



Project Kané

Exploring the role that technology can play in improving literacy in underserved communities



Motivation

It is well-documented that literacy is a key prerequisite for sustainable development.

- Functional literacy is a major challenge in countries like Ghana, as standardized testing has revealed that not more than 10 percent of children can read at their grade level after six years of primary school.
- UNESCO reports that in 2000 more than 1 in 3 adults with a fifth grade education in Chad and Niger reported they could not read.
- Regular guided reading is an important part of learning to read. However, many children in Africa lack this opportunity both in school and at home.

Project Goals

- To explore the impact of existing literacy-enhancing tools implemented in developing community settings
- To explore new literacy tools for desktop and laptop computers and mobile phones
- To enhance culturally and linguistically relevant content for individuals in different parts of the world
- To explore educational tutors and games for primary school children, older children, and adult learners.



Sponsorship

Generous support has helped this program grow from a class project, to a summer pilot project, and now to a full TechBridgeWorld program. Collaboration from a research agency, an under-resourced school, and a small internet café business in Accra magnified the success of the pilot program and enabled the implementation of a second phase in collaboration with the Kofi Annan Centre for Excellence in ICT in Accra.

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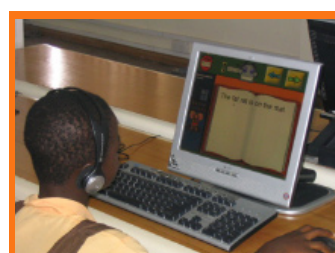
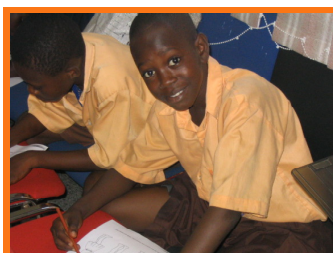
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Project History

Literacy is a major challenge in many communities, impacting educational and employment opportunities and development efforts on a broader scale. We began exploring these challenges in Summer 2005 when Robotics Ph.D. student G. Ayorkor Mills-Tetty initiated a pilot project in partnership with TechBridgeWorld in her home country of Ghana. Her pilot study, and a more extensive study conducted in 2008 by local partners with support from UNESCO, explored the effectiveness of an automated reading tutor in enhancing English literacy among Ghanaian students. The studies used Project LISTEN's Reading Tutor, developed by Dr. Jack Mostow's group at Carnegie Mellon's Robotics Institute. TechBridgeWorld's work on literacy later expanded to explore the feasibility of the project at a school in Zambia and opportunities with cell phone-based educational games through student research in Tanzania. This work seeks to help enhance literacy skills by developing technology that includes educational games relevant to the local culture. As we continue to expand this work, the goal is to better understand the needs and challenges of using computing technology to improve child literacy and to also increase opportunities for adult learners.



Field Studies

The pilot project was led by Ayorkor in collaboration with a school and Associates for Change, an organization in Accra specializing in social policy research. Computer time for the project was donated by CyberCity, an internet café in Dansoman, Accra. For a period of three weeks in Summer 2005, twelve children from Abossey Okai Anglican 'A' Primary School, a public school in Accra participated in the pilot phase of Project Kané. The pilot study was successful and in the next phase of the project, 90 children from three socioeconomic backgrounds in Accra made regular use of the automated reading tutor. A longer-term study was conducted in remote collaboration with the Kofi Annan Center for Excellence in ICT in Accra, and was funded in part by UNESCO. The project involved children from a private school, a public school and an educational program for at-risk children who do not attend school. We also explored the feasibility of the project at a primary school in Mongu, Zambia.

The technological tool for these field studies was Project LISTEN's Reading Tutor, a research prototype in development at Carnegie Mellon University that has been tested with over 500 children to date, mostly in the United States. The LISTEN Reading Tutor uses speech recognition and artificial intelligence to support guided reading and respond to key problems in children's reading. The tutor is simple to use, is catered to children, and has built-in tutorials.

In Summer 2009 we collaborated with the University Computing Centre and Mlimani Primary School in Dar es Salaam, Tanzania to design and test a mobile phone-based educational game and online content authoring tool which were well received by students and teachers. The project is now exploring the potential impact of educational tutors and games on older children and adult learners.

Next Steps

TechBridgeWorld hopes that these studies will be a useful contribution to the work of government and non-governmental organizations in promoting child literacy. We are now exploring what new types of literacy tools may be developed to benefit individuals in underserved communities.