



The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
2012

STATUS:
Laureate

Organization name:
istation.com

Organization URL:
<http://www.istation.com>

Project Name:
iStation Reading Program

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

The iStation Reading program was designed to remedy the initial learning deficit that economically disadvantaged children have in many school districts. By applying research-based educational principles in combination with an innovative technology platform, we have created a reading intervention program that actually engages young students and helps erase the initial disadvantage they face. Many economically disadvantaged children begin school having never had a book read to them. Our intervention program, in conjunction with our bundled assessments, lets us track the progress of students at the individual, classroom, district and state level, while providing individualized instruction to each child, based on his or her strengths and weaknesses. By incorporating integrated assessments, our program restores teacher time in the classroom by assessing students without requiring removal from the classroom or manual teacher intervention. Studies have shown that use of the iStation Reading program improves performance on state tests, and concurrent validity studies have shown our assessments are predictive of performance on standardized tests.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

The iStation Reading program has several components: A desktop app called the iStation Runtime, which provides a rich multimedia game-like environment and downloads all multimedia

content from the Internet on demand; custom servers that are optimized to be highly scalable and provide this content; and reporting websites. The desktop app, or iStation Runtime, includes a predictive workflow engine, which downloads assets that it expects the app to require in the future, and incorporates a peer-to-peer distributed caching mechanism to share already downloaded multimedia assets on the local LAN, as well as providing redundancy for student data to prevent lost work in the event of network interruptions. The iStation Runtime provides significant offline capabilities and allows constantly updated, game-like, multimedia educational content to be served to a school with minimal Internet bandwidth usage. iStation has custom servers, designed from the beginning to be massively scalable on commodity hardware, which handle about 1 million subscribed students using the program each month. These servers include database and middle-tier custom servers that use a proprietary distributed cache control system that allows new database servers to be added to the "mesh" of existing servers with very little configuration, which provides superior survivability and scalability. In addition, custom multimedia asset download servers provide extremely efficient binary download streams, further minimizing bandwidth usage. The database servers share an Oracle database with reporting and classroom management servers, which provide reporting down to the level of each click registered in the iStation Runtime, and aggregating to the state level. The client and servers were written in C++ for performance and provide superior cost efficiencies, allowing us to serve 1 million students for about \$0.02 each per month.

Please list the specific humanitarian benefits the project has yielded so far.

School districts using iStation Reading have shown incredible results, including greatly reduced referrals to special education and measurable movement out of an "at risk" status and into an "on track" status. Not only does this improve the outcome for the child, it saves the school districts money which would have to be spent in intensive individual intervention strategies. All students are assessed once per month, ensuring that no student slips through the cracks. Additionally, this approach allows growth to be shown for each student, even if they stay in an "at risk" category. This provides good feedback for parents, teachers and administrators that progress is being made, even though a student continues to require additional attention. The game-like environment engages the students in ways that traditional classroom instruction often cannot do, and the individualized instruction path means that they receive instruction at an appropriate level, while not impacting the progress of other students in the classroom. Further, the assessments recommend and provide instruction in specific skills that teachers can deliver to small groups, further restoring teacher time to the classroom.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

Shelby County Schools, a Memphis, TN area school district, has had incredible success with their implementation of the iStation Reading program. The district went from low performance in the past to stellar performance over the last six years. A press release touting their most recent state "report card" (http://www.scsk12.org/PDFs/2011_Report_Card.pdf) said: "SCS attributes its Achievement scores to teachers and administrators district-wide being deeply rooted in data-driven decision-making. Principals, teachers and instruction specialists are regularly receiving more data on individual students to assist with the development of benchmarking and interventions and working collaboratively to formatively assess instructional practices on an ongoing basis." iStation provides the data that drives this approach for the area of Reading. Additionally, referrals to special education dropped from over 30% to about 13% because iStation provided analysis that showed that those students were making progress and did not need a special education curriculum. This is a clear benefit to the large group of children who avoided the

stigma of special education when they didn't need it, as well as the district, which did not need to provide the very expensive specialized instruction.