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eSCHOOL NEWS

Technology News & Innovation in K-12 Education

Vol. 17, No. 10

eSchoolNews.com

Nov/Dec 2014

Tech aids at-risk students

Tech boosts student outcomes

Laura Devaney
Managing Editor, @eSN_Laura

Interactive learning and other technology-enabled strategies can increase engagement and significantly improve achievement among at-risk students, according to a new report from the Alliance for Excellent Education (AEE) and the Stanford Center for Opportunity Policy in Education (SCOPE).

When properly implemented, three aspects of educational technology combine to support at-risk high school students—interactive learn-



Research reveals tech can buoy at-risk high school students.

ing, use of technology to explore and create rather than to “drill and kill,” and the proper

At-risk, page 16

Robotics enters K-12 classrooms

Laura Devaney
Managing Editor,
@eSN_Laura

The lesser-known elements of STEM are enjoying the limelight right now, with computer science and coding moving to the top of educators' priority lists. Robotics, too, is following suit—the subject is quickly catching on in schools across the nation as



Robotics, page 18

Tips for PreK-2 blended learning success

Blended learning is successful if modified for early learners' needs

Laura Devaney
Managing Editor, @eSN_Laura

Implementing blended learning in the earliest grades can have an incredibly positive impact on young students if educators follow a transitional blended learning model that focuses on active and intentional technology use.

A transitional blended learning model follows, with a few tweaks, a traditional rotational model as outlined by the Clayton Christensen Institute: Students move on a fixed schedule between digital learning (in which they have some control over time, place, path, and/or pace) and traditional

Success, page 17

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Blended learning program helps special-needs students learn Spanish

With support from Middlebury Interactive Languages, special-needs students are able to meet their school's world language requirement

Christ Church Episcopal School in Greenville, S.C., requires students to take three consecutive years of a world language before they graduate—and Upper Level Spanish instructor Brad Greer is using an online curriculum from Middlebury Interactive Languages in a blended learning model to ensure that special-needs students are able to meet this requirement and graduate on time.

The private, coeducational school serves students in pre-kindergarten through 12th grade and offers instruction in Spanish, German, Latin, French, and Mandarin Chinese. A few years ago, as some stakeholders sought to exempt students with learning disabilities such as dyslexia and audio



processing disorders from the school's language requirement, the Spanish department came up with an innovative solution: It would offer blended learning courses that were more flexible and supportive of these students' needs.

"Since our department felt strongly against [an exemption], we sought programs that were highly interactive and allowed the students to progress at their own pace," Greer said.

With the help of Middlebury Interactive's online curriculum, Greer teaches these students Spanish I over two years. The students then are mainstreamed into Spanish II in the third year. While they technically take only two levels of a language, they still are completing the three years of study required by the school.

"We have found this to be a great compromise," Greer said.

Honored in the Readers' Choice Awards program from eSchool Media for the last two years, Middlebury Interactive's online language curriculum uses methodology from Middlebury College's renowned Language Schools. The courses were developed exclusively for K-12 students by Ph.D.-level academics and linguistic experts. Spanish is one of four languages the company supports from elementary through high school; the others are French, German, and Chinese.

The curriculum is based on principles that research has shown to be effective in language instruction, such as the use of authentic materials and experiences. For instance, it uses video recordings of real interactions between native speakers in different countries to bring cultural authenticity to the classroom.

"We've built language learning activities using these videos, as well as authentic written resources such as newspapers," said Aline Germain-Rutherford, chief learning officer for Middlebury Interactive Languages and Surdna Professor of Linguistics at Middlebury College.

Germain-Rutherford said the online courses allow for better personalization of learning and differentiation of instruction, both of which are important for special-needs students.

"Students can work at their own pace, they can repeat tasks and activities as many times as they need with immediate feedback from the computer, and teachers can differentiate between levels and types of activities when instructing classes with diverse individual needs," she said.

At Christ Church Episcopal School, the ninth-grade special-needs students in Greer's Spanish IA course all have iPads as part of a school-based initiative, so they complete their online coursework on the Middlebury Interactive app. The 10th graders in Greer's Spanish IB course complete their work using school-issued laptops.

Although these classes meet every day, for three days a week the students are working independently on the Middlebury Interactive curriculum, while Greer is available to answer questions. On the other two days, Greer offers instruction to supplement the online curriculum.

"I practice the concepts that were taught on the Middlebury app with students in a spoken and written format," Greer said. "I provide a different explanation and reinforcement of what they ideally will have learned from the program already."

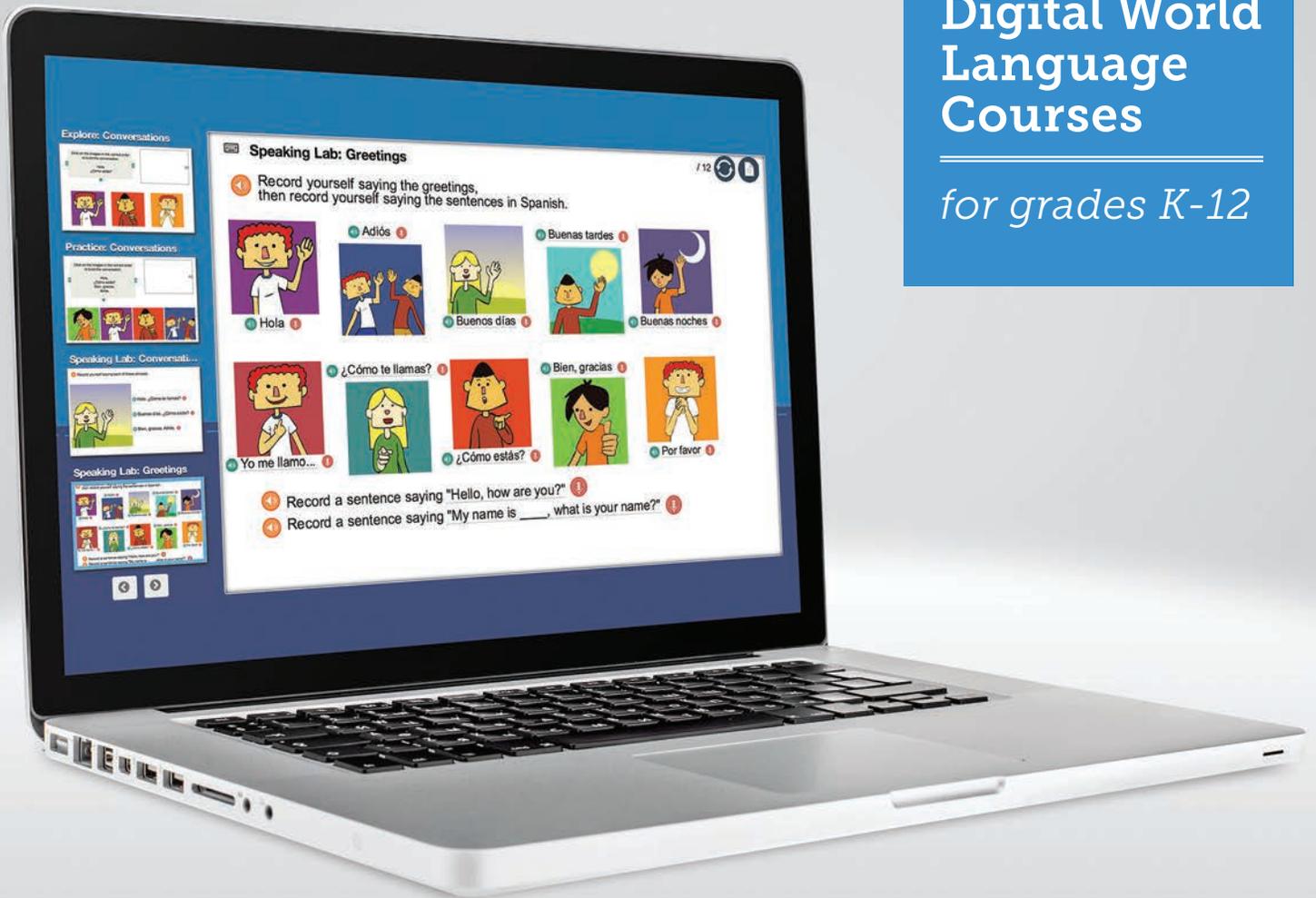
So far, the school's approach is working well: The first four students Greer taught in Spanish IA two years ago are all taking Spanish II with their peers this year.

Greer said he appreciates the variety of evaluations that are built into the curriculum, including spoken, written, and auditory assessments. As for his students? They like its "interactive nature," and being able to listen to explanations "multiple times and at their own pace."

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What keeps girls from pursuing STEM fields?

The STEM gender gap continues to prove challenging

By Rachel E. Scherr

Every student who has returned to school this fall should have the opportunity to prepare for the rapidly growing job opportunities in science, technology, engineering, and math—also known as the STEM fields.

But many students, especially women and underrepresented minorities, needlessly opt out—or are shut out—of discovering a passion or talent for one of these subjects.

Physics is among the least diverse of the sciences, with only 20 percent of bachelor's degrees going to women and fewer than 10 percent to underrepresented minorities. The field needs to catch up to biology and chemistry, which have almost closed the gender gap at the undergraduate level.

At the graduate-study level, all three sciences fail to attract enough women students. Examinations for graduate school are poor at selecting the most capable students and severely restrict the flow of women and minorities into the sciences, a *Nature* journal article reported.

According to the 2014 Science and Engineering Indicators report by the National Science Foundation, women comprised a paltry 28 percent of workers in science and engineering occupations in 2010. Failing to support these students in the sciences shortchanges the students, the field of science and the public that benefits from scientific advancement.

I am a physicist, but I almost dropped out of my first physics class in high school. I had fallen in love with physics while working as a science museum docent, where I learned the simple principles behind beautiful and puzzling natural phenomena.

My Advanced Placement physics class, unfortunately, was about memorizing equations and applying them to specific contrived examples. I did not perform well on the midterm exam. The

teacher advised me to drop the course, along with all the other girls in the class.

I stayed despite the teacher's pressure, as the only girl in the class, and did well in the long run. I learned to love physics again in college, conducting original research with inspiring science professors who valued my presence in the scientific community. Physics professor Mary James at Reed College helped a lot by creating an active learning environment in her courses and teaching me that physics also needs "B" students.

Gains are being made, but there is so much more work to do. One key factor is federal funding for research. Federal funding is the main source of support for the kind of high-risk, high-reward investigations that sparked innovations such as the Internet, the MRI and GPS.

U.S. Sen. Patty Murray, D-Wash., serves on the U.S. Senate Appropriations Committee and understands the connection. In her recently released report "Opportunity Outlook: A Path For Tackling All Our Deficits Responsibly," she states, "By supporting early stage basic research that the private sector might not otherwise undertake, federal investment in R&D (research and development) has played a critical role in encouraging innovation across a swath of industries."

Murray can play a key role by continuing her support of federally funded scientific research. I encourage her to return to the vision set forth in the America COMPETES Reauthorization Act of 2010 for science agencies to maintain the United States' innovation edge throughout the world. Funding for the National Science Foundation, the Department of Energy Office of Science, and the National Institute of Standards and Technology is currently \$3 billion less than Congress originally recommended.

In fact, since 2010, Congress has not even funded these agencies at levels that



STEM needs female participation.

keep pace with inflation.

I'm now a senior research scientist at Seattle Pacific University, where I conduct research on effective physics teaching and learning. Modern instructional strategies that emphasize active learning increase student performance in science, engineering, and math, according to the Proceedings of the National Academy of Sciences. Underrepresented students might benefit the most from these strategies.

Educators need to change how physics is taught so that all students have access, whether they eventually pursue physics research, physics teaching or one of the many other job opportunities that depend on quality preparation in the sciences. Everyone stands to benefit. **eSN**

Rachel E. Scherr is a senior research scientist at Seattle Pacific University, conducting research on the teaching and learning of physics. She wrote this for The Seattle Times.

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Deeper learning has significant impact

Laura Devaney
Managing Editor, @eSN_Laura

New research reveals that students who attend schools with a focus on deeper learning are more likely to graduate on time and demonstrate higher achievement and test scores, as well as an increased likelihood of college attendance.

The research from the American Institutes for Research (AIR), packaged in a series of three reports, also examines deeper learning's impact on educational opportunity and 21st-century skills including critical thinking and problem solving.



Deeper learning yields higher gains.

Deeper learning, as defined in the report, focuses on educational outcomes involving “a deeper understanding of core academic content, the ability to apply that understanding to novel problems and situations, and the development of a range of competencies, including people skills and self-control.”

The study examines students in high schools that implemented deeper learning measures and compares them to “matched” students in the same district in schools that did not pursue deeper learning in order to determine if students in deeper learning schools did in fact experience greater achievement, educational opportunity, and educational attainment.

As recently as the development of the Common Core State Standards, pol-

icymakers have focused on the need for students to develop deeper understanding of the concepts they learn in school, including the need to understand the why and the real-world relevance behind core academic lessons.

Deeper learning, the study claims, is important because academic knowledge alone is not enough to help students succeed in today's global economy, and students need diverse communication skills to collaborate with others and expand their own knowledge. This holds potential for how today's students learn and how they can achieve success in postsecondary education and the workforce.

The William and Flora Hewlett Foundation, which funded the AIR study, outlines six dimensions of deeper learning:

1. Mastery of core academic content
2. Critical thinking and problem solving
3. Effective communication
4. Ability to work collaboratively
5. Learning how to learn
6. Academic mindsets

The findings are all statistically significant, noted Jennifer O'Day, the co-principal investigator for the study and a managing research scientist and policy analyst in AIR's Education, Human Development, and Workforce Program.

“Deeper learning network school students graduated on time at a 9 percent higher rate than their counterparts, were more likely to attend four-year colleges and enroll in the top 20 percent of colleges and universities in the country than were their counterparts,” she said.

“Students in networked schools reported higher levels of engagement, motivation to learn, self-efficacy, and collaboration skills. These particular sets of skills are believed to be predictive of attainment and achievement.”

The first report focuses on the strategies and methods educators used to support deeper learning in their schools.

Key takeaways identified by researchers include:

- Schools in the deeper learning network approached deeper learning

competencies in a variety of ways.

- Most schools employed project-based learning, though their approaches to that method varied.
- The majority of deeper learning network schools made interpersonal skill development a goal.
- Network schools used internships, projects, study groups, and more in order to encourage and support academic mindsets.

The second report highlights deeper learning opportunities available to students in the deeper learning network schools.

Researchers identified a handful of main points:

- Students attending schools in the deeper learning network said, on average, they had more opportunities to engage in deeper learning than their counterparts in non-network schools
- The effects of attending an in-network school offered positive opportunities across all student subgroups
- Teachers' most challenging assignments in the in-network schools offered more chance for independent math learning and real-world connections in English/language arts than non-network schools
- Students' opportunities for deeper learning, whether or not they attended a network school, were associated with those students' deeper learning outcomes

The third report investigates if students in deeper learning schools had higher educational outcomes than their “matched” counterparts in schools that did not focus on deeper learning.

Some of the top takeaways include students attending deeper learning network schools achieved, on average, higher scores on the OECD PISA-Based Test for Schools, which assesses problem-solving skills and core content knowledge, than their counterparts in non-network schools; and students attending in-network schools were more likely to graduate from high school on time.

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7 ways leaders support the digital transition

As schools shift to digital learning, how are school leaders supporting progress?

Laura Devaney,
Managing Editor, @eSN_Laura

Administrators at the local, district, and state levels are essential to leading and supporting the digital transition in schools across the nation, and at the Sept. 29 Empowering Educators to Enhance Student Learning in the Digital Era event, in Washington, D.C., a panel of education leaders outlined a number of key ways that leadership can support and sustain a digital transition.

Moderated by Jeff Mao, senior director of Common Sense Media's Learning Solutions Program, the panel featured Mark Edwards, superintendent of the Mooresville Graded School District in North Carolina; Rosanne Javorsky, assistant executive director of the Allegheny Intermediate Unit in Homestead, Pa.; Joshua P. Starr, superintendent of schools in Maryland's Montgomery County Public Schools; and Johnny L. Veselka, executive director of the Texas Association of School Administrators (TASA).

The discussion ranged from leadership preparation programs to efforts to ensure that leadership is allowed to thrive at all levels, and a number of actionable recommendations emerged.

1. Don't rely only on external programs to prepare school leaders.

In Mooresville, Edwards said, the district partners with two universities on higher education degree cohorts. District leaders developed content and curriculum and aligned it directly to the district's needs.

"Partnering is the way to go—building the work together and evolving the leadership practice," he said.

"We don't rely on external programs [to prepare leadership]," said Montgomery County's Starr. "We're investing a significant amount of resources into leadership, and it's a cultural shift. We take full responsibility for leadership development, and we don't rely on universities."



Collaboration is key to success.

2. Develop and support growth at all levels.

"The supposition that anyone is going to come to the job ready to go is wrong," Edwards said. "Our district is about development and growth. The idea should be that, whenever we hire somebody, we develop and support their growth."

3. Make a shift to coaching.

Instead of focusing solely on evaluations, Starr said, Montgomery County is "trying to make a shift to coaching."

The district pairs a consulting principal with each new principal that enters the district—even if that new principal has 10 years of principal experience in another district or state.

"The evaluation should not be a surprise at the end [of the year]," Starr said. "It should be part of a running evaluation. How are we prepared to support principals along the way? Are we doing our part?"

4. Put a premium on high engagement.

As Montgomery County rolls out Chromebooks and a bring-your-own-device initiative, one thing has become

clear, Starr said.

"There's a direct correlation between schools that have very high engagement scores and their ability to integrate devices," he said. "The schools where the teachers are highly engaged and are collaborative in nature are the ones that are doing the best."

5. Identify and cultivate future leaders.

"We brought younger superintendents in and created a cohort of leaders that we see as our next generation of superintendent leaders going forward," Veselka said. TASA also is identifying ways to identify teacher leaders across the state in order to provide instructional support for classroom educators.

"It's an explicit expectation for my formal leaders to be identifying the next generation [of leaders] and mentoring them, and encouraging them," Starr said.

6. Authorize leadership at all points in the district.

Realizing that leaders come from all parts of the district—from support and custodial staff to students to teachers—is key.

"If you don't authorize leadership at all points in the district, you're not really capturing the benefit of [digital] resources," Edwards said. "The notion that an 8-, 10-, or 15-year-old isn't a leader is ridiculous."

7. Acknowledge leadership.

Acknowledging leadership is an important step in creating positive associations between leadership efforts and results.

"When leadership is acknowledged, it grows," Edwards said. "If you're not growing, something's wrong. In a strong culture of learning, where leadership is growing, we're leading and learning together."

"The pride people have when you recognize them, I've found, has been a really powerful way to promote leadership practices and help other people understand what I'm looking for," Starr said.

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7 resources for student collaboration

Student collaboration is more important than ever—here are some tools to support it

Laura Devaney
Managing Editor, @eSN_Laura

Collaboration is increasingly emerging as one of today's top skills. Part of the 4Cs, it is needed in K-12 classrooms, in higher education, and in the workforce. Students who leverage tech-

nology to build collaboration skills are building strong college- and career-ready skills.

However collaboration is accomplished, it's evident that mobile collaboration tools are as important as ever.

Here, we've listed a number of free

and fee-based collaborative tools and apps, along with developer-provided descriptions, for students to use as they develop collaboration skills in and out of school.

Scoodle Jam: Challenge curious minds with an engaging, collaborative, Common Core-aligned product for school and home. Scoodle Jam marries powerful creation tools with imaginative content that supports critical thinking, communication, collaboration, and creativity, turning your iPad into a flexible learning environment.

Drawp for School: This creativity tool offers built-in sharing, cloud storage, and workflow management. The tool also features a family edition, which educators could use to strengthen home-school connections.

Mind42: Mind42 allows you to manage all your ideas, whether alone, in a twosome or working together with the whole world. Mind42 runs in your browser, so no installation necessary for a hassle-free mind-mapping experience.

Scribble Press: Scribble Press is a multimedia creativity platform for creating, sharing, and publishing stories. Students can access the tool online or on iPads and can work together to create stories supporting classroom topics or lessons.

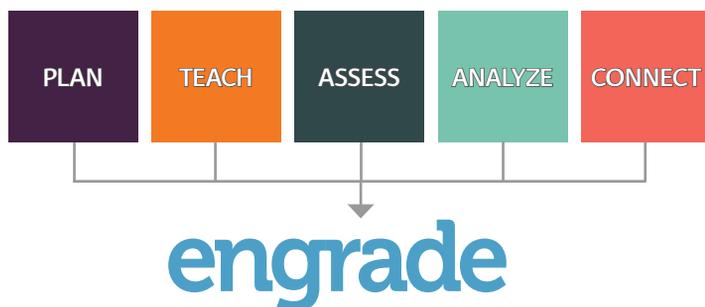
Whiteboard Lite: This app lets students collaborate on the same whiteboard, whether for brainstorming, art projects, or visualizing concepts.

ThinkBinder: ThinkBinder uses a simple, focused set of tools to allow users to collaborate and work more efficiently. Tools are designed around seamless communication and collaboration. Sign on and ask a question about calculus homework, work through a physics problem on the collaborative whiteboard, or video chat with a Spanish partner, all in one place.

Dweeber: Dweeber is a social website that connects students and helps them get homework done faster by working with their peers online. 

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Apps for storytelling, astronomy, and more

This round-up ensures you won't miss any of our weekly highlighted apps

Each week, we feature a new App of the Week on our website and in our newsletters. These apps are for students or educators and offer a range of uses.

But one thing is certain: Educators and students are using apps now more than ever.

Here's a round-up of the apps we've featured during the past month. Check online each Monday for a new App of the Week.



Name: NGAkids Art Zone

What is it? This app contains eight new hands-on activities inspired by works in the National Gallery of Art collection.

Best for: Students ages 9-11

Price: Free

Name: Planets

What is it? 3D guide to the solar system for aspiring astronomers

Best for: Students and teachers

Price: Free

Name: Curious About Me

What is it? Curious About Me is an interactive story-building app that cele-

brates your child's imagination and individuality. With the help of you and everyone's favorite monkey, Curious George, your child will be delighted to become the star of his or her very own story.

Best for: Children ages 5 and under

Price: \$2.99

Name: SchoolCircle

What is it? SchoolCircle is a new survival tool for busy parents, teachers, and room parents. It eliminates much of the busywork that teachers and room

parents deal with in order to communicate with parents and organize events and volunteers.

Best for: Parents and educators

Price: Free

Name: Conojo

What is it? Conojo is an innovative drawing tool that makes it easier to share ideas, images, notes, and any other visual manifestation you can think of.

Best for: Students and teachers

Price: \$2.99



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Britannica databases empower students to make better choices—while leading to richer learning

As a middle school librarian in East Syracuse, N.Y., Sue Kowalski sees her role as an “instructional leader,” connecting students and teachers to resources that will lead to deeper learning.

In Britannica® School and ImageQuest™, she has found the perfect products to do just that—while also empowering students to make better choices.

Kowalski is the librarian at Pine Grove Middle School, which serves students in grades six through eight. She uses the LibGuides content management platform to put together online resource portals for teachers, organized by different themes that relate to what they are teaching.

These portals allow students to explore the topics they are reading about in more depth—and featuring the Britannica School database in the LibGuides has led to better research practices among students, Kowalski said.

“I always thought [Britannica School] was very intuitive and a high-quality source,” she said, “but once I started putting it on the LibGuides and having that widget there ... front and center, I found an increase in kids—and teachers—using these high-quality reference sources and a decrease in just the random Google search.”

Britannica School contains authoritative informational texts about thousands of topics, written at various levels of complexity. The product includes features designed to support more personalized, differentiated instruction—such as audio support, pop-up vocabulary support, and the ability to choose text that is more or less sophisticated.

Kowalski described how she created a LibGuide for teachers whose students were reading Carl Hiaasen’s young-adult novel *Hoot*. The teachers wanted supplementary nonfiction resources that would help students learn more about owls in support of this instructional unit.

“Anyone can go on Google and find decent resources on owls,” she said. “But if I want something that a student can read and get support with vocabulary, something that’s age and level appropriate, it really changes the flavor of things—and Britannica does that.”

Instead of overwhelming students with millions of internet search results, Britannica School offers focused, high-quality resources. And if a topic needs to be delineated further, students have several options. They can also see high-quality images with captions, “so they’re not just looking at a Google search result and have no idea what it is,” Kowalski said.

What’s more, the leveling up and down that students can do within each Britannica School article is “outstanding,” she said—and it helps students become



advocates for their own learning.

“If I read an article that’s too advanced for me to understand, then I might seek the same content in a different format,” she said. “A kid who’s a little less confident in his reading ability is probably not going to raise his hand and say, ‘Can I find the same content at an easier reading level?’ Most kids aren’t going to advocate for themselves like that—but this gives us a way to empower students to make their own choices.”

Pine Grove Middle School also uses Britannica’s ImageQuest database, which contains nearly three million rights-cleared images from a single, safe source. Kowalski described three advantages to using ImageQuest when students and teachers are looking for photos and other images to use in their projects.

First, because every image includes annotation, the site brings credibility to the search process. Second, the fact that every image is age-appropriate means less risk for students and teachers.

“As much as we tell students to make good choices, you don’t have to worry about inappropriate images popping up in a search,” she said.

Finally, because Britannica has secured the right for subscribers to use these images, students and teachers don’t have to worry about permissions or copyright issues. “As we teach our kids to be ethical digital citizens, that’s important,” she said.

Kowalski summed up the benefits to using Britannica’s products like this: “I can make a LibGuide of anything ..., but when I have a LibGuide that is rich with resources like Britannica’s, we’re giving students the tools to make good choices.”

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At-risk

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blend of teachers and technology, according to the report, authored by Stanford Professor and SCOPE Faculty Director Linda Darling-Hammond, Stanford Professor Shelley Goldman, and doctoral student Molly B. Zielezinski.

Interactive strategies in technology use “produces greater success than the use of computers for programmed instruction,” according to the report. This kind of approach lets students explore learning concepts and ideas in an active manner, instead of requiring students to receive information from a computer in a passive manner.

The **right blend of teachers and technology** is critical to student success, the report observes, because teachers and students’ peers offer strategic support and peer interaction. In fact, numerous research studies point to the fact that at-risk students experience success when they have access to strong teacher support in the face of interactive technology-based learning.

Students display increased engagement and stronger skill development when they **use technology to explore concepts and create content**—a result proven by many studies, the report notes. Content creation could come in the form of digital storytelling, creating graphic representations of data, video production, and more.

Technology access and implementation vary widely between low-income schools and more-affluent schools, the report notes, and low-income students and students of color are less likely to own computers and use the internet. Teachers in low-income schools more frequently cite students’ technology access as a major classroom challenge. The report cites research noting that just 3 percent of teachers in low-income schools “have the digital tools they need to effectively complete assignments while at home,” while 52 percent of teachers in more-affluent schools agreed with that statement. In addition,

70 percent of public K-12 schools lack high-speed broadband to support teaching and learning, while 30 percent of households do not have high-speed broadband access.

“These differences mirror the disparities in other learning resources—dollars, teachers, and instructional services—experienced by students in different schools,” the authors note. “For at-risk students, they add the additional disadvantage of reducing their readiness to engage in the primary means of information access and transfer in a technologically based society and economy. The good news is that research shows that if at-risk students gain ready access to appropriate technology used in thoughtful ways, they can make substantial gains in learning and technological readiness.”

Five recommendations outlined in the report can, if paired with professional development for educators, promote technology use and benefits for at-risk high school students:

- School leaders should strive to provide one-to-one computer access
- High-speed internet should be a priority.
- Technology that offers interactivity and engagement is best, and data from that technology use should be available in multiple forms.
- Students should use technology tools to create content, in addition to using technology to learn.
- Policymakers and educators should aim for blended learning environments and offer a combination of teacher support and collaborative learning among students.

The report reviewed more than 70 research studies to pinpoint specific examples of when technology has improved student outcomes for those at risk. 

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Success

continued from page 1

teacher-led classroom instruction, said Barker Davis, senior vice president of business development for AWE, during an edWeb webinar.

This model, Davis said, is the best blended learning model for preK-2 students because of its engagement, focus, and personalization.

While a virtual learning environment is quickly becoming the norm among middle and high school students, Davis said students in the preK-2 grades need socialization and behavior modeling, which is why a transitional blended learning model works well for them—

ferent learning speeds and learning styles. Finding the right kind and combination of digital content can prove difficult. Explorative content is absolutely essential, Davis said, because it is among the most impactful content out there.

Blended learning environments for young students also should include collaborative content, because this helps young students develop teamwork skills and social learning skills—especially when many of these young learners are interacting with others in academic environments for the first time.

Intention: Searching for learning solutions, and not platforms or devices, will help educators ensure that students



Young students benefit from blended learning, but still need social interaction.

students still use digital technologies to enhance learning, but they are eased into blended learning in a way that lets them remain in group settings to develop social and emotional skills.

“Socialization is critical for that age group—it’s a critical element of early learning that cannot be done in a remote environment,” he said.

Implementing a blended learning program is not without challenges, particularly at the preK-2 level, Davis noted. Top challenges are finding high-quality content, using content and the blended learning program with intention, and making sure security is up to par.

Content: Educators will need a wide variety of content to meet students’ dif-

ferent learning speeds and learning styles. Finding the right kind and combination of digital content can prove difficult. Explorative content is absolutely essential, Davis said, because it is among the most impactful content out there.

Security: This challenge is a given, but is still important. When children are exposed to online content of any kind, they’ll be using a browser, which exposes them to some kind of IT security risk. Inevitably, a child breaks through security settings, and while it speaks to persistence and creativity of digital natives, it does expose young children to possible security risks. Mitigating those risks and staying one step ahead of online threats are key.

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Robotics

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programming emerges as a way to introduce project-based learning, problem solving, and critical thinking into classrooms.

When students have fun participating in STEM subjects such as robotics in the early grades, their enthusiasm remains, and keeps students engaged as the subjects get tougher in high school and college.

A number of advocacy groups and universities offer robotics resources to help educators weave robotics into teaching and learning.

The Robotics Academy at the Carnegie Mellon Robotics Institute

The Robotics Academy is committed to using the motivational effects of robotics to excite students about science and technology. It is an educational outreach of Carnegie Mellon University.

Botball Educational Robotics Program

The Botball Educational Robotics Program engages middle and high school aged students in a team-oriented robotics competition.

FIRST Family of Programs

The annual programs culminate in an international robotics competition and celebration where teams win recognition, gain self-confidence, develop people and life skills, make new friends, and perhaps discover an unforeseen career path.

STEMRobotics from Portland State University

This repository is for educators or program directors seeking robotics education materials.

LEGO Robotics from Texas Tech University

This website serves as a basis for teachers to create their own LEGO Robotics programs. This curriculum is designed for hands-on learning and the activities can be modified to fit any grade level. This curriculum provides teachers with a basis for incorporating project-based learning into interdisciplinary technology-driven instruction in K-12 classrooms.

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How one school set up 600 iPad Air tablets

Through our innovations using iPad Air tablets, students have a bright future

By Fredy Padovan

Imagine a school where paper is a dying species. Imagine virtual science labs that are making experiments possible that were previously deemed too expensive. Imagine unlimited resources and information at every student's fingertips.

This school exists, and it goes by the name of Immaculata-La Salle High School. Our private Catholic school, which serves more than 800 students as a member of the Archdiocese of Miami, is extending the possibilities of technology.

Many people think of iPads in education as devices that need to be locked down. But at Immaculata-La Salle, we're doing things a bit differently.

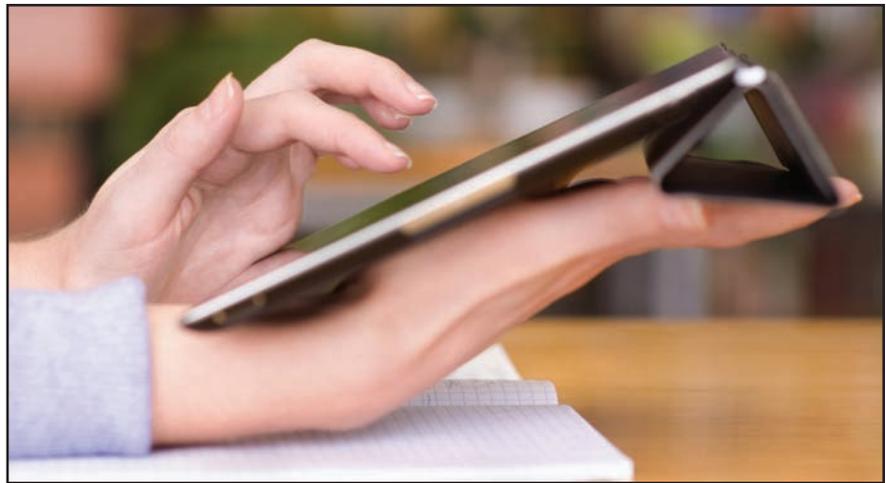
As executive director for advancement and technology, I manage our school's one-to-one iPad program. Our students have been successfully using iPads in the classroom for more than two and a half years.

Prior to switching to AirWatch by VMware for mobile device management, we rolled out 800 iPad 3 tablets. The process was grueling. It took about 16 hours to do the original 800 devices, but that was just pre-configuration. Our team still had to physically touch each device to distribute and enroll them. It took two days to distribute devices and two days to enroll them, followed by manual profile adjustments for each device. Overall, it took a full month to actually get everything set up the first time around.

I knew something had to change.

In late 2013, I heard rumblings of the Device Enrollment Program (DEP) from Apple, a new way to quickly enroll and supervise Apple devices over the air. DEP was officially released in early 2014, and we were ready to collect, distribute, and enroll 600 iPad Air tablets to replace the majority of our existing fleet.

This time, the process would be simpler. It had to be, as we were working with a very tight timeframe. We had only half a day to perform the rollout. Although my team was a bit skeptical



iPad rollouts don't have to be a logistical nightmare for school IT staff.

about meeting this deadline, we actually ended up finishing with time to spare. Miraculously, our second iPad rollout took just two and a half hours to complete! With these enrollment improvements, it's much easier to get iPads out the door and get the users configured with all the resources they need.

Prior to rollout, we tested the workflow on a small group of senior students. I used them as test subjects and kept fine-tuning the instructions over time until it became very clear what they needed to do. The process was completely refined by the end of it.

As an Apple Distinguished Educator, I often consult with other schools looking to deploy iPads to their students. I'll tell schools to try out new things, as there isn't a one-size-fits-all deployment workflow. I advise them to test workflows, pick one that works, and go for it. This is how I found out what worked best for us.

Though our school never has blocked functions like iMessage or the device's camera, students still have some restrictions. When a student downloads an app that is on our blacklist, AirWatch sends the student a warning that tells them which app is in violation, and then asks the student to remove it within a certain time frame.

The next policy is to have the device check in with our backend systems after the time expires.

At that point, if they still have the app on the device, AirWatch sends an eMail to our detention eMail address. By not following our school blacklist policy, students can actually receive detention for blacklisted apps. The AirWatch Compliance Engine is set up to take automated actions, too, which vary based on the severity of the incident. This automation has freed up much of my time as an administrator, allowing me to focus on other duties for the school.

Most importantly, our school's iPad program is one of inclusion, one where everyone has a stake in the responsibility of these devices. We even have our own tech squad of students who act as level-one tech support. Watching students help each other with support issues is a rewarding experience for my team and me.

eSN

Fredy Padovan is an award-winning education technology director and technology integration coach/presenter from Key Biscayne, Fla. He earned a master's degree in education from Belmont University and a graduate certificate in education technology from Michigan State University.

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How music can inspire strong student writing

ELA teacher Nathan Garvin describes how he uses music to elicit ‘creative, deep, and original writing’ in his classroom

By Nathan Garvin

On the first day of school, I give my students a pep talk. My goals for the year are laid out. I tell them I expect them to leave my class better writers and more careful readers. But beyond that, and more importantly to me, I want them to leave as better people.

I want them to walk away as young adults who are able to problem solve,

but when combined with the right music, students are able to connect with them on a deeper level. It also can inspire them in their writing.

One way I use music in my classroom is for journal writing prompts. I want my students to love writing. My hope is that they’ll enjoy writing the longer essays I assign, but we have to build up to that point. Students typically come into my

articulate why they chose that image. They detail exactly what about the song and image made them think the two were a good pair. They aren’t allowed to say that it reminded them of a movie, commercial, TV show, etc. Their responses have to be original.

One thing I love about this activity is that it allows for a variety of responses. Some students prefer to tell a mini-story. They create a character who’s either shown in the picture, or the picture is seen from their point of view. They describe what’s happening to that character right at that moment. Other students talk about what emotions the song and the image invoke.

I usually play the song through twice to give all the students time to write. When it ends, I ask them to log in to Edmodo. On Edmodo, I’ll have four posts that simply have the letters A, B, C, and D. I ask them to reply to the post that has the letter of the image they chose and type their paragraph. I give them a few minutes to read the other students’ writing, then I wrap it up and move on with class. I repeat the same format with different songs and images three or four times during the course of the year.

Here are some other songs that work well for this assignment:

“Whale & Wasp” by Alice in Chains

“Mount Modern” by Dad Rocks!

“Emer’s Dream” by Colm Mac Con Iomaire

“Penultimatum” by Jamie Saft (from the Murderball soundtrack)

“Coloring the Void” by M83

“Wire” by The Low Anthem 

Nathan Garvin is a seventh and eighth grade English Language Arts and Reading teacher at Walnut Grove Middle School in Midlothian, Texas. He has been teaching there for nine years and graduated from Murray State University in Murray, Ky.



Using music in unexpected subject areas often boosts student engagement.

empathize with others, think out of the box, and be prepared to contribute to society. I put my usual sarcasm aside for a day and get all inspirational. It’s my Michelle-Pfeiffer-in-Dangerous-Minds moment.

There’s another goal, however, that I don’t tell them. It’s part of a diabolical year-long mission. I call it musical indoctrination. My taste in music is pretty much the exact opposite of theirs. They like bad music; I like good music. I have one year to plant the seeds that hopefully will bloom into a more refined musical palate. I do this by using songs I like in class.

Music is a natural fit in the English/Language Arts classroom. You can find narratives to discuss and poetry to analyze. Themes, mood, tone, and plenty of other literary topics are also set to music. Words alone are powerful,

class carrying some kind of emotional baggage from prior writing experiences. They say it’s just not something they do well or that they’ve always hated. So I start with smaller journal writings that will build confidence. My goal is to cultivate a love for writing over time.

A favorite recurring journal prompt of mine is one that combines images and instrumental music. I start by playing a song for them. One song I use is “Intro” by The xx. After the song hits the 20-second mark, I start showing a series of four images.

I give directions before I start the song, so they’re ready to write as soon as the last slide appears. They’re instructed to write a paragraph about which image they feel is the best match for the song. Being as specific as they can, they have to

Four top apps for middle and high school music

Here are reviews of four high-quality digital tools that can help with music education, courtesy of Common Sense Media and its new Graphite service—a free database of teacher-written reviews of learning technologies.

Young Person's Guide to the Orchestra by Benjamin Britten

<http://www.graphite.org/app/young-persons-guide-to-the-orchestra-by-benjamin-britten>

Grade range: 2-12

What is it? Spirited digital re-creation of an educationally sound musical classic

Pros: Fun games and freedom to explore capture the wonder, energy, and spirit of orchestral music.

Cons: Visual style is busy, and there's no way to track progress.

Bottom line: Kids will delight in this wonderful digital update of a classic celebration of orchestral music.

Garage Band

<http://www.graphite.org/app/garageband>

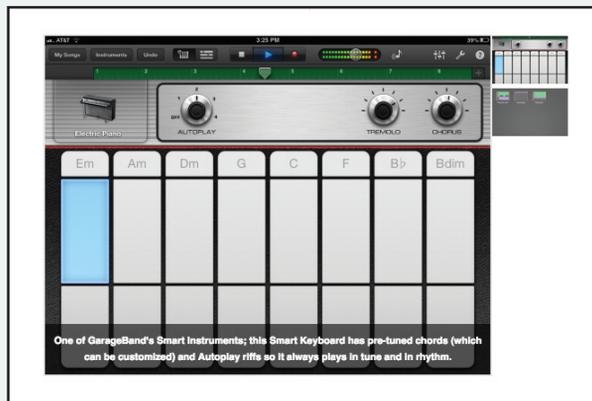
Grade range: 4-12

What is it? Amazingly powerful music workstation unleashes the musician in us all.

Pros: Portable, intuitive touch-screen design puts amazing music creation at kids' fingertips.

Cons: Can't purchase additional prerecorded loops; brass and woodwind instruments are absent from Smart Instruments.

Bottom line: Exceptional function and value in this all-inclusive digital music workstation—it's fantastic for recording anything anywhere, especially on the go.



Musical Futures

<http://www.graphite.org/app/musical-futures>

Grade range: 5-12

What is it? Multimedia-rich magazine highlights free international music curriculum.

Pros: Bold visual style makes it feel like both a fun magazine and a serious educational tool.

Cons: So far, content is limited to only three short issues of the magazine.

Bottom line: An exciting launchpad for engagement connects to a vibrant, growing community of music teachers.

iTooch Music

<http://www.graphite.org/app/itooch-music>

Grade range: 6-9

What is it? Charming graphics, challenging quizzes build solid musical knowledge.

Pros: In-depth lessons on music history, world music, and theory make this a stellar tool for instrumentalists, singers, and music-appreciation students.

Cons: Audio player controls behave inconsistently, and the rainbow-colored lesson text can be a little hard to read. A feature to save lesson text for offline viewing would be helpful.

Bottom line: iTooch Music is a terrific reference and review tool for beginning to advanced music students.

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Overcoming barriers to school connectivity

As federal efforts to connect students to high-speed internet make headway, districts identify their top challenges

Laura Devaney
Managing Editor, @eSN_Laura

Funding remains the largest and most-cited obstacle when it comes to updating schools' infrastructure and installing high-speed broadband internet access, according to a survey from the Consortium for School Networking (CoSN).

CoSN's second annual E-rate and

Twenty-seven percent of districts said not a single school in their district could meet the FCC's short-term goal, and 69 percent of districts said not a single school could meet the FCC's long-term goal of 1 Gbps per 1,000 students.

Eighty-four percent of responding districts said the E-rate's current funding levels don't meet their needs.

crisis," said Keith Krueger, CoSN's chief executive officer, in a statement about the survey. "The FCC's short- and long-term goals for connectivity will not be reached until there is a substantial increase in funding to meet the unmet needs of school districts across the nation, particularly in rural districts."

The survey also reveals that rural districts have slower internal data connections, and their Wi-Fi is "much less likely to meet current technical standards."

Rural districts reported slower internal data connections, with 80 percent of urban/suburban districts reporting typical connection between data switches and router at 1 Gbps or greater compared to 65 percent of rural districts.

The survey also revealed that Wi-Fi in rural districts is much less likely to meet current technical standards. "Only one-quarter of rural districts have Wireless Access Points (WAPs) that support the most current standards (802.11n/ac)—a rate that is less than one-half that of large districts, where 59 percent have WAPs that meets the 802.11n/ac standard," the report notes.

"Based on this new survey, we know that school systems across the country lack broadband capacity, particularly in rural areas, and high costs remain the greatest impediment to improving capacity. These survey data highlight the harsh reality that we are failing to deliver adequate, affordable, reliable, high-speed broadband access and internal connectivity to classrooms across the country," the authors note in the report.

"As we move forward with the programmatic changes adopted in July, the need to modernize the program to transform connectivity in our classrooms, including closing connectivity and affordability gaps that persist in our most challenged areas, has never been more important," said Daniel A. Domenech, AASA's executive director. 



In all, 60 percent of surveyed districts said funding is their biggest challenge when it comes to meeting the Federal Communication Commission's short-term goal of 100 Mbps/1,000 students.

Infrastructure Survey, conducted with AASA and MDR, reveals that 58 percent of school districts said monthly recurring and ongoing expenses are their biggest barrier to connectivity.

In all, 60 percent of surveyed districts said funding is their biggest challenge when it comes to meeting the Federal Communication Commission's (FCC) short-term goal of 100 Mbps/1,000 students.

Of all the districts surveyed, just 9 percent said they have enough bandwidth to support online assessments and digital content.

Forty-five percent of school districts said they don't have the ability to deploy a one-to-one initiative, but according to the report, this is a 12 percent improvement from last year's survey.

"This survey boldly underscores that our nation has a funding and bandwidth



By Dennis Pierce
Special Projects Editor,
eSchool News



Broadband pilots could serve as models for other states

Arkansas, Virginia partner with EducationSuperHighway to design a roadmap for bringing broadband to every student

Arkansas and Virginia have teamed up with the San Francisco-based non-profit EducationSuperHighway to design a cost-effective plan for meeting President Obama's goal of ensuring broadband access for every student.

EducationSuperHighway's mission is to "close the K-12 digital divide and open the door to new learning and teaching opportunities" in the nation's schools, and it is surveying the available bandwidth in Arkansas and Virginia classrooms.

The group then will assess what broadband technologies are available in each state. Working with state and local education leaders and with service providers, EducationSuperHighway will form a plan for delivering high-speed internet to each state's schools in the most efficient way possible.

If these pilot projects are successful, they could become models for other states to follow, said Evan Marwell, chief executive officer of EducationSuperHighway.

President Obama's ConnectED initiative, announced last year, calls for 99 percent of American students to have broadband access in their classrooms by 2018. The initiative defines broadband

as at least 100 kilobits per second of bandwidth for every student.

Obama also directed the federal government to make better use of existing funds to get internet connectivity and educational technology into classrooms, and into the hands of teachers trained on its advantages. He called on businesses, states, districts, schools, and communities to support this vision.

To take an inventory of the current state of internet access in Arkansas and Virginia classrooms, EducationSuperHighway is analyzing E-rate requests for each of these state's schools, among other data.

With its new E-rate rules announced last month, the Federal Communications Commission has called for more transparency in E-rate data. School leaders and others will be able to review applicants' Item 21 funding requests online starting next year, which will make data collection easier, Marwell said.

The process is further along in Arkansas, which already collected this information at the state level—and looking at the Arkansas data has been eye-opening.

"Our common perception is that

Arkansas is behind the curve," Marwell said, "but that's wrong." More than half of Arkansas districts already have enough bandwidth to meet the president's ConnectED goal.

Yet, the state's contract supplying internet access to every school is "horribly inefficient," Marwell added. Arkansas spends up to \$15 million a year delivering bandwidth to every school through copper circuits.

EducationSuperHighway's analysis found the state was spending half its investment to achieve only 5 percent of its total bandwidth to students. The analysis revealed a key opportunity to deliver broadband to every Arkansas school through fiber-optic connections instead, Marwell said.

In Virginia, the data-collection phase is just getting underway. Marwell said officials hope to have the first set of information back this fall.

EducationSuperHighway is hoping to work with other states as well, beginning next spring. "We want to see involvement from the top" before partnering with other states, Marwell said, referring to support from state governors. 

Professional development trick-and-treat

As I edit this column, Halloween is a few days away and the EdTechTeacher iPad Summit Boston is a few weeks away.

Our first iPad Summit was held in Boston in November 2012, and one of the first magazine articles that came out about the event was “The iPads in



Tom Daccord

Education Conference That’s Not About iPads.” We loved the title. We will admit it; the title of the iPad Summit was a trick to get people who are interested in iPads to get really interested in great teaching and learning, which takes advantage of iPads.

Three years ago, we started seeing schools and districts making major investments in iPads, and we started hearing those same schools ask for help

The heart of great classrooms has always been caring, passionate adults asking compelling questions that motivate students to deeply understand important skills and ideas. But we also believe that it is increasingly difficult to prepare young people for a digital world without letting

them rehearse in mobile, online spaces. We believe that learning to work with new information is essential, and it is impossible to think about learning to work with diverse sources of information without asking students to learn how to efficiently navigate the internet. The end product of solving complex problems is often a performance—some of those performances are still written documents or mathematical computa-

As we approach the challenge of creating powerful learning environments with iPads, we use five bedrock principles to keep us grounded:

1. Technology must be in the service of learning. Without a clear vision for learning, technology is the engine of a ship without a compass.

2. Tablets are not computers. There are some things they do much better. There are some things they do much worse. Focus on exploiting what they do best.

3. iPads are mobile, flexible media production devices—not repositories of apps. Teachers need a vision of powerful student-owned learning, and a few basic apps for media production and sharing.

4. The iPad has a design bias toward consumption; great teaching has a design bias toward student production. To make the iPad support powerful learning, we work with educators on moving from consuming content to curation and creation.

5. Technology initiatives only work with broad support from community stakeholders: parents, teachers, students, and the community.

Your vision and principles may be different. They should be particular to the culture and the needs of the children that you serve in your community. Sometimes to help teachers think about these issues in a fun way, we’ll ask the question: “What does awesome look like?” If you are doing your best possible work, better than you have ever done before, what do the learners look like on the other end? When schools and educators answer this question, they’re building a worthwhile iPad program. **eSN**

Putting iPads in the service of learning, in our view, means putting technology in the service of preparing students to solve unstructured problems and communicate persuasively and with deep understanding. That’s our vision of what great schools do.

to support teachers as they incorporated these new devices into their classrooms. Those early adopters have been joined by other schools at an incredibly rapid pace, and for these last three years we have studied the practices of the best early adopters and have examined their successes and challenges.

One conclusion we’ve drawn is that there are no must-have apps for every classroom. Every conversation about technology needs to start with the question: “What do you want your kids to be able to do when they leave your classroom, your grade, your building, or your district? What do you care most about? How might technology help you do what you care most about even better?”

tions, but increasingly, students need to be able to perform their understanding in print and in person, with media and online. Even those students who are excited about a working life in the trades need to be prepared to sell their services in an online marketplace, to constantly update their skills in online learning settings, and to participate in a civic sphere conducted in a networked world.

Putting iPads in the service of learning, in our view, means putting technology in the service of preparing students to solve unstructured problems and communicate persuasively and with deep understanding. That’s our vision of what great schools do.

Portions of this column are excerpted from: iPads in the Classroom: From Consumption and Curation to Creativity by Tom Daccord and Justin Reich.

Tom Daccord is the director of EdTechTeacher (<http://edtechtteacher.org>), a professional learning organization.

When letter grades are insufficient, there's an app for that

Educators need a way to track traditionally hard-to-measure skills

In my eighth-grade physical computing class, I have a grade problem.

The things that are most important to me—things like creativity, curiosity, persistence, critical thinking—are nearly impossible to quantify.

I'm sure that I could come up with ways to measure these things indirectly and incorporate them into a mathematical formula, but I don't believe such a formula would be accurate. Many of these skills and traits are neither linear nor hierarchical. For example, many of us are persistent and curious, but not about everything and not all the time. Furthermore, there is substantial research that indicates that the minute we place extrinsic motivators like grades on something like creativity or critical thinking, we end up reducing the thing we are trying to incentivize. Daniel Pink's TED Talk about motivation is a great illustration of this.

The problem is that in my class, these things aren't simply nice extras that I use to bump up a kid's grade when she's on the bubble at the end of the term. They aren't window dressing around the real content. These skills and habits of mind *are* the real content. These are the traits around which I have designed the entire curriculum. Sure, my students learn about electronics, circuits, and programming, but my goal in designing the course was focused entirely on developing problem-solving skills that students could transfer to novel situations that might have nothing to do with electronics.

If my little curricular experiment is to be successful, I need a way to tell if my students are growing in these areas. I need to know if their experience in my class is really helping them grow. A



Trevor Shaw

class-participation column in my grade book simply isn't going to cut it. I needed a tool to capture and organize artifacts of student growth.

After a bit of searching, I found two apps that do these things really nicely. Chronicle and Confer are

both teacher note-taking and evaluation apps designed for the iPad. Confer is also available for Android. They are priced at \$20 and \$25 respectively, which seems very expensive for what seems like a fairly simple program. But perhaps the value of these tools lies in their simplicity and ease of use.

Both tools seem to have been designed to capture teacher notes on student progress in a workshop style course such as a reading/writing work-

Chronicle, however, also allows the capture of video. While I like the overall look and feel of Confer, my class projects can't always be captured in still images. It is for this reason that I elected to use Chronicle to capture student progress in the key areas of my course.

I'm hoping that, in the future, both tools improve some of the tracking capability to be a bit more granular. For example, I can tell in Chronicle which student I haven't written a note about in more than a few days. I wish, however, I could set triggers for particular kinds of notes. I wish for example, I could see a visual prompt for students who haven't gotten a collaboration note from me in over a week. I also wish they would add the ability for co-teachers to share a grade book and use separate devices to enter notes on students.

I do believe that this is a great start,

The things that are most important to me—things like creativity, curiosity, persistence, critical thinking—are nearly impossible to quantify.

shop. Each app lets the teacher add notes in particular categories to each student record or add a group note to the records of several students.

Perhaps most importantly, the system keeps track of when I last entered a note for a student, so I can be sure that I am recording notes on all of my students, not just the most vocal ones.

While the basic functions of both apps are very similar, there are a couple factors that distinguish them. Confer allows a teacher to create an unlimited number of note categories. Chronicle users are limited to five. Both apps allow teachers to use the iPad camera to capture pictures of student work. Only

however. Using a tool like Confer or Chronicle will make it much easier for me to monitor student growth in areas that often defy measurement. **eSN**

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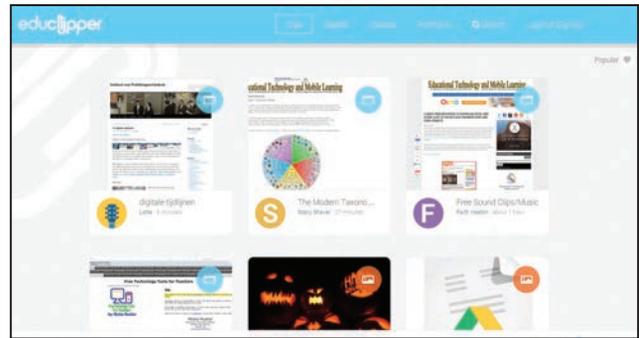
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eduClipper is born out of the educational need for teachers and students to have a better platform to explore, share, and contribute resources and materials to help enhance teaching and learning of both a formal and personal nature.

Founded by educator and educational technologist Adam Bellow, eduClipper aims to make it simple to help students and educators save time, build personal learning networks, and begin to shift the culture of assessment to be more holistic and include the wonderfully amazing work that students and teachers are creating in the classroom.

Using eduClipper's groups feature, teachers can differentiate instruction and send resources to a particular group of colleagues or students while providing others with different resources.

Groups of learners can collaborate on eduClipboards together to create authentic groupwork or allow user-interest or need-based collaborations.



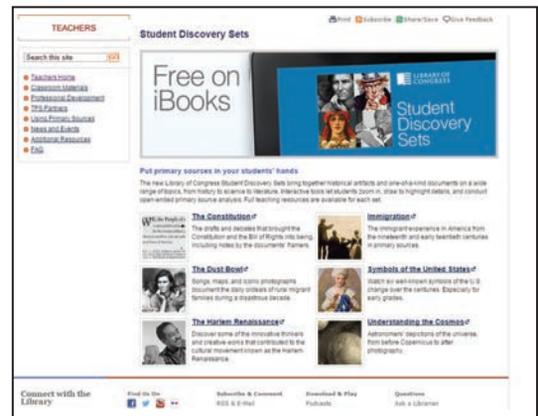
Interactive U.S. history series for iPads

<http://www.loc.gov/teachers/student-discovery-sets/>

The Library of Congress invites students everywhere to touch, draw on, and explore some of its most valuable treasures—all via a new set of free interactive eBooks for tablets.

The new Library of Congress Student Discovery Sets bring together historical artifacts and one-of-a-kind documents on a wide range of topics, from history to science to literature. Interactive tools let students zoom in for close examination, draw to highlight interesting details, and make notes about what they discover.

The first six Student Discovery Sets are available now for the iPad, and can be downloaded for free on iBooks. These sets cover the U.S. Constitution, Symbols of the United States, Immigration, the Dust Bowl, the Harlem Renaissance, and Understanding the Cosmos.



Help families learn creatively, together

<http://family.media.mit.edu/>

Technology pervades all aspects of students' lives, and young people are growing up playing, learning, and connecting with technology. However, parents, especially those with little to no background in technology, are often unsure what role they can play. These workshops leverage the learning dynamics that families already use in activities like literacy development and support families in using them in the context of computing, enabling parents and children to become more empowered learning partners.

Family Creative Learning, from the Massachusetts Institute of Technology Media Lab, is a workshop series that engages children and their parents to learn together—as designers and inventors—through the use of creative technologies. We designed the workshops to strengthen the social support and expertise of families with limited access to resources and experiences around computing.

A facilitator guide provides a basic framework to implement the five workshops of Family Creative Learning. It also includes our photo documentation and strategies to illustrate how we implemented these workshops across multiple sites in the Boston area.

This guide is for educators, community center staff, and volunteers interested in engaging young people and their families to become designers and inventors in their community.



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ACT Aspire is a distinctly different college and career readiness solution. It maps learner progress from grades three through high school on a vertical scale, anchored to the scoring system of the ACT. You'll know where your students are every step of the way along their path to college and career.

A tablet-based system for K-12

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Britannica® School develops K-12 students' 21st-century skills with thousands of searchable articles, multimedia, primary sources, maps, editor-recommended websites, games, world atlas, and how-to research tools. Daily updating by Britannica's editors makes

available the most current information beyond A to Z on one safe site—any time, any place, and on any device. Start a search at the Elementary, Middle, or High School level—then click to make an article easier or more challenging without changing the age-appropriate look. Other accessibility features include Lexile leveling, read-aloud, pop-up dictionary, font size changer, and language translations. Annual subscription pricing is based on enrollment.

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Copernicus Tech Tub and Tech Tub Carts

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Tech Tub™ is a cost-effective locking, charging, and syncing solution designed to support iPads, Chrome books, and other tablets. The system supports a "grow your technology" approach to purchasing. Tech Tubs are secure, highly portable, and lightweight, making them particularly classroom and student friendly.

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Jupiter iO All-in-One gradebook, LMS, analytics, and SIS solution, empowers online instruction and learning. The many features provide the ability to create online tests, lessons, homework calendars, assignment file lockers, discussion forums, surveys, essay annotation, peer reviews, critiques, digital portfolios, and more, all with the convenience of automatic grading and analytic reporting.

DreamBox Learning® Math

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DreamBox combines three essential elements to personalize and accelerate student success: Intelligent Adaptive Learning™, a rigorous K–8 mathematics curriculum, and a motivating environment. Our groundbreaking technology dynamically adapts and individualizes mathematics instruction in real time. As a result, students master key concepts, increase achievement, and experience long-lasting math confidence.

Epson's PowerLite launch

<http://www.epson.com/projectors>

Epson's PowerLite 570, 575W, 580, and 585W, ultra-short throw projectors designed for the connected K-12 classroom, offer a Moderator functionality that allows a network of up to 50 personal devices to connect to the projectors. Teachers can wirelessly control which personal devices are displayed, with up to four student screens shown simultaneously. The new projectors feature two HDMI ports, one with Mobile High-Definition Link support for connecting multiple digital devices, including mobile phones, tablets, and other portable devices, for enriched high-definition viewing capabilities. The new ultra-short throw PowerLite projectors minimize glare and shadow interference and deliver brightness and resolution options to accommodate a diverse range of classroom needs.

K-12 Digital Courses: Middlebury Interactive Languages

<http://middleburyinteractive.com>

Middlebury Interactive's K-12 online world language courses immerse students in language and culture through authentic materials, task-based activities, and videos featuring native speakers to teach essential 21st-century skills. Digital courses—developed by Ph.D.-level academics—are available in Spanish, French, Chinese, and German and feature flexible implementation options.

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TabPilot Classroom Tablet Management System

<http://www.tabpilot.com>

TabPilot is a cloud-based management and lock-down system for Android devices that puts teachers in control of entire sets of classroom tablets by managing apps, websites, and content. Students see only teacher-selected apps and are locked out of system settings. TabPilot FocalPoint is a secure browser add-on that locks students into selected web sites.

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Waterford Early Learning P-3

<http://www.waterford.org>

Waterford Institute is a nonprofit research center that creates personalized, cloud-based instruction through award-winning curriculum, content, and assessment for children in pre-K to third grade. As a nonprofit, Waterford is uniquely focused on providing accessibility, equity, and excellence for our youngest learners to position them for a lifetime of learning and success.

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