptwriter External Hard Drive Costs of testing (snack for kids, per diem for teachers) 	Pre and post test scripts and teachers guides
Training and community mobilization	<ul style="list-style-type: none"> Cost of scriptwriter and teacher training venues, meals, transport for participants, and materials Cost of community mobilization and sensitization meeting venues, meals, and materials 	Trained teachers and sensitized and supportive community
Distribution to communities/schools	<ul style="list-style-type: none"> Cost of printing teachers guides Cost of procuring IAI distribution technology (SD cards, phones, speakers, radios) Cost of shipping and distribution 	Final programs, training guides, and teachers guides

* Needed if no local studio is available or functional.



Testing programs with students: letter recognition task in DRC.

ANNEX 4

COST CATEGORIES AND ESTIMATES FOR ECD IAI PROGRAMMING

Costs for IAI programs, especially when using broadcast radio for multiple years, can be significantly lower than comparable costs for traditional teacher training and instruction (as IAI is by design a dual-channel intervention that both trains teachers in good instructional practices and delivers high-quality instructional content to children). Estimates have been generated that are as low as pennies per child per year, at a very large scale and using a broadcast medium. However, cost per student estimates can vary widely depending on the elements considered in the analyses. Startup costs are a large initial investment, but recurring costs once programs are operating at scale are usually very low.

A particularly useful approach to understanding real costs of IAI and projecting benefits over time is provided by Adkins in the 1999 World Bank Education and Technology Technical Notes volume Interactive Radio Instruction: Impact, Sustainability, and Future Directions (p. 37-50). Adkins examined both the investment and the recurrent costs for small scale and large scale IRI programs, and

explored the effect relative to cost (defined as the incremental effectiveness per unit incremental cost). The average effect per dollar in cost was .91, as compared to .54 for textbooks and .08 for traditional teacher training programs.

The programs included in Adkins' analysis do date back to 1990 or earlier, and technological development since that time has both reduced the cost of program production and provided alternatives to broadcast (such as mobile phones) that are increasingly cost-effective and appealing as reusable educational resources. Nevertheless, his work highlights the potential relative benefit of an IAI intervention and provides a useful organizational framework for considering cost categories for IAI programming, as well as offering important points to consider when the goals of a program include financial and systemic sustainability.

Building on Adkins, managers deciding whether or not an ECD IAI program is appropriate for a particular context will need to consider the following when assessing potential cost-effectiveness:



Training in Zanzibar.

COST CATEGORIES AND ESTIMATES FOR ECD IAI PROGRAMMING *(continued)*

Investment costs (costs required at the beginning of an IAI program):

- Scope and sequence, master plans, and scripts
- Audio program production costs
- Supporting print materials preparation costs
- Startup costs (including expert STTA; training costs for IAI developers and users; and community sensitization work)
- Community preschool establishment costs

Recurrent costs (to continue program implementation over time):

- Air time (when using a broadcast vector)
- Delivery equipment (radios, mobile phones and data cards, CD/Mp3 players, power sources/chargers)
- Equipment repair/batteries
- Reproduction of print materials and/or digital media
- Distribution of materials
- Training and training supplies
- Continuing program development and adaptation
- Administrative expenses
- Other fixed expenses
- Other variable expenses

Air time is usually the greatest and potentially the most volatile of these recurring costs. While IAI programs have been negotiated to include free broadcasting by government radio or community radio stations, long-term guarantees of these arrangements are challenging to maintain. Privatization of public radio stations, increases in operating costs or changes in audiences that motivate stations to move from subsidized to paid programming, or changes in ownership or management can significantly alter the costs of broadcasting IAI programs. When choosing a radio vector, ensuring that long-term funds or agreements for sustained broadcast are in place will be important.

Costs for all elements of an IAI program will vary by country, depending on the local economy, the availability of media production and distribution options, the extent of challenges to distribution, the extent of community contributions, and the ability to leverage economies of scale. It is possible for programs to include cost recovery mechanisms, especially when using non-broadcast means of delivery in group learning environments where parents can be asked to pay a small fee to participate. However, IAI's particular strength as a means of reaching the most isolated and challenged populations may make fee-supported services impractical in some contexts where even minimal charges are a burden on families.



Responding to IAI teacher guidance: “Group your fingers to show me three!” in DRC.



Using counting sticks in DRC.

ANNEX 5

COMMON PITFALLS IN ECD IAI PROGRAM DEVELOPMENT

Challenge	Description	Proposed solution
Government counterpart personnel are not available	In order to obtain government buy-in, government personnel are often requested to participate in the development process. In many cases, this does not work as expected because the personnel are occupied with other commitments. This slows down the delivery timeline.	When possible, request that Ministry personnel be assigned 100% to the program. If this is not possible, utilize the Ministry in a capacity that will not slow down the process of program development and implementation. For example, establishing a Ministry validation Committee requires little time of key ministry personnel but allows them to approve and provide input into program materials and approach.
Procurement of materials and technology is not up to quality standards	Procurement in remote, fragile, or conflict-affected contexts is especially difficult because printers, distributors, and vendors are often not reliable or quotes provided do not reflect the quality of what is promised.	Constant follow up of selected vendors is necessary to ensure products are delivered in a timely fashion and at the expected quality. Requesting multiple examples of materials as they are printed along the way will help ensure the vendors live up to the standards of quality necessary.
ECD is not a government priority	With an international focus on ensuring universal primary school enrollment, Early Childhood Education is often not common or a priority for many governments. Where it is endorsed at the policy level, implementation efforts and resources may still be far behind.	Ministry engagement from project initiation all the way to implementation is indispensable. Requesting that the Ministry set up a validation committee for all the technical documents and tools you will produce and distribute will ensure a degree of government engagement and investment in the programs.
ECD is not familiar to parents (hesitation about enrollment)	Early childhood education options are not broadly available; existing options are didactic or focused on religious education; exposure to early education is not considered important until school entry.	Community sensitization is essential to obtain parental and community buy-in to an IAI program. This process should aim to support communities in the creation of their own localized centers so that they can feel like the ECD center belongs to the community.

COMMON PITFALLS IN ECD IAI PROGRAM DEVELOPMENT *(continued)*

Challenge	Description	Proposed solution
Parents don't want their children to learn in national language or mother tongue (hesitation about language of instruction).	Parents schooling as providing their children with access to a world language that they perceive as a language of "success". They do not see the advantages of their children learning in a national language or their mother tongue.	Part of the community sensitization process has to address parents' strongly held beliefs about language learning and provide them with the necessary information around the importance of learning in a language you understand.
Technology breaks down	Technology is not fail-proof and break downs are inevitable. This will affect effective implementation of the program.	Selecting distribution technology that can be found locally or easily repaired/maintained locally mitigates technology failures and long-term program disruptions. Conducting technology scans early on in the program will allow for the identification of a locally-available technology.



ECD IAI counting and sorting activity in Zanzibar.

ANNEX 6

CASE STUDIES OF ECD IAI: HONDURAS, PARAGUAY, ZANZIBAR, NEPAL, MALAWI

Juego y Aprendo: IAI-Based Alternative Preschool for Honduras

Begun in 2004, *Juego y Aprendo* was developed as an alternative system of preschool education for Honduras. The program goals included:

- simultaneously achieving greater efficiency of student learning and a reduction of student failure rates in primary education through the development and demonstration of a one-year, high-quality program which could be offered with significant recurrent costs savings;
- increasing the percentage of children enrolled in pre-school programs;
- reducing student repetition, particularly in the first grade, by providing a strong preschool foundation; and
- improving student performance in essential cognitive and social skills, including early literacy.

Juego y Aprendo included 108 forty-five minute audio preschool kindergarten lessons. The multi-channel learning system also included print materials for students, a guide for volunteer educator-led activities, posters, games, parent support education materials, and on-the-job educator professional development materials related to each lesson. The IRI audio materials also included a brief educator development segment that was expanded upon in print materials. Consequently, the multi-channel learning system addressed both student learning and educator development objectives. *Juego y Aprendo* established 53 volunteer-staffed early childhood IRI centers in Honduras to deliver the IRI program to the hardest-to-reach children.

Summative evaluation showed that children participating in *Juego y Aprendo* IRI programming made notable progress from pre- to post-test, with a sound majority of respondents in “Developed” and “Advanced” categories by school year end. For urban centers using IRI, this meant a 70 point decrease in the percentage of children categorized as “Needs Attention” from pre- to post-test, the reduction in the number of students categorized as “High Risk,” and an increase in the percentage of students evaluated as “Developed” by 73 points. For rural IRI centers, this also meant the elimination of students categorized as “High Risk” from pre- to post-test, a reduction in the percentage of students evaluated as “Needs Attention” by 60 points, and an increase of children in the “Developed” category by 56 percentage points. Additionally, by the time of post-test administration, 5% of rural IRI learners were categorized as “Advanced.”

In both urban and rural settings, these shifts between categories were also seen in the established control schools, but the differences in year-end achievement between community center intervention children and formal school children were not significant. These results demonstrated that following only 12 months of intervention, the project’s alternative IRI centers—staffed with volunteer educators—had enabled their students to match student achievement levels attained by the control group of formal pre-schools.

In the seven years following the initial intervention, Honduras expanded *Juego Y Aprendo* from the original 53 sites to over 3,000 locations, and the program has been successfully sustained.

CASE STUDIES OF ECD IAI: HONDURAS, PARAGUAY, ZANZIBAR, NEPAL, MALAWI *(continued)*

Paraguay: Tikichuela (Early Childhood IAI for Mathematics)

Tikichuela (Mathematics in My School) was the result of an ECD partnership between the Japanese and Paraguayan governments, the Organization of Ibero-American States (OEI), and the Inter-American Development Bank (IDB). The Program nurtured positive attitudes toward mathematics and developed a solid foundation in basic math among children four to six years old. The program was a hybrid of the highly successful *Juego y Aprendo*, a radio-based program originally developed for Honduras, and the *Big Math for Little Kids (BMLK)* model, developed by Education Development Center.

Tikichuela was implemented as a pilot in the Cordillera department of Paraguay. Baseline tests showed that the average preschool child in Cordillera could name only two out of four geometric shapes and was unable to recognize four numerals. Baseline tests also revealed that preschool teachers felt unprepared to teach math: 94 percent stated that they had difficulties structuring their math lessons and 90 percent that they were unable to teach all topics in the preschool mathematics curriculum. Additionally, 40 percent of teachers reported giving math lessons three days or fewer per week, rather than daily as stipulated in the curriculum.

To bridge the knowledge and pedagogical gaps of teachers, *Tikichuela's* interactive program used audio CDs to teach standardized lessons, decreasing the burden on teachers and helping them complete the preschool math curriculum. The lessons were delivered in both Spanish and Guaraní because many of the children were bilingual or speak a mix of the two languages. Teachers received training and in-class tutoring in the interactive audio methodology.

The project developed a 108-lesson curriculum and an IAI-based pedagogic model for early numeracy that conformed to the bilingual

indigenous context of Paraguay. Approximately 400 teachers were trained in the proper use and implementation of the curriculum, and a national team was trained in interactive radio production to ensure the sustainability and continuity of the strategy.

A rigorous evaluation assessed whether the new curriculum brought gains in math scores. The program studied almost 3,000 students across 265 schools. 131 schools were randomly assigned to the *Tikichuela* program and the remaining schools to the control group. After only five months, students in the pilot program saw, on average, a 16-point increase in scores (almost a fifth of a standard deviation) over those not in the program. The achievement gap between low- and average-performing students (those in the bottom third) and high performers (in the top third) decreased by 7.5 percent. Peripheral schools, which typically enjoyed fewer resources than those at the center of school networks, saw a significant improvement in scores—21 points higher, on average, than peripheral schools not in the program. As a result, the mathematics learning gap between the two groups of schools decreased by 44 percent.

The program improved math scores for both Guaraní- and Spanish-speaking students, with bilingual children showing the most improvement. Preschoolers placed in multigrade classrooms, or those in classes with children of various ages and skill levels, experienced the same level of improvement in their math scores as preschool children in more homogenous classrooms, showing effectiveness in rural, low-resource, multigrade contexts. Preschoolers who had teachers who lacked specific training in early education saw a greater improvement in scores than children whose teachers specialized in preschool education, showing the IRI programs' potential to close the experience gap between highly trained teachers and less trained teachers.

CASE STUDIES OF ECD IAI: HONDURAS, PARAGUAY, ZANZIBAR, NEPAL, MALAWI *(continued)*

Zanzibar: Radio Instruction to Strengthen Education (RISE) and Zanzibar Teacher Upgrading by Radio (ZTUR): A Complementary IAI for Early Childhood Package

The *Radio Instruction to Strengthen Education* (RISE) project was established in Zanzibar in 2006 to develop and pilot several models of early childhood education service delivery for children in the most underserved areas. Working collaboratively with Zanzibar's MoEVT, RISE helped build on and expand Zanzibar's existing early childhood education infrastructure through its Interactive Radio Instruction (IRI) activities. RISE also focused on building the capacity of Ministry and district teams to manage and sustain the RISE activities after project closure.

RISE produced and distributed Interactive Radio Instruction (IRI) programs, Interactive Video Instruction (IVI) programs, guides, classroom kits and song and story books. In addition, RISE distributed user friendly and sustainable equipment (solar radios, MP3s and MP4s) for audio and video training and in-class support, and trained local staff in their care, use and operation. RISE conducted trainings for education mentors, teachers, head teachers, school management committees, teacher center staff, district officials, and district coordinators. It also built the capacity of MoEVT employees in the design, development and production of IRI and IVI programming, printed materials and training programs. RISE built capacity of communities, districts and national institutions for the establishment and maintenance of 180 *Tucheze Tujifunze* (TuTu) centers in two districts in Zanzibar. The learning centers afforded access to early education for children who would otherwise would likely have waited until about age 9 to enter school. In addition, RISE reached 246 formal school classrooms in Zanzibar.

The program trained 372 TuTu Center mentors (previously untrained teachers who led quality lessons with the support of 276 locally produced IRI programs and educational play materials).

Early primary classroom teachers also used IRI to reinforce government curriculum competencies and enrich learning environments for an additional 240 teachers. Over the life of the RISE project, the program served over 35,000 children. Both a baseline and outcome tests were administered to treatment and control group samples of Standard One-level students to assess learning gains as a result of RISE's IRI activities. Results showed that RISE's IRI beneficiaries outperformed control students by about 10%, overall.

The Zanzibar Teacher Upgrading by Radio (ZTUR) project (October 2009-March 2011) also continued to ensure sustainability of RISE activities. ZTUR developed an in-service certification program for preschool teachers (the Early Childhood Certification Program (ECCP)) and the *Chezeshu Ufundishe* teacher training IRI series. ZTUR also revised the RISE IRI TuTu preschool series to accommodate the new two-year preschool curriculum, add lifeskills segments, and re-record lessons with children's voices.

Both projects were successfully institutionalized and sustained: 179 of the original centers still operate and an additional 52 centers are in development. The majority of the mentors trained under the RISE project are still teaching at the centers, receiving a government-funded stipend. The ECCP program has served 30 trainers and 350 teachers from 10 districts will move through the 2-year program in 2015-17. The Voice of Tanzania, Radio Zanzibar, still broadcasts *Tucheze Tujifunze* programs and the Ministry staff trained to develop the programs have expanded into a full-fledged division (the eLearning division) with responsibility for continued production of media series, as well as for training and monitoring of the use of ICT in MoEVT programs and divisions across Zanzibar.



Using bottlecaps for ECD IAI counting activity in Zanzibar.

CASE STUDIES OF ECD IAI: HONDURAS, PARAGUAY, ZANZIBAR, NEPAL, MALAWI *(continued)*

Nepal: Interactive Radio Instruction for Early Childhood Education

Bhanjyang Chautari began in two areas of Eastern and Western Nepal in 1996/97, and was expanded to national broadcast in 1998. Key production and implementing partners included Radio Nepal and participants from Ministry of Education agencies including the Basic and Primary Education Project, the Distance Education Centre, and the Centre for Curriculum Development. The Woman's Development Division, the Ministry of Local Development and several NGOs also participated.

The project had three main objectives:

- To develop and promote active learning opportunities for children aged three to five using IRI/ECD;
- To provide opportunities for adult caregivers in childcare groups to learn about early childhood development;
- To build national capacity in the production and implementation of IRI/ECD programs for the promotion of early childhood development.

The project trained an IRI technical team at Radio Nepal, and developed 20 IRI/ECD episodes that were produced and broadcast by Radio Nepal, along with teaching and learning support materials. These programs were piloted in 36 childcare groups located in Sunsari and Jhapa Districts, and in another 26 childcare groups throughout Kaski and Tanahu Districts. Six childcare groups, three in each region, were chosen to participate as control sites to compare with twenty experimental sites (ten in each region). Participating childcare group facilitators received 20 IRI/ECD episodes on audio cassette tapes along with support

materials and a brief orientation on ECD and IRI. Control sites did not receive IRI/ECD programmes or an orientation to IRI.

The majority of caregiver respondents found the programs to be engaging, easy to use, and useful in promoting children's learning and school readiness behavior. Most said that they had no trouble tuning into the programs during the regular broadcast times, which fell in the morning, although some cited ignorance of broadcast times and dates or late arrival of children at the childcare groups as preventing them from listening to the morning broadcast.

Control and experimental groups in both Western and Eastern pilot sites had similar scores on the pretest, whereas a comparison of post-test scores revealed dramatic improvements in the experimental sites on all three sections of the summative evaluation test (group dynamics, caregiver to child interactions, and caregiver skills). Based on the results of the post-test, IRI/ECD succeeded in effecting the desired behavior changes in the adult caregivers in those categories thought to contribute to quality interaction between children and adults, and to promote a high quality ECD environment.

Radio Nepal and Ministry technical teams developed and demonstrated their capacity to write, record, evaluate and broadcast high quality IRI/ECD programmes, and committed to a 5-year program of weekly broadcasts beginning in 1998. An external evaluation in 2000 found that the programs enjoyed good penetration and awareness, and follow on expansion of IAI for use in teacher training, mathematics, and English were developed.

CASE STUDIES OF ECD IAI: HONDURAS, PARAGUAY, ZANZIBAR, NEPAL, MALAWI *(continued)*

Malawi: Tiyende!: Interactive Radio Instruction in Community-Based Childcare Centers

In 2008, *Tiyende* developed a series of 61 IAI lessons for use in Malawi's Community Based Childcare Centers (CBCCs) – centers where local adults feed and care for children in the surrounding community. The project's goal was to contribute to changing the centers from spaces of guardianship to ones of learning, social engagement and pre-academic stimulation. To achieve that goal, the IAI programs were developed as foundation lessons to introduce and build pre-literacy and pre-numeracy skills that link to material that is expected to be taught in Standard One (primary grade 1). The lessons were built upon Malawi's National Syllabus for Early Childhood Development. By building on the existing syllabus and working with existing CBCCs, it was possible to implant a package of material that could be easily adopted and replicated. The project also developed training materials, including a Training of Trainers manual to duplicate and continue training beyond the boundaries of the project timeline, and preparatory audio lessons that introduced caregivers to the sounds and prompts of the programs. Support materials including durable and long lasting posters, letter cards, number cards and banners were created and locally produced to support and enhance the audio programs. Local CBCC support staff were trained to continuously monitor and provide feedback to center members.

Tiyende was intended to:

- Provide a foundation of meaningful child-caregiver interactions through games, songs and other activities;
- Equip caregivers with practical skills and content knowledge that in large part relies on listening, responding, doing and repeating;

- Demonstrate that IRI can expand access to quality early childhood programs affordably; and
- Improve children's opportunities for success in primary school.

Evaluation data showed that those caregivers who received IAI lessons in their centers scored higher on measures of positive interaction with children than their control peers. The IAI lessons helped caregivers acquire skills that improved their interaction with their students and their delivery of lessons. Across treatment groups, the IAI lessons also added value to the time children spent with caregivers. The content covered in IAI lessons, coupled with caregivers' improved skills for lesson delivery, showed a clear effect on the learning outcomes of children enrolled in the treatment schools. Three, four and five year old children enrolled in the treatment CBCCs understood and acquired skills and concepts identified as important in the National Syllabus at a much higher level than their peers in control CBCCs.

Tiyende expected to increase caregivers' capacity to provide sound early childhood programs that develop psycho-social skills (social, motor skills) as well as introduce children to pre-school skills important in a 3-5 year olds' transition into primary school. Not only did care-givers improve markedly in their instruction, but learners gained substantial knowledge and skills, far outperforming learners in centers without IAI. With the knowledge, skills and understanding acquired through *Tiyende*, five-year-old learners in treatment centers were much more prepared and ready for primary education than their peers in control CBCCs.



IAI lesson
in Malawi. .

Tiyende! Programme 1

For Preschool Week 1

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Total script timing: 29 49'

Page	Seg. #	Segment Name	Length		All kids involved?	Characters
2-3	1	Opening	6	41	Yes	Mrs Phiri, Chifundo and Zione
4-5	2	Introduction	3	36	Yes	Mrs Phiri, Timba, Chifundo and Zione, Gogo Nasiketi
6-8	3	Sera Says Game	4	04	Yes	Mrs Phiri, Chifundo and Zione
9-12	4	Story	4	32	Yes	Mrs Phiri, Chifundo , Timba and Zione, Gogo Nasiketi
13-14	5	Up and down Game	2	51	Yes	Mrs Phiri, Chifundo and Zione
15-16	6	Body part song	2	02	Yes	Mrs Phiri, Chifundo and Zione
17-18	7	Evaluation	3	16		Mrs Phiri
19	8	Key Message and Closing	2	41	Yes	Mrs Phiri, Chifundo and Zione

Sound effects:

Background music
Bridge music
Magic bells
Clapping Sound
Ambulance Siren
End of story
Birds Chirping
Gogo's Cue

Songs

Opening song
Standing up song
Sitting down song
Circle song
Body part song
Story time song
Goodbye song

Tiyende! Programme 1

For Preschool Week 1

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Segment # 1		
OBJECTIVE		To present the program and objectives to the caregiver and children.
1.	FX*	STANDARD SIGNATURE TUNE 38"
2.	MRS PHIRI	(ENTHUSIASTICALLY) Welcome to Tiyende Program... Get ready to play with our radio friends under the Kachere tree!!.. This is the first program for pre-school children..... I am Mrs Joyful Phiri, your radio teacher. Children, I am so happy to be your radio teacher.
3.	FX	MAGICAL BELLS 02"
4.	MRS PHIRI	(CALMLY) Caregiver, in these programs we will be speaking to each other, so please you must always answer when I greet you ...Lets try it. Good Morning Caregiver?
5.	PCCR**	03"
6.	MRS PHIRI	Okay, I will now greet the children, so please encourage them to answer.....Good morning children.
7.	PCCR	05"
8.	MRS PHIRI	Well, I hope the children answered to my greeting....Caregiver, before we begin I want to introduce you and the children to some sound effects that you will hear in our programmes. Listen.....
9.	FX	SOFT BACKGROUND MUSIC 05"
10.	MRS PHIRI	(EXCITEDLY)Ah ha... That was the music that will be played while you do an activity that needs more time. OK, let's practice. Next time when you hear the sound, I want you, caregiver, to greet individual children by shaking hands. You have twenty seconds.
11.	FX	SOFT BACKGROUND MUSIC 20"
12.	MRS PHIRI	(LAUGHING) Caregiver, I hope you managed to greet many children! Caregiver and children...listen again...
13.	FX	PRERECORDED STAND UP SONG 21"
14.	MRS PHIRI	Caregiver and children, the song you just heard, is for standing up Let's do what the song says...
15.	FX	STAND UP SONG 21"
16.	MRS PHIRI	(HAPPILY) Well done everyone! I hope we are all having fun....Now get ready for another song...please listen....
17.	FX	OPENING THEME SONG 28"
18.	MRS PHIRI	Caregiver and children, that was our opening song...Lets try to sing our opening song together...
19.	FX	OPENING THEME SONG 28"
20.	MRS PHIRI	(ENCOURAGINGLY) Ahhh... Nice try Caregiver and children! Let's listen to another song now...
21.	FX	PRE-RECORDED CIRCLE SONG 20"
22.	MRS PHIRI	Caregiver and children, the song you just heard is for making a circle... Let try to sing our circle song and form a biig! circle now.
23.	FX	PRE-RECORDED CIRCLE SONG 20" x2
24.	MRS PHIRI	(CHEERFULLY)Are you in a circle? (pause) Thank you, Caregiver and children. Now, listen carefully once again...
25.	FX	SITTING DOWN SONG 16"

* Sound effects ** Pause for caregiver and child response

26.	MRS PHIRI	Caregiver and children lets sing and do what the song says, while still in our circle...
27.	FX	SITTING DOWN SONG 16"
28.	MRS PHIRI	Gooood Job! Caregiver and children.... clap for yourselves!
29.	FX	SOUND OF CLAPPING 05"
30.	MRS PHIRI	Caregiver, today the children will identify body parts, play with "up and down," and meet some very special radio friends who like to play and learn under the Kachere Tree. Let's begin!

Segment # 2		Development Area: Social and Emotional	Format: Question and Answers
OBJECTIVE:		Children will learn to introduce themselves. Caregiver will model an activity by introducing herself.	
1.	FX	BRIDGE MUSIC 05"	
2	MRS PHIRI	(SLOWLY) Caregiver and children, please meet two special friends who will be joining us everyday... Chifundo and Zione, please say hello to the children, tell them your names, how old you are...and what you like doing.	
3.	CHIFUNDO	(EXCITEDLY) Hello Everyone!	
4.	PCCR	03"	
5.	CHIFUNDO	(ENTHUSIASTICALLY) My name is Chifundo, I am a boy and I am five years old. I like playing, and listening to stories from my grandmother Nasiketi.	
6.	ZIONE	(HAPPILY) My name is Zione, I am a girl and I am also five years old. I like playing with kites...Hello everyone!	
7.	PCCR	03"	
8.	MRS PHIRI	(ENCOURAGINGLY) Thank you Chifundo and Zione. It was nice to meet you. Cargiver, children, this is another friend... (AS IF TELLING A SECRET) He is a bird.....	
9.	FX	BIRD CHIRPING 02"	
10.	TIMBA	(ENTHUSIASTICALLY IN A BIRD'S VOICE) Hello Everyone!!	
11.	PCCR	03"	
12.	TIMBA	My name is Timba, I live in the Kachere tree. I like singing, and eating seeds, nuts and fruits...	
13.	FX	GOGO'S CUE...03' (WALKING STICK AND HUMMING A TUNE)	
14.	CHIFUNDO	(HAPPILY) EH!! Gogo Nasiketi is also coming...	
15.	NASIKETI	(CALMLY) I am Gogo Nasiketi. I like telling stories under the Kachere tree and listening to soccer, especially the Flames on the radio... Hello everyone?	
16.	PCCR	03"	
17.	MRS PHIRI	(SLOWLY) Children, I hope you enjoyed meeting the friends who will be joining us in every program. I know children would love to know you Caregiver, so Caregiver, tell the children your name by starting with "My name is..."then mention your name...	

18.	PCR	05”
19.	MRS PHIRI	Now caregiver, tell one child to stand up
20.	PCR	05”
21.	MRS PHIRI	(CHEEREFULLY) Caregiver, tell the child who is standing your name by saying: “My name is” and then your name.
22.	PCCR	03”
23.	MRS PHIRI	(CHEEREFULLY) Now, caregiver, ask the child who is standing his or her name. The child should reply by saying: “My name is...”then mentioning the name...
24.	PCR	05”
25.	MRS PHIRI	Thank you caregiver! Ask the child to sit down.
26.	PCR	03”
27.	MRS PHIRI	Caregiver, now ask as many children as possible their names. They should respond by starting with...”My name is...”
28.	PCCR	SOFT BACKGROUND MUSIC 20”
29.	MRS PHIRI	(HAPPILY) Caregiver, make sure you practice introductions with the children during the week. This will help you and the children know each other. Children, clap for yourselves....
30.	FX	SOUND OF CLAPPING 05”

Segment # 3		Development Area: Social, Cognitive, and Language	Format: Game
OBJECTIVE		Children will identify body parts by touching their head, shoulder, arms, legs and toes during a game. Caregiver will explain a game to the children.	
1.	FX	BRIDGE MUSIC 05”	
2.	MRS PHIRI	Caregiver and children...Its now time for a game!!	
3.	ZIONE	(EXCITEDLY)Yes!!! I love to play games...	
4.	MRS PHIRI	(LAUGHING) Alright, Zione..., Caregiver and children, its time for a game under the kachere tree. Lets all....	
5.	FX	STAND UP SONG 21”	
6.	MRS PHIRI	Caregiver tell the children that we are going to play “Sera Says”	
7.	PCR	03”	
8.	MRS PHIRI	Caregiver, explain to the children that If I say,(changing tone) “Sera says” ...they should do what I say....so if I say “Sera says touch your head,” they should touch their head.	
9.	PCR	05”	
10.	MRS PHIRI	But if I don’t start by saying “Sera says” ...they should NOT do ANYTHING..... so, if I say “touch your head,” they should not touch their head...If they do, they should sit down because they are out of the game. Explain this to the children.	
11.	PCR	05”	

12.	MRS PHIRI	Thank you Caregiver...Now let's begin...Sera says "touch your... head!"
13.	PCCR	MAGICAL BELLS 03"
14.	ZIONE	(EXCITEDLY)...I am touching my head!!
15.	MRS PHIRI	(ENCOURAGINGLY) Good Zione! I hope everyone is touching their head because I said "Sera Says".Sera says..... touch your shoulders!!
16.	PCCR	MAGICAL BELLS 03"
17.	CHIFUNDO	(CHEERFULLY) I am touching my shoulders, Mrs. Phiri!
18.	MRS PHIRI	(ENCOURAGINGLY) Well done Chifundo...Caregiver and children...Sera says..... touch your arms!!
19.	PCCR	MAGICAL BELLS 03"
20.	MRS PHIRI	Now touch your legs!
21.	FX	MAGICAL BELLS 03"
22.	ZIONE	(EXCITEDLY) I am touching my legs!
23.	MRS PHIRI	(WITH SYMPATHY) No! No! Zione, you are out of the game. Sit down. Caregiver and children, if you are also touching your legs, it means you are out of the game, you should sit down...but those who are still in the game...let's continue to play...
24.	ZIONE	But why am I out Mrs Phiri?
25.	MRS PHIRI	I did not say "Sera says"
26.	ZIONE	(UNHAPPILY) Ah! I'm out of the game because Mrs Phiri did not start by saying "Sera says"
27.	MRS. PHIRI	Certainly Zione! Now let's continue our game...Sera says..... touch your...TOES!
28.	PCCR	MAGICAL BELLS 03"
29.	MRS PHIRI	(RAPIDLY) Sera says, touch your... LEGS!
30.	PCCR	MAGICAL BELLS 03"
31.	MRS PHIRI	(RAPIDLY) Touch your TOES...
32.	PCCR	MAGICAL BELLS 03"
33.	MRS PHIRI	(LAUGHS) Caregiver, ask those who are touching their toes to sit down... They are out of the game (PAUSE).....Now touch your head.
34.	PCCR	MAGICAL BELLS 03"
35.	CHIFUNDO	(EXCITEDLY) I am touching my head!
36.	ZIONE	(WITH SYMPATHY) Sorry Chifundo! You are also out of the game... sit down because Mrs Phiri did not say "Sera says"
37.	MRS PHIRI	That's right Zione, Chifundo is also out of the game. Caregiver and children if you are also touching your head...you are also out of the game...you should sit down.
38.	CHIFUNDO	(SADLY) Oh...I am out of the game!
39.	MRS PHIRI	(ENCOURAGINGLY) Its ok Chifundo...you will do better next time... That's the end of our game... Caregiver, this game helps children with listening skills. It also helps them to identify body parts...Thank you Caregiver and children for participating. And now....
40.	FX	SIT DOWN SONG 16"

Segment # 4		Development Area: Language and Moral	Format: Story
OBJECTIVE		Children will identify body parts during a story (head, shoulders, arms, elbows, knees, legs, and toes). Caregiver will ask one comprehension question and encourage children to listen to the story.	
1.	FX	STORY TELLING SONG 05”	
2.	FX	GOGO’S CUE...03’ (WALKING STICK AND HUMMING A TUNE)	
3.	ZIONE	(LOW VOICE) shhh... Gogo Nasiketi is coming!	
4.	CHIFUNDO	(HAPPILY) Its Story Time!...I love listening to stories from my grandmother Nasiketi under the Kachere tree!	
5.	MRS PHIRI	Caregiver and children...its time for us to listen to a story here, under the kachere tree!	
6.	TIMBA	(CHIRPING) Ahh Gogo Nasiketi, have you brought me some seeds today?	
7.	NASIKETI	(LAUGHING) Yes I have, Timba...here you are...Hello Everyone	
8.	PCCR	05”	
9.	CHIFUNDO	(EXCITEDLY)...Granny, tell us a story!	
10.	NASIKETI	(WONDERING TO HERSELF WHAT STORY TO TELL) Ummm... what story should I tell you today?...ummmh, Oh! ok I remember...I will tell you a story... I hope Timba, Zione, Mrs Phiri, Caregiver and children will all like it.	
11.	MRS PHIRI	Caregiver, ask the children to listen carefully to the story.	
12.	PCR	05”	
13.	NASIKETI	(WARMLY) Once upon a time...	
14.	ZIWONE/ CHIFUNDO	[In Chichewa they respond]....we are together...	
15.	NASIKETI	There was a doll called Ulemu...it had loooong black hair and biiiiiig bright eyes.	
16.	FX	MAGICAL BELLS 02”	
17.	NASIKETI	(STRESSING) One day, Ulemu the doll, went to visit the doctor.	
18.	FX	AMBULANCE SIRENS 03”FOLLOWED BY HOSPITAL EFFECTS 03”	
19.	NASIKETI	The doctor touched the doll’s shoulders and said: “Ulemu do your shoulders hurt?” Ulemu, answered (imitating a childlike voice) ‘no...no...no!!’.	
20.	MRS PHIRI	Boys and girls touch your shoulders now...	
21.	PCCR	MAGIC BELLS 03”	
22.	NASIKETI	(FIRM VOICE)The doctor was still worried so he touched the dolls elbows and said: “Ulemu, do your elbows hurt?” Ulemu answered (imitating a childlike voice) ‘no...no...no!!’	
23.	MRS PHIRI	Caregiver and children touch your elbows now...	
24.	PCCR	MAGICAL BELLS 03”	
25.	NASIKETI	Ulemu then touched her knees and the doctor asked: ‘Ulemu, do your knees hurt?’ Ulemu answered: (imitating a childlike voice) ‘no...no...no!!’	
26.	MRS PHIRI	Boys and girls touch your knees now...	

27.	PCCR	MAGIC BELLS 03”
28.	NASIKETI	(GRANNY SIGHS& COUGHS) Then the doctor touched Ulemu's toes and the doctor asked her again...‘Ulemu, do your toes hurt?’ Ulemu answered (imitating a childlike voice): ‘no...no...no!!!’.
29.	MRS PHIRI	Caregiver and children, touch your toes...Now!
30.	PCCR	MAGIC BELLS 03”
31.	NASIKETI	In the end, the doctor looked at Ulemu and said (pause 03”)... ‘Ulemu, nothing hurts you because you are a DOLL!!!
32.	FX	MAGICAL BELLS 03’
33.	NASIKETI	Ulemu was very happy and said... (imitating a childlike voice) “Nothing hurts me, I am so happy”!!! And from that day, no dolls need to go to the doctor... because dolls never feel pain!.... And that's the end of today's story...
34.	FX	CUE FOR END OF STORY 03’
35.	ZIONE	(TENDERLY)...Ohhhh Gogo Nasiketi, you have told us a nice story!!!!’m so glad nothing was wrong with Ulemu.
36.	NASIKETI	I am glad you liked it (HURRIEDLY) I have to rush and draw water now, so I can still catch the Flames game on radio before it starts..... Goodbye Everyone...
37.	PCCR	02”
38.	MRS PHIRI	Caregiver, now ask the children: “What body parts did the doctor touch on Ulemu?”
39.	PCCR	08”
40.	CHIFUNDO	The doctor touched Ulemu's shoulders, knees and toes!!
41.	MRS PHIRI	That's right Chifundo....Thank you Caregiver for listening to the story...The story helped the children identify body parts... Caregiver, tell the children to clap for themselves for paying attention.
42.	FX	CLAPPING SOUNDS 05”

Segment # 5		Development Area: Physical and Motor	Format : Physical activity
Objective		Children will differentiate between “up and down” by moving hands up/down and standing up/sitting down. Caregiver will participate with the children during the game.	
1.	FX	BRIDGE MUSIC 05”	
2.	ZIONE	(HAPPILY) Mrs Phiri....Lets stay under the Kachere tree and play another good game!!!	
3.	MRS PHIRI	(LAUGHS) Zione, I know you like to play...so together with Caregiver and children..., Lets...	
4.	FX	STAND UP SONG 21”	
5.	CHIFUNDO	Mrs Phiri, what game are we going to play?	
6.	MRS PHIRI	Well, we are going to play the “Up and Down” game... Caregiver and children do what I tell you....Caregiver and children raise your hands up.....	
7.	FX	MAGIC BELLS 02”	
8.	MRS PHIRI	Caregiver and children put your hands down.	

9.	PCCR	MAGICAL BELLS 02”
10.	MRS PHIRI	Caregiver and children, hands up!
11.	PCCR	MAGICAL BELLS 02”
12.	MRS PHIRI	Cargiver and children, hands down!
13.	PCCR	MAGICAL BELLS 02”
14.	MRS PHIRI	(HAPPILY) Caregiver and children Stand up!
15.	FX	MAGICAL BELLS 05”
16.	MRS PHIRI	Caregiver and children, Sit down!
17.	FX	MAGICAL BELLS 05”
18.	MRS PHIRI	Well done...Now girls...and ONLY girls stand up!
19.	FX	MAGICAL BELLS 05”
20.	CHIFUNDO	I am standing up!
21.	ZIONE	(GIGGLES) Chifundo, do not stand up; Mrs Phiri said only girls.
22.	MRS PHIRI	(LAUGHING) You are right Zione, only girls stand up, all the boys sit down..... Now girls sit down.
23.	FX	MAGICAL BELLS 05”
24.	MRS PHIRI	Boys and only boys stand up.
25.	FX	MAGICAL BELLS 05”
26.	MRS PHIRI	Now boys, sit down.
27.	FX	MAGICAL BELLS 05”
28.	ZIONE	(HAPPILY) I'm happy playing the up and down game...
29.	MRS PHIRI	I hope you all had fun playing the game too...it is a fun game.
30.	FX	MAGICAL BELLS 02”
31.	MRS PHIRI	Caregiver, play this game with the children after the program or during the week. This game helps children to differentiate between up and down... as well as strengthening their bodies. But before we sit down, lets do other fun things.

Segment # 6		Development Area: Physical, Motor, and Cognitive	Format: Song
OBJECTIVE		Children will differentiate up and down and identify body parts during a song Caregiver will sing with the children.	
1.	FX	BRIDGE MUSIC 05”	
2.	TIMBA	Mrs Phiri, are we not going to sing a song?... (SINGING) I really love to sing.	
3.	MRS PHIRI	Alright Timba...lets sing a song about our body parts...Caregiver and children, listen...	
4.	FX	THE BODY PART SONG 36”	
5.	CHIFUNDO	(ENTHUSIASTICALLY) Oh! I know this song!!! I sing it with Timba when we play	
6.	MRS PHIRI	(ENCOURAGING)...Good Chifundo... (SLOWLY) Caregiver and children, now listen again and do the actions by touching the body parts mentioned in the song.	

7.	PCCR	(THE BODY PART SONG) 36"
8.	MRS PHIRI	Caregiver and children, now try to sing along and do the actions...
9.	PCCR	THE BODT PART SONG
10	ZIONE	(ENTHUSASTICALLY)That was fun!!
11.	MRS PHIRI	That's right Zione, I hope the children had fun too!Caregiver, thank you for singing along with Timba and the children....the song helps children identify body parts.... Caregiver, tell the children to clap hands for themselves for doing well and singing along.
12.	FX	CLAPPING SOUND 05"
13.	MRS PHIRI	Now we can all....
14.	FX	SIT DOWN SONG 16"

Segment # 7		Development Area: Social, Language	Format: Question and Answer
OBJECTIVE		<p>Children will mention what activity they liked the most and what activity they would like to do again.</p> <p>Caregiver will learn to evaluate the activities of the day by asking the children: "What activities did you like most?" and "What activities would you like to do again?"</p>	
1.	FX	BRIDGE MUSIC 05"	
2.	MRS PHIRI	Caregiver, ask the children to make a little room for one another, so that they have enough space when stretching...	
3.	PCCR	SOFT BGM 10"	
4.	MRS PHIRI	Now let's stretch....Caregiver and children, stretch your arms... (Encouragingly) ...Streeeeetch!!!!...come on all of you... Streeetch!!!!...	
5.	PCCR	MAGICAL BELLS 03"	
6.	MRS PHIRI	(LAUGHING) Stretch your legs by making your legs straight and pointing your toes....slowly.... slowly... Now bend your knees and flex your foot.	
7.	PCCR	MAGICAL BELLS 03"	
8.	MRS PHIRI	Now everyone stop stretching ...	
9.	CHIFUNDO	Mrs Phiri, we are ready to do other fun things!!!	
10.	MRS PHIRI	Alright Chifundo...It's now time to remind each other what we have done today... Caregiver, tell the children that we have played games, danced, listened to a story and sang.	
11.	FX	BGM 08"	
12.	ZIONE	(JOYFULLY) Mrs Phiri, today we have played 'Sera Says " and the "up and down" games...a..	
13.	CHIFUNDO	(CUTTING) and we sang the "Body Part Song" and listened to a story about Ulemu the doll!!	
14.	MRS PHIRI	(CHEERFULLY) You are all right...Caregiver, now ask the children what they liked the most out of all the things we have done today. You have 40 seconds	

15.	PCCR	BGM 30"
16.	ZIONE	Mrs Phiri, I liked the "Sera Says" game the most
17.	MRS PHIRI	Alright Zione...that is another good game...but Zione, why did you like the Sera says game??
18.	ZIONE	(HAPPILY) Because it makes us know about our body parts!!!
19.	MRS PHIRI	Well done Zione!!!
20.	CHIFUNDO	(CUTTING IN ENTHUSIASTICALLY) But I would like to sing the body part song again!!!
21.	MRS PHIRI	(LAUGHS) Alright Chifundo, we will sing it again some other time... Caregiver, ask the children what they would like to do again ...you have 30 seconds
22.	PCCR	BGM 20"
23.	MRS PHIRI	Well I hope children have mentioned what they would like to do again... Well done, Caregiver and children.....Thank you very much for your participation.

Segment # 8		Format:
Key message and Closing		
Objective		To close the programme
1.	FX	BRIDGE MUSIC 05"
2.	MRS PHIRI	(HAPPILY)...Caregiver, continue playing the games and doing the activities we have done today during the week...These activities help children learn and develop.
3.	FX	MAGIC BELLS 02"
4.	MRS PHIRI	(SLOWLY) Caregiver, thank you very much for helping and taking part together with the children.
5.	FX	BRIDGE MUSIC 02"
6.	MRS PHIRI	(CHEERFULLY) Well...well...well!!! Caregiver and children, we have now come to the end of today's program....but to finish well, let's all....
7.	FX	STAND UP SONG 21"
8.	MRS PHIRI	Let's all now listen to a song we will be singing at the end of each programme.
9.	FX	GOODBYE SONG 41"
10.	MRS PHIRI	Caregiver and children, lets now sing together our goodbye song
11.	FX	GOODBYE SONG 41"
12.		Thank you, Caregiver and children, I hope you sang well and you will be with us again next time so we can have more fun together... Chifundo, Zione and Timba, say goodbye to your friends..
13.	CHIF/ZION	(TOGETHER) Goodbye everyone!!!!
14.	PCCR	05'
15.	MRS PHIRI	Goodbye Caregiver and children!!!
16.	PCCR	02"
17.	FX	STANDARD CLOSING SONG 41"

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