5 Minute Digest: eReaders

The Idea

The eReader like the Amazon Kindle or Barnes and Noble Nook offers an intriguing approach to provide digitally based learning materials in developing countries. Current eReaders can store hundreds of books, download additional content wirelessly, require minimal power and are relatively simple to use. eReaders have the potential to provide vast digital libraries to underserved communities at a cost that would be unattainable using paper based books.

Why It Matters

Up-to-date, quality textbooks are hard to find in schools around the world. Not only are the costs of the books a barrier, but the delivery of books is challenged by distribution logistics and access issues. Digital libraries, in conjunction with wireless delivery (GSM and WiFi) to handheld devices, change the economics of delivering books to children and adults. With an established infrastructure and marketplace for digital content, eReaders provide the opportunity to bypass expensive and inefficient distribution systems and give learners access to vast stores of information.

What We Know

Worldreader.org is a non-profit organization with the goal of making "digital books available to all in the developing world." (Source: Worldreader website) Funded by USAID, private donors and in-kind donations, the Worldreader approach is to develop a sustainable ecosystem for delivering digital content to children in the developing world. In 2010, Worldreader launched a USAID-funded pilot in Ghana called iREAD.

The iREAD project has put eReaders in the hands of over 500 students and teachers in Ghana. Six schools – two each at a primary, junior high and senior high level – are part of this study. The study includes three cohorts – students without an eReader, students with an eReader, and students with an eReader and additional support activities. Student achievement is measured at the beginning of the year before eReaders are introduced, at the middle of the year, and at the end of the school year. Teachers are trained on integrating e-books into the curriculum, and students are trained in the use of the device. The pilot began in December 2010.

For the iREAD pilot, the eReader is the Amazon Kindle 3 with GSM and WiFi capabilities. Each Kindle includes a case and light. Approximately 80 books have been preloaded on this device. The teachers and students can use the eReader at school and at home. iREAD eReader users can download additional content. While the inventory is continually updated, the Kindle Store Worldreader library and Worldreader textbook list provides a catalog of currently available titles. The program presently subsidizes costs for selected, additional content.

The Worldreader model leverages existing technology with customized content. According to David Risher, co-founder and President of Worldreader, this provides "a library in a child's hand." (Source: Worldreader presentation) The device provides a number of intriguing benefits.

Power .... A one-hour charge can provide up to 4 weeks of use. Field tests show that the device can be 80 percent charged with only one hour on a solar powered charger.

Capacity .... The iREAD project included approximately 80 books per eReader. But, eReaders can hold many more books. The first generation Kindle could store approximately 200 non-illustrated books. The next generation Kindle 2 can hold nearly 1,500 non-illustrated books. (Source: answers.com)

Access ....Beyond the device's storage capacity, the Kindle Store provides potential access to literally hundreds of thousands of books.

Distribution ....By delivering digital books via GSM and possibly WiFi, the distribution costs for additional content becomes a nominal expense. Although a sophisticated technical infrastructure is required, the incremental cost of book delivery falls to nearly zero.

Transparency......Book distribution to schools is fraught with many challenges. Whether a library behind lock and key, or an opaque distribution system, the direct delivery of books to a student's handheld device provides a new level of accountability.

Measurement.....The iREAD project can provide additional insight into actual consumption of learning materials by tracking downloaded material. For example, 67 percent of students in the project have downloaded additional content. (Source: Worldreader presentation) In the future, there may be additional granularity as to children's reading habits.

Local Content .....Worldreader is working with local publishers to digitize local content.

Many open questions remain. Equity and access issues relating to student ownership of relatively expensive devices are one concern. Wireless access also cannot be taken for granted. The cost of digital books will remain a barrier. While presently subsidized through the project, the availability of new content will hinge on not only costs, but payment systems. Perhaps most important, this new tool must be integrated into the curriculum and support effective pedagogy.

The newness of this approach generates further questions including: Will the eReader perform in challenging educational environments? How and who will maintain it? Will different eReaders be compatible between book formats and hardware platforms? What risk does a project entail by locking in with a single vendor? Will the eReader work in no light and low light scenarios? How well do students learn and read from eReaders? Could the plethora of reading materials risk confusing students even more?

Moving forward, Worldreader expects the price of the eReader to continue to drop. Devices that once cost over $400 only 18 months ago are now available for less than $150. (For the iRead Project, the Kindles cost $189.) This trend is likely to continue and provide an increasingly attractive cost model. Worldreader is also looking towards ruggedizing the eReader as part of a planned project in Kenya. Finally, they are exploring new models for creating a sustainable model for new content. As part of the effort to create local content, Worldreader is digitizing the local content. In return, the publishers receive a portion of the sales price.

Also, the World Bank is conducting a separate eReader project in Nigeria.

More Information

PRESENTER	David Risher, Worldreader.org, February 24, 2011
USAID	Anthony Bloome, Education Technology Specialist, EGAT/ED, abloome@usaid.gov
ADDITIONAL RESOURCES	Brookings article: First Step to Literacy: Getting Books in the Hands of Children Stanford Social Innovation Review: What's Next Curling up with E-Readers It All Started in the Purple Church Research Concept Note: iREAD Project Follow David on Twitter @davidrisherWR

About this Series

These 5-minute digests are intended to promote information exchange in the use of mobile technology in education. Briefings are typically held at the second Thursday of each month at the Ronald Reagan Building, North Tower, 1300 Pennsylvania, Suite 700. Please contact Anthony Bloome at abloome@usaid.gov for more information. The presentation and information included in this brief do not represent a USAID endorsement of a specific project, individual, or organization. **Next Briefing: Mobile Devices and Open Educational Resources, March 17, 2011, 9:30am-11:00am.**