



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

Year:

2013

Status:

Laureate

Organization Name:

Literacy Bridge

Organization URL:

www.literacybridge.org

Project Name:

The Talking Book

Please select the category in which you are submitting your entry.

Collaboration

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

Over 750 million adults are illiterate, 800 million farmers live on less than a dollar a day, and 1.5 billion people live without electricity. Illiteracy, poverty, and lack of electricity impede learning and make impractical the vast majority of technology offerings. Opportunities for illiterate adults to access knowledge and acquire new skills in remote areas of developing countries are virtually non-existent, but critical to successful development efforts and poverty reduction. For example, for subsistence farmers who rely on rudimentary methods, knowledge about up-to-date farming techniques is extremely important. Time, distance and cost make visits from agriculture extension agents few and far in between. When the agent is able to reach the village, a typical hour-long visit includes lessons on relevant

farming practices that are often forgotten by the farmers after the agent leaves because the farmers cannot take notes. The same problems face health agents in their efforts to disseminate lessons on maternal and child health care and disease prevention. The Talking Book is a robust, low-cost mobile device designed specifically for the learning needs of people in oral cultures. Impoverished and remote rural communities with no access to electricity are now able to access on-demand, actionable audio education recorded by local experts, as a form of last-mile distance learning. The Talking Book delivers an audio library of critical knowledge in local language to those with the greatest need. Ease of use and cost were critical for adoption by an illiterate population. Unlike a mobile phone, the Talking Book does not rely on grid electricity for charging. It is powered by disposable/rechargeable batteries. The Talking Book's audio distribution is not dependent upon computers, the Internet, or mobile networks; recordings can be played, recorded or even copied device-to-device.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

The Talking Book program was scaled up in September 2011 when Literacy Bridge kicked off its integrated health and agriculture initiative, designed to improve the health of 24,000 women and at-risk children in 75 low-literate, remote rural communities in Ghana. The program is in response to the need for a comprehensive solution in global health and hunger and is a commitment made by Literacy Bridge during the Clinton Global Initiative's annual meeting. The program utilizes an integrated communications strategy that conveys critical health messages and information on best practices in farming through the network of Talking Books. As with all of our projects and programs, development on this program is based on a user-centric, iterative process that allows us to make informed adjustments and improvements throughout the program's implementation phases. Our formative research and baseline surveys help guide the development of audio messages that address the needs of our target population. The Talking Book's core technology was in trials in 2009 when the mobile device was deployed during a pilot study in Ving Ving, Ghana. Development of the Talking Book's existing technology system was completed and deployed in 2011 and expanded in 2012. The Talking Book and the audio content management (ACM) enable recordings to be arranged by language and category (e.g., livestock diseases or malaria prevention) and track aggregate usage statistics and user ratings for each recording. Talking Book and ACM work together to allow local organizations to manage content and learn how to improve the content by analyzing usage statistics and user feedback application.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

Phase 0: R&D. In 2007 and 2008, Literacy Bridge conducted field research and several iterations of development and testing to ensure the Talking Book would meet the learning and information needs of an impoverished, illiterate population living in remote regions of the world. Phase I: Technology Trials. In 2009, Literacy Bridge conducted a feasibility study in a single village to determine how the Talking Book would be used and what challenges still needed to be addressed. Phase II: Pilot Impact Evaluation. In 2010, Literacy Bridge conducted surveys to determine the degree of impact that agriculture messages have on crop yields. Phase III: Field Program Design & Additional Technology Development. In 2011 and 2012, Literacy Bridge developed a comprehensive program to apply the Talking Book to yield the greatest societal benefit through an innovative field research program designed to reduce preventable deaths of pregnant women and young children under the age of five in the poorest regions of Ghana. Phase IV: Content Development. We are now in the process of improving our efficiency in content development and delivery as well as developing improvements for our content management software to allow us to track geographic-based contextual information such as resource constraints and to break down our usage statistics by client, community and group. All this will allow us to better track our impact, ultimately lowering our costs. Phase V: Scale Up and Replicate. Thanks to a partnership with ARM Ltd. and the University of Michigan, Literacy Bridge has now developed a new custom chip for the Talking Book that will allow lower production costs and lower energy use. These advances have prepared the way for fast scaling to more people in need.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

The following are quotes from those who benefited from the Talking Book program. Dakurah Suglo, participant in the Ving Ving pilot program, said, "It taught me that we can plant crops in beds and lanes, that those methods increase the amount of crops per land area compared to mounds, which waste land and take up a lot of space. Beds also help accumulate water, prevent erosion, and keep soil within the farm moist. The beds actually make a big difference in terms of keeping the soil moist. Mounds are too high from the ground and they dry up very fast, and our crops suffer during insufficient rainfall. Now, we can still smile during short periods of draught because planting in beds keeps the soil moist for a little while. Since I heard that from this device, I tried it this year, and I am a woman, but people exclaim whenever they see my crops in

the farm, and I just keep my mouth shut because I know the harvest is going to be good." Naaba Domodeg is one of several mothers in Ghana's Upper West Region who was introduced to the Talking Book. A 35-year-old mother, she gave birth to her fifth child a few months ago. "[As a nursing mother], I learned that the first breast milk should not be taken away as we do but that it should be given to the baby. That colostrum is the first immunization for the baby. That colostrum keeps the newborn healthy and gives intelligence. The Talking Book told us we should always wash our cooking utensils before cooking or putting in food. That we should give oral rehydration salts to children having diarrhea."

Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here: (In 300 words or less.)

The World Bank, UNICEF, CTA and others consider Literacy Bridge as one of the top global experts in how audio technology can be used for information technology. Michael Trucano of the World Bank wrote, "Most ICT devices used in education are built for OECD learning environments, and then people seek to adapt them to learning scenarios and societal contexts in developing countries. The Talking Book is an example of an ICT product built from the ground up specifically targeted to such scenarios and contexts." As with all of our projects and programs, development on this program is based on a user-centric, iterative process that allows us to make informed adjustments and improvements throughout the program's implementation phases. Our formative research and baseline surveys help guide the development of audio messages that address the needs of our target population. Results from our pilot programs (with two health clinics, two primary schools and a village) have resulted in partnerships with Ghana Health Service, Ghana's Ministry of Food and Agriculture (MoFA), Volunteer Service Organization, Winrock International, World Education and the World Coca Foundation.

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

Since 2011, the Talking Book has delivered more than 200,000 on-demand health and farming lessons to 20,000 of the poorest people in Ghana. Ninety percent of the messages are put into practice by men, women and children. Literacy Bridge's work has received a number of recognitions over the years. Literacy Bridge's founder was awarded a full scholarship to the Global Social Incubator (GSBI) Program at Santa Clara University. In November 2010, he was awarded the Microsoft Foundation Integral Fellow Award by Bill and Melinda Gates. In 2011 Literacy Bridge was awarded a complimentary membership to the Clinton Global Initiative by Bill Clinton. In November 2012, Literacy Bridge won

A gold medal with a ribbon is visible in the top left corner. The medal features a classical architectural design and the word "HONORS" is partially visible. A laurel wreath is depicted in the bottom right corner, extending upwards and to the left.

the education category of The Tech Awards, which recognized 12 global innovators for applying technology to benefit humanity and spark global change. Results from the pilot program showed that farmers who had access to the Talking Book program harvested, on average, 48% more crops than they had in the prior season; in contrast, the control group showed a 5% decrease. The rigorous evaluation showing these results has been selected for multiple academic presentations, including publication last year in a special issue of Information Technologies & International Development, which is the top-rated academic journal in the area of technology and global development.