Beyond Textbooks

Perspectives on K-12 Education Technology

Summary

Today's educators have a new responsibility to prepare students to compete in a technology-driven global economy. In this new economy, digital literacy controls access to information and opportunities for advancement. Schools are no longer seen as repositories of information but as facilitators of learning. It is a dramatic shift that is causing IT departments in many districts to embrace a new mission to support 21st-century, technology-enabled learning.

An explosion of new online tools is making that possible by offering students access to a world of information anytime, anywhere. These tools blur the lines between curriculum and technology, pushing education CIOs into the spotlight. Technology leaders must work closely with curriculum and instruction to make sure that the digital learning tools and applications they choose are compatible with their district's infrastructure, hardware, budget, and curricular needs.

Assess Your Needs

Over the last two years, the number of online learning tools available to teachers and students has skyrocketed. Once the exclusive domain of educational publishing companies, digital learning tools and content are now also being produced by enterprise technology companies, nonprofit organizations, and individuals. There are online tools and resources for every need, from virtual learning platforms to subject-specific applications.

To navigate this ever-growing landscape, Jon Carrino, Technology Services Supervisor for the William S. Hart Union High School District in California, recommends meeting with curriculum and instruction early on to clearly identify classroom needs and learn what technologies teachers may already be using.

In California, Carrino is working closely with teachers to identify their needs, find solutions, and push those solutions out to other teachers. "Teachers may already be using many online learning tools on their own to supplement their lesson plans," says Carrino. "It's important for us to know what they're doing so we can enable them to do it without having to work around the system. We want to hear how they're using technology and what they're trying to do so that we can help them."

In New York's Northport-East Northport Union Free School District, Matt Nelson, Assistant Superintendent for Instruction and Administration, says that the declassification of public funds for software and textbooks is helping to break down barriers between technology and curriculum.

"Today, discussions about curriculum and technology are inseparable," says Nelson. "You have to understand your teachers' instructional objectives and look for the technologies that are going to fit. You can't buy technologies first and then look for ways to use them."

Shift to student-centered learning

"The evolution of technology has made knowledge accessible to anyone with an Internet connection," explains Chris Smith, Director of Education Technology Communication Services in the Bath Central School District in New York. "We are shifting the teacher's role to be a supporter of learning and help students understand what it means to be adaptable and collaborative."

In Smith's district, this shift from teacher-centric learning to student-centric learning can be seen with the growing number of teachers adopting technology to "flip" their classrooms.

In flipped learning, students are responsible for the independent study of material at home and the teacher acts as a guide in the classroom. Students watch video lessons or participate in online tutorials at home, freeing up class time that would otherwise have been spent in lecture. The time they spend in class can then be focused on individualized support and project-based learning.

"This is especially important," explains Smith, "because students need a new set of 21st-century skills to succeed in today's technology-driven world." These skills include collaboration, global citizenship, problem solving, digital literacy, and critical thinking. "With technology, knowledge of facts is not as essential as it was before. Our role is now to support independent and collaborative learning."

"We are shifting the teacher's role to be a supporter of learning and help students understand what it means to be adaptable and collaborative."

Chris Smith
Director of Education Technology Communication Services
Bath Central School District in New York

Case Study

Bath Central School District

PROFILE

Bath Central School District serves 1,650 students from pre K–12 in Bath, New York. "Our district is unique in that access for our students is not a challenge. We have a one-to-one ratio of students to devices for grades 2–12," says Chris Smith, Director of Education Technology Communication Services.

WHAT THEY DID

With enough resources to connect every student throughout the day, the IT department is able to focus resources on curriculum and professional development that shifts the focus from the teacher to the student.

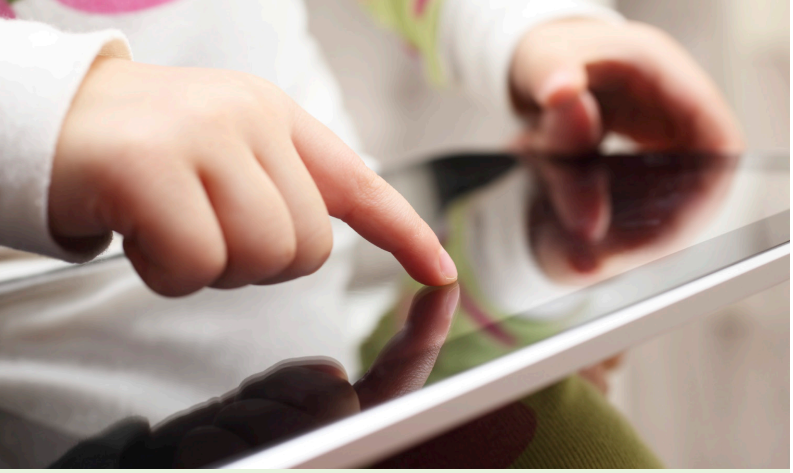
E-LEARNING TOOLS USED

Smith's IT organization is helping teachers flip their classrooms through the use of e-learning resources, such as:

- **Atomic Learning.** Atomic Learning is a searchable, on-demand, video-based learning program. Learning takes place outside of the classroom, and the application and synthesis take place in the classroom with the guidance of the teacher.
- **Khan Academy.** Khan Academy provides video-based instruction in all subjects. Teachers are using it to support flipped learning and provide additional resources for struggling students. Students enjoy learning from someone new and feel empowered to learn on their own.

COMPUTING DEVICES USED

- Acer Aspire One Notebooks
- Acer ICONIA Windows® tablets



Case Study

Northport-East Northport Union Free School District

PROFILE

The Northport-East Northport Union Free School District is a suburban district with 6,300 students located outside of New York City. With a background in technology, Matt Nelson, Assistant Superintendent for Instruction and Administration, has made the integration of curriculum and technology a district priority.

WHAT THEY DID

Schools in the district are combining the NWEA MAP test with Compass Learning Odyssey to create a personalized learning path tailored to the needs of each student. "It's like having an Individualized Education Program (IEP) for every child," says Nelson.

E-LEARNING TOOLS USED

- **NWEA MAP assessment.** NWEA MAP is a computerized testing model that adapts to quickly pinpoint a student's skills and knowledge.
- **Compass Learning Odyssey.** Data from the NWEA MAP assessment is fed into Odyssey to create an individualized learning path for each student. Standards-aligned tutorials and scaffolding activities help grow students' mastery of skills and knowledge.

COMPUTING DEVICES USED

- Acer ICONIA Windows tablets
- Acer Aspire Notebooks
- Acer Veriton Desktops

Enable differentiated instruction

Digital learning tools are enabling teachers to implement differentiated instruction, which until recently has been difficult to scale. Today's digital tools can help teachers quickly identify areas of improvement and assign solutions with adaptive content to get students up to speed.

"Digital learning tools enable teachers to scale individualized learning to all students," explains Bill Fritz, Director of Technology at Sycamore Community Schools in Ohio. "The new tools are more than just diagnostic—they can immediately offer solutions for remediation."

Many districts are using dynamic programs like Pearson SuccessMaker that adapt in real-time to the learner's performance and provides on-demand tutorials and remediation. Teachers in the Bath Central School district, for example, are using SuccessMaker to quickly create personalized learning experiences in math and English for each student. Monitoring and reporting tools make it easy for teachers to track student progress.

For students that are interested in non-standard subjects or who need to recover credit, Fred Harlan, Director of Technology for the Ritenour School District in Missouri, believes that online programs are important resources. "These technologies enable us to teach subjects and classes that we are not staffed to teach." If a student is interested in learning Chinese or Serbo-Croatian, tools like Rosetta Stone, Mango, and Chinese 360 can fill in for on-site resources. If a student is interested in getting ahead in particle physics or recovering credit, E2020 provides a virtual classroom that gives students the flexibility to complete lessons at their own pace.

"Digital learning tools enable teachers to scale individualized learning to all students."

Bill Fritz
Director of Technology
Sycamore Community Schools in Ohio

"[Technology] helps keep students engaged in learning by making it easy to apply what they're learning to their community and the world."

Tim Goree
Director of Technology Support Services
Fairfield-Suisun Unified School District in California

Support collaboration and interaction

The future leaders of this world will need to be independent learners and collaborative thinkers. By providing opportunities for collaboration in the classroom, students can come to rely less on teachers and more on themselves and their peers to solve problems. Technology is now allowing students to collaborate and interact with members of their communities at home and around the world like never before.

"Today, students can exchange ideas with students and adults around the world through email or video conferencing," says Tim Goree, Director of Technology Support Services at Fairfield-Suisun Unified School District in California. "It helps keep students engaged in learning by making it easy to apply what they're learning to their community and the world."

Goree and other education technology leaders are using online applications such as Google Apps for Education and social-media inspired learning management systems, such as Edmodo, Moodle, and My Big Campus, to facilitate collaboration among students, teachers, and community members.

"We like Edmodo a lot," says Goree. "Edmodo looks a lot like Facebook, so it is an easy way to introduce students to learning management systems. With Edmodo, students and staff can create and manage their own profiles. Teachers create groups through which students can access content, post content, and collaborate with others in the group."

IT directors like Goree are also pushing for greater collaboration with the community through district websites. In Missouri's Ritenour School District, Fred Harlan leads a collaborative effort to help teachers develop an online presence. "It's important for our students and their parents to have access to teachers and information about what's going on in the classroom when they're at home," says Harlan.

Case Study

Academica Charter Schools

PROFILE

Academica Charter Schools operates more than 100 high-performing charter schools throughout the United States. With a broad geographic distribution, schools in the district can have very different needs, so decisions about e-learning applications are primarily made at the school level.

WHAT THEY DID

Academica Technology Director Tony Fernandez works closely with schools to enable success in class and at home. "Most of the applications we use are either already in the cloud or we host them ourselves so students can have access to the resources outside of our network," says Fernandez. "For students that aren't connected at home, we try to connect them with organizations that provide affordable access. Some students are able to take mobile devices home with them."

E-LEARNING TOOLS USED

- **Moodle.** Academica connects students at home and at school with a hosted implementation of Moodle, an open-source learning management system that teachers can use to share files and information with students and parents. "Because Moodle is so popular," says Fernandez, "it has an extensive user base and a variety of resources, including prebuilt enhancements provided by the open-source community."

COMPUTING DEVICES USED

- Acer Veriton Desktops
- Acer Aspire Netbooks
- Acer ICONIA Windows Tablets

Align curriculum and resources

Online learning and diagnostic tools generate data that offer teachers and administrators new opportunities to track student progress and offer individual remediation. In the Northport-East Northport Union Free School District, Matt Nelson is helping teachers assess and track student progress using brief curriculum-based assessments from aimsweb.

"More and more, we're turning to data to help us solve problems," says Nelson. "Many people will want to use this data to make conclusions about how good teachers are, but the best way to use this data is to start conversations about how to move forward and help students improve."

The challenge, says Chris Smith of the Bath Central School District, is that the data is often locked up by grade level and subject in dedicated solutions. As students advance through grades, their data from previous years is lost. As a result, Smith's district is looking closely at unified platforms like Pearson and Discovery Education that provide the same resource from kindergarten through eighth grade. The data that is collected about each student is accessible to teachers throughout the student's time at the school.

Stay a step ahead

The latest e-learning technologies can help provide dynamic 21st-century learning experiences that successfully prepare students for college, careers, and life in a technological age. With e-learning tools constantly evolving, staying up to date on the latest trends can be a tall order.

Many IT directors recommend developing personal learning networks using social media sites, such as Twitter, to learn how other districts are successfully implementing the technology. "You have to find real innovators and follow what they're doing. Twitter makes that possible," says Bill Fritz of Sycamore Community Schools in Ohio.

KEYS TO SUCCESS

- **Understand your requirements.** Research the technology demographics of your district and meet with teachers to understand their needs before you begin assessing e-learning technologies.
- **Focus on professional development.** Even at schools with an abundance of technology, teachers must learn to effectively integrate technology into daily activities for it to be of value. As an education technology leader, you can help prepare teachers to make the most of today's powerful technologies.
- **Partner up.** Consider teaming with other districts to form an educational consortium for the purpose of purchasing digital content and tools together.
- **Think like a business.** Look for enterprise solutions that can integrate seamlessly with your architecture to eliminate manual processes.
- **Align curriculum and resources.** As offerings from leading vendors become more comprehensive and robust, there's no need to implement point solutions for each grade. Unified solutions provide value across all grade levels, allowing data to migrate with each student from classroom to classroom.
- **Keep learning.** Expand your personal and professional learning network to include pioneering education technology leaders, teachers, analysts, and students.

Other IT directors connect to thought leaders through online news readers, such as Google Reader, News 360, and Microsoft Newsreader, industry analysts such as Gartner, and local and national conferences and events, such as ISTE, VSTE, and COSN.

Teachers can also be valuable sources of information. With personal learning networks of their own, many teachers are keenly aware of the latest trends in technology, and more and more teachers are finding resources on the web and bringing them into their classrooms.

Other education technology leaders, like Gary Brantley, CIO of DeKalb County Schools in Georgia, recommend speaking directly with students to learn what engages them in and out of the classroom. "I like to go straight to the source," Brantley says. "You can find out a lot in a short amount of time by speaking with students."

TECHNOLOGIES FEATURED IN THIS WHITE PAPER

Shift to Student-Centered Learning

- Atomic Learning
- Khan Academy

Enable Differentiated Instruction

- Compass Learning Odyssey
- E2020
- Mango
- Pearson SuccessMaker
- Rosetta Stone

Facilitate Collaboration and Interaction

- Edmodo
- Google Docs
- Moodle
- My Big Campus

Align Curriculum and Resources

- Discovery Education
- Pearson

GETTING STARTED

1. Invite administrators and teachers to discuss the tools that they're using today and the tools they'd like to use tomorrow. Use these discussions to clearly identify their needs and requirements before choosing a solution.
2. Find out what percent of your district is connected at home before implementing solutions that require at-home access.
3. Survey students to discover what programs and applications they're already using. Tools that are modeled after popular applications may be easier to adopt.
4. Explore the growing number of open-source resources and solutions.
5. Communicate with parents, students, and teachers about technology resources available in your area.

About Acer

Preparing our 21st-century learners for real world challenges necessitates the use of versatile technology to help improve academic achievement and encourage skills like creativity, problem solving, communication, and analytical thinking to compete in the global, increasingly digital marketplace. Acer, a global leader in personal computing solutions, is focused on aiding in the accomplishment of these objectives by providing innovative and cost-effective solutions to the global education community that suit all technology needs and infrastructure requirements. Acer's education product offerings include tablets, chromebooks, notebook and desktop PCs (including touch enabled), LCD monitors, and projectors. Sub-brands include the Aspire, TravelMate and Veriton series.

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