



Cleveland School District Adopts Managed Learning System (MLS) Technology Model to Support Its Evolution to Standards-Based Education

Fully implemented ASAS project will put a wealth of standards-based K–12 classroom assessment items, lessons and instructional resources at teachers' fingertips

The Cleveland Municipal School District is doing an about-face on education. Instead of focusing on the elements of instruction that students are exposed to, as is traditional, educators are emphasizing what students can actually learn. And, rather than testing students in ways that compare them to one another—a model that creates winners and losers—the district assesses them against academic standards, assuring every student can win by performing at peak potential.

This fundamental shift in thinking reflects the district's move to a standards-based instructional model, a move that calls for finding the right tools to revamp the way learning happens. To support its vision of making all students winners, the district first implemented an electronic report card tied to standards. With this tool in place, teachers can't simply assign an A, B, C, D or F in math; they must answer to what degree each child is growing toward specific standards.

As the strategic next step in migrating to a standards-based education, the district is deploying the Cleveland Standards Item Bank (C-SIB), its version of a new technology tool called an Academic Standards and Assessment System* (ASAS). An ASAS solution is a comprehensive catalog of state standards with Web-enabled links to assessment items and content that offers teachers all the tools and resources they need to access, enable and evaluate learning. Moreover, the ASAS concept builds on the Managed Learning System* (MLS) technology model, a vendor-neutral environment that enables all elements of an educational IT system to work together seamlessly.

“As we move into the 21st century, it’s clear that the kinds of resources available to teaching and learning are changing dramatically, and technology is essential to that shift,” says Peter Robertson, chief information officer for Cleveland schools. “The end-user devices, such as PCs, tablets and electronic paper, aren’t the most important issue. The really interesting piece is how we organize all the content involved in teaching and learning so students and teachers have easy access to it.”

Donna Snodgrass, classroom assessment manager in the district’s department of information services, says the ASAS solution is helping teachers learn how to make the transition to standards-based teaching.

“Our belief is that Ohio has high-quality standards, and they’re aligned to the skills that children have to come out of school with to succeed in today’s world,” Snodgrass says. “By creating a system of assessment items, lessons, instructional devices, video clips and so on that are related to standards, we are enabling teachers to pull out everything they need for their day-to-day classroom instruction and giving them tools for contributing to the growth of each child.”

Support for Instructional Success

The Cleveland district serves approximately 73,000 K–12 students with 123 schools and has a budget of nearly \$700 million for the 2003–04 academic year. District demographics include a high rate of poverty and an 80 percent minority population.

To promote success for each of those 73,000 children, Cleveland made a district-wide commitment to a standards-based instructional model that encompasses course content and lesson delivery, grading and report cards, and proficiency and skill levels. Educators will rely on standards and early assessments to identify students who are in danger of failing, automatically invoke intervention programs, and monitor student progress to ensure promotion to the next grade level.

Early assessment is crucial to this vision, which makes the ASAS solution pivotal to delivering on it. But assessment is a complex task. Snodgrass, who was hired by Cleveland in fall of 2002 to implement a district-wide assessment program, notes that standards are theoretical statements, such as fractions, decimals and equivalent forms. Assessment items are implied in those standards, but they’re not explicit. In other words, teachers don’t get a handy list of what constitutes a student’s ability to perform the tasks in a given standard. Educators in Cleveland thus set about defining a comprehensive set of high-quality assessment items aligned to Ohio standards, otherwise known as “unpacking the standards.”

Using a thoughtful process driven by teacher expertise and input, the district has created about 1,000 assessment items so far. One item might show a picture of lines and ask students the multiple-choice question “Are these line intersecting, parallel or perpendicular?” Another item might be a poem that students interpret through open-ended questions.

“We are loading all the assessment tasks—sometimes individually, sometimes as tiny diagnostic testlets—onto our ASAS server,” Snodgrass says.

“Also, as part of the teacher-driven discussions about assessment items, lessons have started to form themselves, and all the standards-based lessons we’re building are going into the ASAS server as well.”

Eventually, as teachers learn which groups of children need help in certain areas, they’ll be able to pull up a variety of standards-based lessons to use with those students. Teachers will also be able to pick and choose work items to accommodate gifted children, enabling truly individualized learning.

Technology Meets Educator Needs

Robertson describes the C-SIB application that runs on Cleveland’s ASAS server as essentially a relational database populated with knowledge objects. The project is still in its infancy and for now, it’s focused on assessment tasks. But Robertson predicts the item bank will ultimately contain 20,000 K–12 classroom assessment items, a thousand lesson plans, and pointers to a huge range of learning resources, including Web sites, readings, activities, online tutorials, audio and video clips and anything else a teacher might want to use in a classroom.

“In the process of creating this database, we are organizing all our instructional resources in such a way that we can share what we’ve done with school districts in other cities and other states, so we can all save money, save time, focus on improving quality, and

ultimately present to students and teachers a worldwide web of resources aligned to academic standards,” Robertson says.

The effort to populate the item bank will be augmented by other districts that, like Cleveland, belong to the Council of the Great City Schools, which includes the nation’s 60 largest urban public school systems. Having learned that a number of districts were building databases of their own, Snodgrass arranged for a demo of Cleveland’s ASAS solution at a recent council meeting. The consensus, as expressed by the council’s director of research: The ASAS is an excellent platform on which to catalog and share items among districts.

What makes the ASAS especially attractive is its ability to map items to standards across states, Snodgrass says. The core system includes the Align to Achieve* and McREL Compendix*, which aligns learning materials to 49 states’ standards using a catalog format like the Dewey Decimal System*.



Educators can use search tools and alignment wizards to sort and retrieve the resources they've built internally, as well as share curriculum, digital content, lesson plans and other classroom materials that correlate to standards. That means Cleveland educators can easily share items with their peers in Boston, Dallas or Seattle. And even more exciting, Snodgrass says, organizations such as NASA, the Smithsonian and PBS have also aligned to the Compendix, making a wealth of free, non-proprietary resources available to schools.

Cleveland's ASAS solution also lets educators view a gap analysis of materials that map to standards. This value-added feature is designed around an Excel* spreadsheet that uses the Web services built into the ASAS to call up information from the C-SIB database, then performs a cross-tab analysis. The resulting report shows how many assessment items are available for each of the district's academic standards and, more important, it highlights academic standards that might not be covered by any assessment items. This gives educators quick insight into gaps that they need to fill with assessment items or learning resources.

This functionality is important for two reasons. First, as educators began cataloging and aligning several thousand assessment items to state standards, it enabled a back-gap analysis to the correlation between their former proficiency standards and current content performance standards. Second, going forward, educators can proactively strengthen certain areas to make sure they have a balance and good cross-section of assessment questions for every standard.

The MLS Advantage

Cleveland's C-SIB application was installed by JES & Co., a nonprofit provider of education technology solutions that developed the ASAS with grant funding

from Intel, Microsoft and others. These companies view an ASAS server as the backbone of the Managed Learning System, the open, industry standards-based technology environment that they defined over a period of several years in collaboration with other leading technology companies and educational organizations. (The founding members of MLS were JES & Co., Intel, Microsoft and Dell.) The MLS model focuses on improvements to education that are powered by technology, interoperable by design and built to last. An open, integrated Web services architecture and plug-and-play flexibility put easy-to-use tools at educators' fingertips, while the technology itself fades into the background.

Robertson agrees that school districts need an alternative to the proprietary solutions of most textbook publishers and instructional management system vendors, whose mind-set is fixed on intellectual capital. He and Snodgrass both praise JES & Co. for coming up with a "lingua franca" ASAS architecture that can be served up on any hardware/software platform. The foundation that the Cleveland district chose for its ASAS solution is a dual Intel® Xeon™ processor-based server running the Microsoft Windows Advanced Server* operating system. Web services are provided through the Microsoft .NET environment.

Deployment Includes SchoolNet Tools for Content Delivery

As of fall 2003, the Cleveland district had loaded its ASAS server mostly with math items for third, fourth, fifth and sixth grades, plus several hundred English language arts items for fourth and fifth grades. Every district school with classes in grades 3 to 6 has access to the growing catalog of resources stored on the system.

Along with continuing to build new items for the ASAS repository, the district is rolling out a built-up system that includes a complete set of classroom

tools. In this system, a decision-support module made by SchoolNet Inc. sits on top of the ASAS server. The SchoolNet module offered the datamining and analysis infrastructure that Cleveland sought. The SchoolNet solution will enable district schools to download and administer standards-based diagnostic tests, scan in the tests for scoring and get back immediate reports. A version tied to math standards is being deployed initially to 18 of 123 Cleveland schools that didn't meet the level of performance dictated by the federal No Child Left Behind Act.

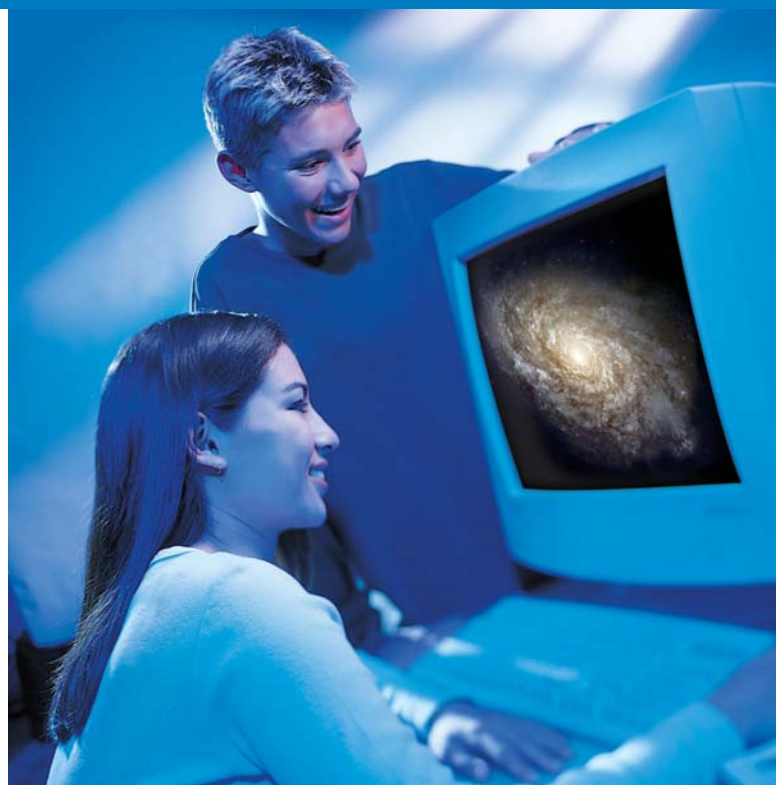
"These 18 schools will have access to real-time data on how children perform," explains Snodgrass. "This will be useful to teachers because it's current, aligned to standards and organized in a way that teachers can see which children have mastered which skills, and which should be grouped for remediation."

More important, it's all easily done. The SchoolNet system is tied to the district's data warehouse, so a teacher just has to punch in her code or name, and the system automatically knows every child in her class. Information can be aggregated by gender, limited English-speaking ability, learning disability or other factors, giving teachers countless ways to analyze student performance and monitor progress.

"If it goes as well as we think it will, the next question will be how soon we can have this for everybody," Robertson says. "Then, the question will become how quickly can we populate items across the curriculum."

The Power of Technology

Cleveland's ASAS solution is still in the early implementation stage, but Snodgrass says teachers are already "squealing with delight" over the system's ease of use, power and versatility. For example, a math teacher could ask the system for all the sixth-



grade assessment items that pertain to the standard on converting decimals to fractions. Or, he could enter the keyword "fractions," review all the items and resources that the system serves up, and see which standard each item matches.

As Cleveland educators aligned state of Ohio test items to the standards, they were also interested to learn that many resources are appropriate to multiple grade levels, and many items map to multiple standards. Snodgrass says this knowledge feeds discussion, promotes understanding of teaching to standards and gives teachers more tools that they can use and share to facilitate learning. Robertson notes that benefits like these speak to the power of technology.

"All this cross-referencing and the ability to cross-walk from one state to another is something you can't do with a textbook or a teacher's guide," Robertson says. "Web technologies are ideal to facilitate that kind of exploration. Technology—if it's built right—enables information to be available to anyone, anywhere, at any time and in any form."

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