

eLearning Africa 2011, Mlimani City Conference Centre, Dar es Salaam, Tanzania, May 25 – 27, 2011: Extended abstract for presentation “**Libraries Create Mother Tongue Literacy Programming on the OLPC**” by Jane Kinney Meyers, Lubuto Library Project.

Teachers and youth are working together to create pioneering applications on the One Laptop Per Child (OLPC) XO1.5 computers that will teach Zambia’s children to read in their mother tongues, the country’s seven major languages.

PROBLEM

Zambia is one of the world’s poorest countries with high and growing numbers of orphans and vulnerable children (OVC) who cannot attend school, resulting high illiteracy rates. Primary school fees were eliminated in 2002 but significant barriers to education and literacy remain for OVC. Excellent libraries, such as those created by the Lubuto Library Project, can provide a well-supported system for reading aloud based high-quality interactions with children’s literature which are essential for developing knowledge of a wide range of words and language structures, breadth and depth of knowledge/concepts through non-fiction literature, and an appreciation of both universal and specific human themes. Reading aloud, however, is not an effective way for most children to develop equally critical skills for learning to read (phonemic awareness, print-sound code in Zambian languages, word recognition) that are formally imparted in classroom instruction.

While African library development and even book donation programs are often considered ‘literacy’ programs, simply making books available does not in itself promulgate literacy; children must be taught to read. Considerable research in Zambia and other African settings established the central importance of initial literacy acquisition in a child’s first language, the one that (s)he hears spoken at home and in the community¹. Put simply, children learn to read most effectively in their mother tongue, and reading skills can be transferred to English and other languages with success after children get a good start in their original language. Zambia changed its education policy based on this understanding and created a reading curriculum in what it identified as Zambia’s seven major languages. But the growing percentage of Zambia’s population that is young, the high cost of printing and publishing the curriculum books and readers, and a dearth of trained

¹ A succinct overview of the research is in the 2004 background paper for UNESCO’s Education for All Global Monitoring Report, “Language of Instruction and the Quality of Basic Education in Zambia.”

teachers and accessible schools has resulted in mother-tongue reading instruction remaining out of reach for a large percentage of Zambian children.

These challenges exist not only in Zambia but in varying degrees throughout Africa in countries with multiple indigenous languages and weak education infrastructure:

- Large numbers of children unable to attend school for various reasons
- Insufficient quantity and uneven quality of schools and teachers
- Multiplicity of local languages not spoken beyond a single country's borders
- Prohibitive cost of printed reading curriculum and local-language materials to acquire and maintain literacy
- Unavailability of E-tools for mother tongue reading instruction

OPPORTUNITY

The Lubuto Library Project works with community-based organizations to support vulnerable children and youth by providing them with holistic, open access library services. Lubuto's innovative programs give them access to high quality education with genuine, measureable impact. They reach out-of-school and street children and help them toward reading by read-aloud and storytelling programs, and maintenance of literacy skills with a comprehensive, excellent and carefully chosen collection of printed books. Lubuto was mandated by the Zambian Government to take the lead in literacy programming in the country. Zambian educators and researchers consulted for this project did not possess the understanding to implement a technological solution, and the technological experts did not have the pedagogical or institutional framework needed to create accessible and targeted product to address these issues. The open-access library is where the two could come together to address this critical and long-standing need.

Lubuto Libraries include appropriate, sustainable computers, the OLPC XO laptops. Bright youth developed advanced skills in XO use in the libraries, and Lubuto's arts program participants learned to create computer graphics.

CONCEPT / APPROACH

Lubuto Library Project developed the concept and a plan for creating the capability within Zambia to write early literacy lessons in Zambian languages using the Etoys application on the OLPC XO laptops in their libraries. Under the "Mother Tongue

Literacy Programming” project, youth who had been using the OLPC XO laptops in Lubuto libraries and experienced Zambian reading teachers were trained in the OLPC application Etoys and gathered each Saturday to create early reading programs in seven Zambian languages, using six OLPC XO-1.5 laptops. Two Zambian teachers designed the lessons based on the government’s reading curriculum. The teachers worked with the youth who adapted the teacher’s designs into Etoys “activities” and with artists from the Lubuto*Arts* program who created associated computer graphics for the lessons.

Lubuto Library Project staff designed and managed the project. Technical advice and assistance from the OLPC Foundation was provided by partner Mike Lee of OLPC Sugar Labs. A Zambian computer technology teacher trained the teachers and project designers. He and the teachers, artists, project designers and an evaluator were paid for each Etoys lesson evaluated as effective; payment for the youth was put into scholarship funds for them. The initial set of lessons created in Nyanja were translated into the other major Zambian languages by six teachers.

PARTNERSHIPS AND SUPPORT

Funding: The project is supported by a grant from the EIFL Public Library Innovation Program (PLIP), which received funding from the Bill & Melinda Gates Foundation to encourage innovation with information technology in public libraries. EIFL, Electronic Information for Libraries, is an independent, not-for-profit organization established in 2003. Headquartered in the Netherlands, EIFL’s branch in Rome, Italy administers PLIP. The Lubuto Library Project was chosen as one of 12 recipients of the grant from over 350 applicants worldwide. A second round of grants will be awarded to organizations with plans to adapt the innovations in other public library settings.

Key Zambia partners: The project has the formal support of the Zambian Ministry of Education, which believes it also has potential for use in schools throughout the country, with benefits for all of Zambia’s children. Lubuto professionals work in partnership with Zambia’s education establishment, especially the Ministry of Education on all levels, the University of Zambia, NGOs and other local stakeholders to identify effective Zambian teachers and a qualified evaluator to design, test and translate reading programs and coordinate with government curriculum, policies and research.

Other key partners:

- One Laptop Per Child Foundation, which donated 6 XO 1.5 laptops
- Mike Lee of OLPC and Sugar Labs, our key technical advisor and partner
- Kathleen Harness, EtoysIllinois.org in the Office for Mathematics, Science and Technology Education at the University of Illinois Urbana-Champaign

TESTING & EVALUATION

Each Etoys reading lesson was evaluated by an expert consultant from Zambia's Curriculum Development Centre. Lessons were improved based on feedback and then loaded on library laptops to be tested by pre-literate community children in Lubuto Libraries. Their mastery of the lessons, and progress toward reading fluency, is measured by standard classroom methods of community school teachers.

As use of the computer-based reading programs spreads, Lubuto plans to work with the Ministry of Education to use RTI's Early Grades Reading Assessment Tool (EGRA) to assess reading skills gained by users of the programs. RTI has produced an EGRA tool in Chichewa, similar to Nyanja, one of the major languages spoken in Zambia. The assessment tool will need to be adapted for Zambia's other languages.

OUTCOMES

- Creation of at least 700 (100 in each of Zambia's 7 major languages) Etoys-based reading lessons, usable on any computer platform, that teach children to read in seven Zambian languages.
- Expanded use of Lubuto Libraries' book collections, OLPC and other programs and services as children are drawn to the library to learn to read.
- Participating youth earned school fees for their work while the teachers, advisor and evaluator earned consultant fees. The synergy of the teacher/youth design teams led to each bringing his or her strengths to bear on making an important contribution to literacy in Zambia, while the youth also developed valuable computer programming and graphics skills.
- The open source reading activities will be posted on the www.LubutoCollections.org website to inspire translation to similarly structured languages or the creation of similar programs in other African countries and languages.

IMPACT

The primary expected impact is development of early literacy skills by thousands of children and youth in Lubuto Libraries as well as in classroom and other settings throughout Zambia. Direct beneficiaries of the project include all children learning to read in Zambia, as well as speakers of indigenous Zambian languages in Malawi, the Congo and elsewhere. If the Zambian language lessons are adapted and/or translated for other cultures and languages, the benefits can spread throughout Africa, particularly in those countries where OLPCs are deployed.