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Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Xerox Corporation

Organization URL:

www.xerox.com

Project Name:

Xerox Educational Assessment Management System

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

Innovation

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.)

Today, while many educators see "data analytics" as an opportunity to improve instruction, grade school teachers wonder how they are supposed to get their "data" off the page, since the most informative work younger students do is handwritten and on paper. Xerox has invented a one-of-a-kind workflow and software system that pushes hand-marked student work (on paper today or on tablets tomorrow) into the digital analytics domain -- making it faster for teachers to grade tests and easier to provide individualized instruction. In the education community, the value of formative assessment is well known. Frequently measuring student learning during instruction, and making targeted adjustments helps close the teacher-student feedback loop and enables personalized

instruction. But in early education, existing tools for measuring student learning such as "fill in the bubble" sheets and computer-based assessments have had limited impact because they do not naturally integrate into classroom workflows. They also are restricted to multiple-choice responses. For young students, the natural process is to construct responses by writing on a page, which is critical because it helps make their thought processes transparent. Xerox heard from educators that while constructed response assessments are valuable, they are time consuming/labor intensive. Managing and determining what to do with the data adds to the escalating demands on teachers. Essentially, the benefits of formative assessment have not been realized because of the manual nature of the process and a lack of teacher support tools. The Xerox educational assessment management system is built on technology advances Xerox has made in image processing, Intelligent Character Recognition, and meta-data structures and analytics; a software/workflow solution for multifunction print devices already residing in schools; uses "mark lifting," or the ability to reconstitute, analyze, and manage marks on paper (handmade or machine made).

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 system has been used daily in a technology pilot since the 2011 2012 school year in four elementary schools in three different school districts, with 100 active users (teachers and administrators) and 1,200 students served. During the 2012-2013 school year it moved into in beta test mode with a controlled roll-out to additional schools. Xerox is planning a full product launch in 2013. To learn more about how the system works, please see Appendix 1 to watch a 3-minute video.

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.)

The system currently is used in four school districts in the United States and Canada. Beyond this deployment, aspects of the system have been shared with a variety of educators, Federal Department of Education officials, education foundations, and education policy think tanks. The education community's reception has been overwhelmingly positive. Xerox is planning a full product launch in 2013. Please note: the internal name "XEAMS" (Xerox Educational Assessment Management System) for this innovation was used during the school pilots. Xerox will determine a formal name for this product in the coming weeks.

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.)

Throughout the school year, use of the system in the various schools has consistently expanded in a "viral" or organic manner, as lead teachers bring other teachers along, and as other grade teams see what the system has enabled for the lead users. The system is perceived as having very positive impacts. "In a very user-friendly way, Xerox has handed our grade-school teachers the gift of data analytics," said Adele Bovard, superintendent of the Webster School District, one of several districts that piloted the system in New York. "Instead of spending time scoring tests and making sense of the data, teachers can quickly access pertinent views of the data and focus on meeting the needs of individual students it's revolutionary." Additional teacher comments: "The system transfers the energy from scoring to preparing for the future instruction." "It would take me three hours to grade these [stack of multi-page tests]. With this system I can validate AND have my reports in 20 minutes!" "Last year I did a formative assessment in February, graded it, entered the results into a spread sheet, tried to generate some useful views . . . took me three to four hours over one weekend . . . never had the time to do it again. Now, I'm assessing my class every few weeks for the entire year . . . this is great!" "Formative assessments helped tell me when to slow down and re-teach if kids were not getting it or when to move on because they were getting it." "I'm faster getting tests back to them. The information is much more relevant to them. They know they will get it back quicker now. It's much fresher in their minds. . . . Much more meaningful."

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.)

Educators tell us the impact of this innovation will be widespread. One area of particular interest in New York State, for example, is a state requirement for school districts to develop student learning objectives for subjects that are currently not assessed with a state test. The state requires these objectives to be rigorous and comparable across grade levels and departments. The system can support this type of work, providing a solution not only to New York State but to all the states that have accepted Federal Race to the Top funding and are therefore dealing with similar mandates. Globally, consultants and non-profit organizations have told us that the Xerox educational assessment management system is broadly applicable to educational practices in a variety of countries. These sources believe it can be tailored to bring the substantial benefits of



frequent formative assessments and instruction targeting individual student needs to many localities. We are already testing the system in western Canada.

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

It's important to note that the system's origin came from a firsthand understanding of what teachers require to make the most impact on student performance during the day-to-day activities in the classroom. Researchers worked closely with teachers, asking them questions and observing how they ran their classrooms. Only then did we consider how technology and advances in technology could most effectively meet those needs. Working alongside teachers and administrators in a technology pilot and beta test, Xerox researchers developed an innovative systems design that was carefully tailored to classroom educator needs. Xerox has filed 20 patent applications to date, with more to come. Every interaction we have had from local school teachers, principals, and district administrators up through government education officials, consultants, education foundations, and policy think-tanks, have re-affirmed the uniqueness of the system. No other system allows students to mark papers and solve problems for assessment as they do for everyday classwork. This type of constructed response allows teachers to see how students have approached problems, not just the answer they chose. The system also is open to content from a variety of sources, allowing for assessments that are authentic reflecting what is happening in the teacher's classroom, not only what has been provided within a published curriculum. It is within this authentic context that the system uses meta-data associated with each assessment item and analytics to guide teachers on how they might modify and personalize instruction and personalize for their students, based on what they're teaching. It's also designed for the future. Many classrooms still operate largely with paper and pencil. Eventually tablets and styli will become a parallel mode for solving problems and showing student work. The system naturally transfers to this pathway for capturing freeform marks.