



# eSCHOOL NEWS

Technology News & Innovation in K-12 Education

## Schools in ESSA uncertainty

Under new administration, DeVos, what's going on with the ESSA?

By Meris Stansbury  
Editorial Director

Recently, Education Secretary Betsy DeVos told the Council of Chief State Schools Officers (CCSSO) that states should continue to move forward with their ESSA plans. However, accountability regulations may be significantly changed. What exactly does this mean for schools?



Child Left Behind Act (NCLB). Due to the rapid transition from NCLB to ESSA, it is important for educators and vendors to be  
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### The Difference between NCLB, ESSA and Common Core

In 2015, the Every Student Succeeds Act (ESSA) was implemented, replacing the No



Lessons learned from a virtual inclusion pilot **13**



When virtual class time is innovative, student engagement soars **15**



Looking inside classrooms can reveal surprising innovation **17**

## Personalized learning starts in libraries

By Meris Stansbury  
Editorial Director

With personalization a growing initiative in schools, the library may not be the first thing educators think of as a resource. However, according to Michelle Luhtala, library department chair at New Canaan High School, CT, and Jackie Whiting, librarian at New Canaan High School, the library  
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## Kindergarten Chromebooks?

When kindergarteners have devices, surprising things occur.

By Laura Ascione  
Managing Editor

Although even the youngest children are considered tech-savvy today, there exists a difference between a child who knows how to use a tablet to watch videos and a child who knows how to navigate a device for active learning.

The thought of giving 30 kindergarten students their own Chromebooks might be daunting. But for one classroom, the move yielded some surprising results for student engagement, learning progress, and for students with special needs.

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**2010**

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**2011-13**

Ranked #2 in Wall Street Journal's Next Big Thing list of the Top 50 Venture-Backed companies



**2012**

Made Business Insider's DIGITAL list of the 100 most valuable private tech companies



**2012**

Customers include Paul Hastings LLP's 18 international offices and Ashford and St. Peter's Hospital, the largest acute care provider in the world



**2013**

Reached over 10,000 customers, with products and services sold internationally

**2015**



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# 10 high-need education policy areas for 2017

As a new administration takes over, federal and state policymakers should keep these important policy areas in mind.

**By Laura Ascione**

Managing Editor

Competition for jobs is increasing thanks to an ever-growing global economy. Today's students are preparing for jobs that, in some cases, do not yet exist. In order to ensure students' college and career readiness, the K-12 and higher education systems must be strengthened, according to a policy paper from [New America](#), a non-partisan think tank.

Citing low student engagement, high dropout rates and gaping opportunity differences between high-income and low-income groups, New America's Education Policy program identified a list of **10 essential education policy actions** for the Trump administration, Congress, and state and local policymakers.

The education policy brief highlights actions for state leaders in particular, and encourages policymakers at that level to be aware of these 10 issues and look for opportunities to improve practice.

**1. Expand access to quality early learning.** Research consistently identifies early learning programs as essential to success in later life. States can support families with young children by improving access to child care and the quality of teaching and learning in those facilities. States that require school districts to offer full-day kindergarten and provide funding to help districts could be rewarded.

**2. Smooth transition points from pre-K through higher education and into the workforce.** States could develop professional learning systems that link early childhood teachers with teachers in early grades. They also might look into providing strong incentives for PreK-12 systems and higher-ed systems to align academic expectations and policies.

**3. Transform the preparation and ongoing development of educators.**



Promote a focus on meaningful professional learning throughout the educator pipeline, and promote educator preparation programs and in-service professional learning systems that prepare educators for the digital age.

**4. Align research and development to educational practice.** Make publicly-funded educational materials freely available through open use policies that allow users to view content, as well as download, copy, keep, analyze, and reuse it for any purpose.

**5. Build an infrastructure for supporting dual language learners.** Use grants from the Office of English Language Acquisition to support the creation of alternate career pathways that help multilingual paraprofessionals and teacher assistants become fully-licensed teachers.

**6. Improve access to and linkages between education and workforce data while protecting student privacy.** Improve data access and quality in higher education by collecting and releasing additional, more specific institutional data on graduation rates, loans, and student living expenses.

**7. Hold "bad actors" in the higher education system accountable.**

Overhaul the Education Department's college gatekeeping standards to keep unscrupulous schools out of federal student aid programs to begin with.

**8. Simplify and target financial aid to the students who need it most.** Improve federal loans by switching to interest-free federal loans with total cost of loan displayed up front, and eliminating Grad PLUS loans and adding an ability-to-repay metric to Parent PLUS loans.

**9. Repair the federal-state partnership in higher education.** Require colleges to enroll a minimum number of low-income students and charge all students no more than their official Expected Family Contribution, in exchange for federal funding from a new block grant program financed by repurposing poorly-targeted and ineffective higher education tax credits.

**10. Connect education and the labor market by moving beyond the "skills gap."** Provide more support for adult and non-traditional learners by expanding funding for, and access to, adult education and

English-as-a-Second-Language programs, particularly for immigrants and school dropouts. 

# What educators can learn about effective teaching from a Harvard prof

By Alan November

*[Editor's note: This post by Alan November, written exclusively for eSchool Media, is part of a series of upcoming articles by this notable education thought leader. Check online at [www.eschoolnews.com](http://www.eschoolnews.com) for the next must-read post!]*

Harvard professor David Malan has managed to pull off a neat trick: His Computer Science 50 course is the most popular course at both Harvard and Yale. By examining his success, we can learn some important lessons about effective teaching.

CS50 assumes no prior knowledge or skill in computer programming, yet it's extremely demanding. Despite its rigor, CS50 regularly attracts thousands of students each year. While some aspire to become software engineers, others enroll just to experience the course.

Why is Professor Malan's course so popular, even with students who don't plan a career in computer science—and even though it requires a lot of work? Here are three keys to Malan's effective teaching that I think all schools everywhere should apply, from K-12 schools to colleges and universities.

- Strengthen the social side of learning.
- Teach students to self-assess.
- Provide a public audience to inspire students to invent.

Imagine teaching a course with 800+ students at Harvard and another 400+ students at Yale with an extremely high level of rigor and creativity. The course is available for credit at either university, and anyone around the world can take a [noncredit version](#) at no cost through the open courseware platform edX.

My son, Dan, took the course. When he first signed up for CS50, it is fair to say he was not in the habit of choosing the most demanding courses on campus. But Dr. Malan's unique learning culture and sense of responsibility placed on the students helped Dan to discover a passion for "learning how to learn" and thinking about design—skills he can apply to manage his learning in any situation, from other courses to his professional growth. Two years later, he is still on fire—and he will graduate in May to pursue a career in computer science.

I was so intrigued by the impact CS50 had on my son that I started to explore Malan's keys to effective teaching that we can export to any educational setting. After many conversations with Professor Malan and Dan, I have identified at least three processes that we can apply across the curriculum at all grade levels.

## ***1. Learning is social, and students are hardwired to work together to solve problems.***

One of the aspects that makes his course unique is its culture. Malan pays as much attention to his students' social experience in the class as he does to their academic experience, so that his students feel like they are part of a learning community.

For instance, he organizes several events throughout the semester that bring students together, such as "hackathons" and weekly lunches every Friday on the Harvard campus. His teaching assistants also host "office hours" every Monday through Thursday night from 9 p.m. to midnight, where

students can gather over pizza to discuss problem sets or ask questions—and these nightly events routinely draw upwards of 300 students.

"I went to office hours four nights a week," Dan recalls. "That was the only way I could make it through the course."

When Dan would arrive, the TAs would ask how far he had gotten in that week's problem set and how confident he was in his work. Then, they would put him in a group with other students at his same comfort level. "There was never an issue finding a group that was at your pace," he says.

By making the learning fun and social, while not sacrificing rigor, Malan has found that his students give their best effort.

"We hope that by creating these somewhat special and unusual experiences for students, we can expect more from them," he explains. "If we are perceived as meeting them halfway, we hope they will meet us halfway as well and will get as much out of the course as they can."

Making the learning a shared, social experience not only motivates students to do their best work; it also helps them learn from each other. And when students learn from their peers, they're apt to learn more effectively.

There is a phenomenon known as the "curse of knowledge," in which teachers who have thorough knowledge of a subject sometimes have trouble reaching students who are new to the material, because they've forgotten what it's like to be in that position. Students, on

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**Learn from the best innovations in education!** Join education thought leader Alan November in Boston July 26-28 for his 2017 Building Learning Communities edtech conference, where hundreds of K-12 and higher-education leaders from around the globe will gather to discuss the world's most successful innovations in education.

## Teaching

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the other hand, are more likely to empathize or relate to their peers who are struggling.

Dan can attest to the enormous value of the student community that Malan has crafted. Dan found the highly social office hours especially helpful, because they gave him a chance to discuss the problem sets with his peers in the same situation—and inevitably he would see the topic in a fresh new light.

*How many opportunities are there in schools to craft various social settings for students to come together outside of class to work with peers? Many schools are now converting libraries—where students traditionally cannot raise their voice—into learning commons where there are spirited debates among students as they study together.*

### 2. Malan requires students how to self-assess their work.

As I watched my son become increasingly focused, organized, and passionate about his CS50 experience, I had to ask him, “Is there anything Professor Malan is doing for you that other teachers also could have done to help you become a much better student?” His answer was almost too simple: “He taught me how to assess my own work.”

Research clearly shows the high value of self-assessment for students, and yet Dan says he was never really asked to reflect on his own work until he took Malan’s course. We do not need fancy technology to do this. What we need to do is empower our students to take more responsibility to reflect on the quality of their own work.

Researcher John Hattie and his team have pored over nearly 1,200 educational studies from around the world to identify the factors that most strongly correlate with student success. Of the 195 independent variables he has identified, **self-assessment ranks third on his list** in terms of importance—and it’s the single most effective learning strategy that students can use for themselves.

(The first two on the list are teacher behaviors.)

Teaching students how to self-assess their work can lead to interdependent learners, instead of being solely dependent upon the teacher for feedback. By thinking about the quality of their own work, students take more responsibility for quality and are more likely to try to improve.

Dan explained: “Before submitting our homework, we had to answer questions about how we thought we did, how much time we spent on it, and so on. At the end of the semester, we were asked: What grade do you think you deserve, and why? What grade do you think you’ll receive?”

Malan says he began this practice as a “sanity check”: He wanted to see how closely students’ expectations aligned with their actual performance in the class.

“We didn’t want to create an environment where students left feeling like they underperformed or disappointed themselves,” he says. “We’d much prefer that every student end up feeling significantly accomplished, regardless of their prior knowledge or background in the subject.”

Malan has expanded this practice to include additional opportunities for students to reflect on their performance. For instance, he has introduced what he calls “postmortems” into the course. These are video breakdowns in which a teaching assistant walks students through a solution to the problem, so they can see how else they might have solved it—and how they might go about improving their own code.

“In an ideal world, I dream of a scenario where we have enough time for students to iterate on their work, see what they could be doing better, and actually resubmit the work and appreciate the delta between version one and version two,” he says. While the compressed timeframe for his course doesn’t allow for this practice, he has tried to provide resources for students to at least reflect on their work.

*We have unlimited opportunities to help students reflect on their own work.*

*One simple strategy is to ask students to highlight their own writing with various colors in order to reflect on the strengths and weaknesses of their work.*

### 3. Fairs replace finals: Students become problem designers.

My own experience as a teacher is that the norm for students is to want clear guidelines for “What do I need to do to get an A?” In some ways, the traditional assessment system that we have designed to motivate students to excel actually acts as a break or a ceiling and has the impact of preventing students from doing their best work.

Professor Malan highly values the imagination of his students to design their own problems. But how do you balance expectations of covering the curriculum without clear rubrics for assessment? So I asked him: “What evidence do you have your students are meeting expectations? And he gave a mind-bending answer: When students go beyond what I’ve taught them in my class.

He says his proudest moment came in his second year of teaching the course. Drawing inspiration from middle school science fairs, he arranged the first of what would become a regular event: a “CS50 Fair” at the end of the course, in which students came together to celebrate the work they had done—and much of this work was truly amazing. “It was so incredibly gratifying,” he says.

As Dan explains: “You got to do whatever you wanted for your final project. And there were so many kinds of projects displayed at the fair that we had never talked about in class. I remember someone made a social media calendar for the sailing team, and someone else made a Nintendo simulator. We never talked about programming with hardware in the class. So you’ve got all these people doing things that we’d never talked about, and they went out of their way to learn something brand new—even though they could have earned full marks by doing something that had already been covered dur-

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# New buzzphrase for IT has massive implications for personalized learning

A new era of personalized learning means IT and edtech leaders must focus on digital cohesion

By Tom Boehmer

Research has shown repeatedly that humans learn more rapidly and deeply from experiences, rather than from a lecture or a book. However, many institutions struggle with the resources needed to meet this new mandate for personalized instruction, thanks to lack of funding and widespread teacher shortages.

The good news is, technologies like cloud, big data, mobility, and augmented and virtual reality are converging to enable unprecedented levels of personalization in education. Much like the introduction of PCs and internet connectivity into classrooms, these technologies are helping institutions do more with less, and are accelerating and improving the learning experience.

The convergence of these technologies is leading to “Digital Cohesion,” a future in which technology anticipates the needs of users and seamlessly delivers services on demand.

## Digital Cohesion in Real Life

Imagine a few potential scenarios: while visiting a market with his parents, a child uses augmented reality glasses to play a game where the object is to spend \$50 and buy a balanced meal for the family. Or, while walking through a city, a tourist gets real-time history lessons with video of the historical characters overlaying the real-life scene. A tour of Ellis Island, for example, comes to life by “observing” immigrants who have just completed the journey across the Atlantic. A visit to the Great Wall of China becomes more powerful with a simulation of the wall’s construction. The possibilities are infinite.

The implications for education will be profound. Classrooms will no longer be the main learning vehicle in the forthcoming Digital Cohesion era; the

student’s own life and learning style will be. Technology will transform everyday interactions with the world into real-time learning experiences. Augmented reality technology combined with visual recognition, sensors and learning services will deliver real-life “classes” that present math, history, language and other lessons in real-time based on the student’s current location and context.

## Digital Cohesion Considerations and Challenges

There are many considerations to address and challenges to overcome before this vision can be realized, however. Educational organizations face many challenges when embracing new technologies, including budgets, legacy systems and the fast pace at which education technology evolves.

Security and access are also major barriers. It stands to reason that as digital proliferation continues, the opportunities for malicious acts will increase. Educational organizations store a lot of personal information about their staff and students, making them prime targets for attackers. Additionally, as more students and staff connect to the education network, they widen the network’s attack surface.

## Mitigating Risks

To mitigate these risks, educational institutions will need to adopt a different approach to security, as well as assess and in many cases upgrade their network infrastructure. The network establishes connections to education applications in the cloud. An automated, scalable network will anticipate traffic needs, ensuring access for all users.

From a security perspective, organiza-



tions can no longer rely on the places in the network where the firewalls happen to be in order to detect and stop attacks. Every network element must provide insight into traffic patterns and participate in enhancing the security posture of a network. By using the network as the security infrastructure, organizations can identify and quarantine potential infection points close to their source, protecting their users and data.

In short: the network is the backbone of education technology and will be critical to realizing a future of anticipatory, personalized learning through digital cohesion.

The forthcoming Digital Cohesion era will unleash possibilities we are only now beginning to imagine. In addition to laying the groundwork for advancements in health and medicine, business and government, Digital Cohesion will help ensure that every child has access to a high-quality, engaging and personalized education.

It won’t be an easy journey, but the results will be well worth the effort. We are on the precipice of incredible progress, making this a very, very exciting time to be both a student and an educator. 

*Tom Boehmer is the Senior Business Development Manager for Juniper Networks.*

## ESSA

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aware of the key differences between the two. Steve Rowley, CEO of Acumen Partners, and with Michael Campbell, vice president of Acumen Partners, presented the latest updates on ESSA in the webinar, **“Making Sense of ESSA: What You Need to Know,”** co-hosted by [edWeb.net](#) and [MCH Strategic Data](#).

To start, Rowley addressed any confusion regarding the Common Core State Standards. ESSA did not replace the Common Core, and although the states are required to have standards, it prohibits the Department of Education from forcing the adoption of a particular set of standards. “This is a question that we receive a lot,” he said. Since the Common Core is not a federal initiative, it is unaffected by ESSA.

A key characteristic of ESSA is that the federal government has acknowledged that many decisions belong at the state level—something the Trump administration supports.

### Accountability Plans

States will now be responsible for accountability, and each state will have to submit their own accountability plan to be peer reviewed.

Under the Obama Administration’s accountability template, accountability systems (supported by tracking and data technology) involve four primary indicators: proficiency on state tests; English language proficiency; another academic factor that can be broken out by subgroup; and a “wild card” item that each state can choose within certain guidelines.

States can also set additional benchmarks; for example, these may allow for certain high school benchmarks which would not apply to elementary or middle schools. Each state must be aware of how to accurately track their benchmarks.

DeVos has kept in place the Obama administration’s timeline for submitting the plans, which includes one early bird deadline on April 3 and one later dead-

line on September 18.

As of press time, [Education Week reports](#) that 17 states plus the District of Columbia have told the department that they are shooting to have their plans ready in time for the April date.

### But...Accountability could Change

Though DeVos says states should move along with their ESSA plans, the Obama administration’s accountability template part of ESSA is currently under review by DeVos and Congress.

According to DeVos, she and her team are reviewing the Obama administration’s ESSA accountability template because some measures may not be “absolutely necessary.” The new department may release a revised or completely re-written template for states by mid-March this year.

Another potential change is that DeVos’ department may also allow a state or group of states to work together to write their own template through the CCSSO.

If DeVos does allow a state or group of states to devise their own accountability template, it may prove difficult for peer reviewers to determine quality and manage expectations due to a lack of uniformity. However, DeVos and her department could also change the guidelines for peer review—something her camp has not yet mentioned.

### What can Schools and Educators Do?

Rowley still says any school interested in how the ESSA may affect them should become very familiar with the current plan.

While there is no designated area for locating each state accountability plan, Rowley recommends becoming familiar with your state education agency’s website and keeping a lookout for announcements of things like requests for comment and draft plans.

Outside of state agency websites, keeping abreast of policy news out of Washington, can help you ask the right questions of your state leaders.

### About the Presenters

With more than 20 years of experience in business management, Steve Rowley, CEO of Acumen Partners, has had an illustrious career at the crossroads of business and education. Prior to igniting the flame that grew to be Acumen Partners in 2012, Steve engaged in principal leadership positions in leading organizations including Pearson, McGraw Hill, Master Teacher, Houghton Mifflin Harcourt, and EdLights. His knowledge and experience in the education sector are unrivalled. He utilizes his experience to decode and resolve problem areas, meet the challenges of an ever-changing market and empower others irrespective of the industry. Prior to embarking on his mission to help his clients realize their own success through work at Acumen, and other educational solution companies, Steve obtained his B.S. in economics from Brigham Young University in 1994.

Michael Campbell’s passion for improving education through technology and digital literacy has facilitated private and not-for-profit organizations solutions support for the learning community. For over 20 years, Michael has held executive, marketing management and sales positions spanning the K-12, higher education, corporate training, technology and publishing industries. Currently Michael is the vice president of client development at Acumen Partners. Michael has held leadership positions in sales and marketing with Learning Bird, Forward Thinking EDU, Follett Software Company, ETA hand2mind, Pearson, Cengage and McGraw-Hill Higher Education.

### Join the Community

**EdFocus: The EdMarketing Community** is a free professional learning community (PLC).

The recording of the webinar can be viewed by anyone [here](#). 

*[Editor’s note: This piece is original content produced by edWeb.net. View more edWeb.net events [here](#).]*

# How 4 visionary schools are venturing into a new mixed reality

Mixed reality combines virtual and augmented realities for enhanced learning experiences—and institutions are already implementing it

**By Laura Ascione**  
Managing Editor

A new collaboration between Pearson and Microsoft is using a self-contained holographic computer to develop “mixed reality” learning experiences for students.

The collaboration will explore how mixed reality can help solve real challenges in areas of learning, ranging from online tutoring and coaching, nursing education, and engineering to construction and surveyor training.

Microsoft says its **HoloLens** is the world’s first self-contained holographic computer. Pearson is developing and piloting mixed reality content at colleges, universities and secondary schools in the United States and around the world.

HoloLens leverages virtual reality and augmented reality to create a new reality – mixed reality. With virtual reality, the user is immersed in a simulated world. Augmented reality overlays digital information on top of the real world. Mixed reality merges the virtual and physical worlds to create a new reality whereby the two can coexist and interact.

By understanding the user’s environment, mixed reality enables holograms to look and sound like they are part of that world. This means learning content can be developed for HoloLens that provides students with real world experiences, allowing them to build proficiency, develop confidence, explore and learn.

To develop the content for this pilot, Pearson will use Microsoft’s holographic video capture capability, filming actors to simulate patients with various health concerns and then transferring that video into holograms for the student nurses to experience in a clinical



setting. When student nurses participate in the simulations using HoloLens, they will have a real world experience diagnosing patients, building the confidence and competence that they will need in their careers. Here is how 4 schools plan to integrate mixed reality:

**Texas Tech University Health Sciences Center** in Lubbock and **San Diego State University** are both part of a Pearson mixed reality pilot aimed at leveraging mixed reality to solve challenges in nursing education. Today, many nursing programs hire and train actors to simulate scenarios nurses will face in the real world — a process that is hard to standardize and even harder to replicate. As part of the mixed reality pilot, faculty at the two universities’ schools of nursing are collaborating with Pearson to improve the value and efficacy of the types of simulations in which students participate.

At **Bryn Mawr College**, a women’s liberal arts college in Pennsylvania, faculty, students, and staff are exploring various educational applications for the HoloLens mixed reality devices. They are testing Skype for HoloLens to connect students with tutors in Pearson’s

24/7 online tutoring service, Smarthinking. If successful, this solution could provide struggling students with richer, more personalized, just-in-time support from expert tutors as if they were sitting side-by-side.

Bryn Mawr also will experiment with using holograms and mixed reality to explore 3D content and concepts in a number of academic disciplines, including physics, biology, and archaeology.

## Not Just Higher Education

Pearson’s work with mixed reality and HoloLens isn’t limited to higher education. The company is in the early stages of evaluating the impact of holographic learning at the late grammar school stage.

At **Canberra Grammar School in Australia**, Pearson is working with teachers in a variety of disciplines to develop holograms for use in their classrooms. The University of Canberra is partnering with Pearson to provide support for the project and evaluate the impact these holograms have on teaching and learning.

“We are thrilled to partner with Pearson to expand the curriculum available to students to learn through the power of holograms on Microsoft HoloLens,” said Lorraine Bardeen, general manager for Microsoft Windows and HoloLens Experiences. “Complex systems are more easily understood in 3D and learning through holographic computing in mixed reality provides students a higher level of understanding and experience that they can then bring into their real-world interactions. HoloLens gives students access to things they may never be able to see in real life – historical artifacts, natural history, hands on training, and a connection to the broader world.” 

# Is Betsy DeVos good or bad for edtech?

Will Trump's Education Secretary pick be a boon for edtech advocacy and implementation? And if so, will it only benefit some students?

**By Meris Stansbury**  
Editorial Director

School choice, support of teachers unions, and her record in Michigan have been the leading controversial talking points in education when it comes to Donald Trump's pick for Education Secretary, Betsy DeVos. But with a background in technology investment, could DeVos be a leader in the support of successfully-implemented edtech?

## Here's What We Know

### She invests in technology

According to *Philanthropy magazine* in spring 2013, DeVos serves as chairman of the Windquest Group—a privately held, multi-company operating group that invests in technology, manufacturing, and clean energy—which she founded with her husband in 1989. The magazine also identified DeVos as “a member of several national and local boards, including the DeVos Institute for Arts Management at the Kennedy Center, Mars Hill Bible Church, Kids Hope U.S.A., and the Foundation for Excellence in Education.”

### She advocates for edtech, specifically

In a [2013 interview with Philanthropy Roundtable](#), DeVos said when it comes to education reform strategies, she is most focused on educational choice. “But, thinking more broadly, what we are trying to do is tear down the mindset that assigns students to a school based solely on the zip code of their family's home. We advocate instead for as much freedom as possible,” she said. “One long-term trend that's working in our favor is technology. It seems to me that, in the internet age, the tendency to equate ‘education’ with ‘specific school buildings’ is going to be greatly diminished. Within the right framework of legislation, that free-

dom will ultimately be healthy for the education of our kids.”

### She knows edtech has the power to enhance learning

“What's best for kids seems to be at the center of DeVos' philanthropic, public speaking and political efforts, both in Michigan and in other states,” writes the New Hampshire Department of Education's [ET News](#). “And she may be open to ways that technology could help kids.” ET News also notes that John Bailey, who worked with DeVos as the vice president of policy at the non-profit [ExcelinEd](#), otherwise known as the Foundation For Excellence in Education, said that “she was a great board member at ExcelinEd. She is passionate about kids and will always put kids needs first. She expressed deep interest in digital learning and how it could expand opportunities for kids.”

ExcelinEd—a reform group headed by former Florida Gov. Jeb Bush—states in its Reform Agenda: “Technology can revolutionize education and help ensure no student is bored or left behind. The Foundation supports the use of technology to offer students access to a high-quality, customized education and empower teachers to help their students succeed.”

### Her charter school uses edtech

According to [Fox News](#), DeVos and her husband support the West Michigan Aviation Academy, a public charter school they founded in Grand Rapids, through the Dick and Betsy DeVos Family Foundation. The school uses personalized learning facilities, including a separate computer science program and instruction in robotics. It even has a computer-aided drafting and design course.

## Here's What We Don't Know

### Will her hires be edtech advocates?

If the Senate confirms DeVos as the new education secretary, she would be in a position to hire the next director of the Office of Educational Technology along with other key department leaders.

### Will she support already-in-place edtech initiatives?

For example, almost 3,000 school superintendents have already signed up for the [Future Ready Schools](#) initiative, which helps school district leaders plan and implement personalized edtech learning strategies to benefit students. For Future Ready Schools, the Education Department worked with the national policy and advocacy organization the [Alliance for Excellent Education](#). Sara Hall, executive director of that program at the Alliance, told ET News: “The promise of technology is critical to unleashing the potential within America's education system... We look forward to learning more about Mrs. DeVos' plans to harness the potential of digital learning for America's students, particularly those in underserved communities.”

### Will her support of school choice hinder edtech equality?

One of the benefits of edtech can be to help close the equity divide rampant among students and their families today. Public schools that fund well-implemented edtech initiatives for learning not only help to engage students in their learning, but provide tools to help them succeed in technology-based and digital literacy-supported skills for the future.

Yet, the argument against school choice is that students within the public school system will not get the same opportunities as students attending charter schools. Funding and access to better teachers and resources will be unfairly tipped toward charter schools. If this argument has merit, will only some schools see the benefit of having DeVos as an edtech advocate?

eSN

# Should teachers use business tactics for happier classrooms?

Applying 7 actions gleaned from successful business practices could help students and teachers excel in the classroom

**By Laura Ascione**  
Managing Editor

In recent years, school leaders have debated what, if anything, schools can glean from the way businesses are run. Should schools be managed like business organizations? And to what extent?

Now, three educator-researchers are **sharing their findings** on the topic as they wonder if classroom teachers can use successful, proven business strategies to run their classrooms better and increase both student happiness and engagement.

Kelly Kosuga at Alpha Public Schools, Rebecca Weissman and Linda Rogers at Redwood Heights Elementary School, and the advisory team at Khan Lab School, identified highly-regarded business organizations and identified strategies that successful managers in those organizations use to create positive cultures and productivity.

Three common strategies emerged: empowering teams and avoiding micro-management, being great coaches, and emphasizing accountability.

The educators set out during the spring 2016 semester to figure out how those three strategies translate to the classroom. Each educator used different approaches in their research.

“If empowering teams, serving as good coaches, and emphasizing accountability are top principles for successful managers in ‘best places to work’ environments, then similar principles could work for teachers tasked with motivating and guiding students,” said Heather Staker, an adjunct researcher for the Clayton Christensen Institute, in a playbook illustrating the educators’ findings. “Furthermore, many students will one day look for jobs in workplaces that embrace these management principles. Classrooms



would do well to prepare students by resembling future workplaces more intentionally.”

Turning theory into practice isn’t always easy. Each teacher used different approaches to simulate successful business practices in classrooms, but despite those different approaches, the educators were able to identify seven common actions to turn those principles into practice:

- 1. Teach mindsets around agency, creativity, growth, and passion for learning**
- 2. Release control and offer content and resources that students are free to use without direct instruction**
- 3. Encourage teaming, including peer-to-peer learning and team-based collaboration**
- 4. Give feedback so students receive personal and actionable responses**
- 5. Build relationships of trust and show interest and concern in students as individuals**
- 6. Help students hold themselves accountable**
- 7. Hold yourself, as an educator, accountable**

For each of the seven steps, the playbook offers highly-detailed descriptions of what these mindsets and goals look like in action, along with examples and best practices from respected educators and those in the business sector.

After the pilots, the educators all noted that one-on-one interaction between teachers and students served as one of the most effective ways for teachers to apply the new business management principles in the classroom.

Weekly 30-minute one-on-one sessions “Are powerful structures to build relationships between students and advisers, keep students focused on and accountable for reaching goals, and give academic, project, and mindset feedback,” according to the playbook.

This, the playbook notes, has important implications for personalized learning. It also offers an opportunity for school leaders to invest in technology that frees up teachers’ time so they can focus more on personalization for students. 

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## Results

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“We had surprising outcomes from students with special needs,” said Jamie Morgan, an elementary school teacher in the Wichita Falls ISD in Texas. In her classroom, she had students with ADHD, ODD, autism, visual disabilities, intellectual delays, and gifted and talented students. “Chromebooks made it really, really easy to differentiate instruction—I can’t imagine doing the differentiation that needed to be done without having the Chromebooks,” she said.

Because her class from the previous year was high-achieving, no one expected this new class to achieve the same test scores. And although Morgan’s new class entered with “scary” test scores, by the end of the year, their test scores surpassed the high scores of her previous class. Much of that achievement is due to the Chromebooks, Morgan said.

“That was with Chromebooks in every kid’s hand, all year long,” she said. “We used those Chromebooks every single day, all day long.”

Morgan began the Chromebook initiative by hosting a “Meet the Chromebooks” information night for her kindergarten parents. Parents filled out Google Forms with student information and also used the Forms tool to sign up for parent-teacher conferences (Morgan’s tip: Use Google’s Choice Eliminator so that time slots or other options disappear as soon as a parent selects that option). Morgan also uses **autoCrat**, a Google add-on, to take data from spreadsheets and merge it into documents.

As the year progressed, Morgan said the kindergarten team discovered a number of tools and strategies that helped students best use the Chromebooks to enhance their learning. Students’ Google Passwords were written on their name tags and each student had their own Google account.

“Let kids explore the Chromebooks,” she said. “Don’t be afraid to let them make mistakes—they’re not going to mess something up that can’t be fixed.”

Following is a list of some of the tools Morgan and her fellow educators used:

### Google Classroom

“I know it seems kind of crazy to attempt Google Classroom with kindergartners, but when we started it mid-year, we realized we wished we’d started it sooner,” Morgan said. Google Classroom let Morgan push assignments to her students while also giving them more control over their work—something educators hadn’t given the young students enough credit for, she added.

#### Ok Google

“The thing we found most beneficial of anything was having Ok Google,” Morgan said. “The thing that helped our kids the most was Ok Google.” All users have to do is click on the user icon at the bottom right of the Chromebook, select “Settings,” and click to enable.



Because kindergarten students are learning to read and reading levels can vary widely, Ok Google works for everyone because it takes voice commands. It also helps students with their speech, Morgan added. “The determination you saw on their tiny little faces was just remarkable,” she said.

#### Google Tone

Morgan used Google Tone to send sound-activated clickable pop-up links to students’ Chromebooks at the same time.

#### Google Share to Classroom

Using this extension, Morgan could instantly push websites to her students’ Chromebooks.

#### Google Slides

Google Slides really allowed students to take ownership of their learning and projects, Morgan said. She used slides to create alphabet and reading journals, and students soon became adept at changing their themes, font and colors. They used Ok Google to find Google images of objects beginning with each letter of the alphabet.

Because many of her students lacked strong math skills, Morgan used Google Slides to create manipulatives and simple math problems to help students get back on track. Students used Google Classroom’s “turn in” button to send their assignment to Morgan, who graded it and sent it back.

#### Scrcastify

Scrcastify lets users record their screen, camera, microphone, and anything else that happens on their computer screen. “If you’re going to be absent and you really want to teach something, use Scrcastify and record the whole lesson. All students have to do is hit play,” Morgan said. “If you need to give an oral assessment to 5 different kids about 5 different things, you can record those different things and put all the students on different devices. We all know how much time assessments take.”

#### Seesaw

“If you aren’t using Seesaw now, you have to,” Morgan said. Seesaw lets students create digital portfolios and share content with teachers and parents. For example, when Morgan’s class learned about the butterfly lifecycle, students created videos and uploaded them to Seesaw, then posted QR codes in the hallway that brought up the corresponding videos.

Chromebooks also offer many accessibility features, including a screen magnifier, and on-screen keyboard if students have trouble manipulating keys or the touch pad with fingers, a large cursor, a high contrast mode, and more. All of those featured are located under accessibility settings in order to help students if they have low vision, delayed fine motor skills, or other needs.



# Virtual inclusion helps this district commit to all students—no matter what

The eSchool Media and Xirrus Innovate to Educate Grand Prize Winner offers lessons learned from a virtual inclusion pilot

**By Laura Ascione**  
Managing Editor, Content Services

Gone are the days of one-size-fits-all education. Today, forward-thinking school leaders know that leveraging powerful learning technology can help all students excel and learn to work collaboratively with peers—even if that student is homebound due to chronic illness.

In Maryland's Anne Arundel County Public Schools (AACPS), a team of educators worked to secure telepresence robots for sick and homebound students after seeing the robots demonstrated at a conference. By turning to virtual inclusion, they hoped homebound students would feel more engaged in both their learning and their social relationships at school.

Traditionally, sick and homebound students in AACPS learn independently with the help of a home and hospital teacher, who meets with them approximately six hours a week. But this can be lonely and isolating, because students don't have the opportunity to talk and collaborate with their classmates. They also can't participate in extracurricular activities such as clubs.

This is where the Double robot from Double Robotics became invaluable for a high school student battling cancer, AACPS educators said.

"Using the robot allows a student to interact with their classmates and be included in activities that learning in isolation at home cannot provide," said Stephanie Kelly, the district's senior manager for instructional technology.

And because the robot helps students interact with peers, it benefits their mental and emotional well-being and makes the healing process less isolated.

"Not being able to come to class, going through treatment, and having to

be in quarantine is a challenging and lonely process," Kelly said. "With the help of a robot, the student can engage with their class through their computer. Whether they are at home or in the hospital, they can participate with their teacher and classmates and feel a part of the school environment."

## Piloting the robot

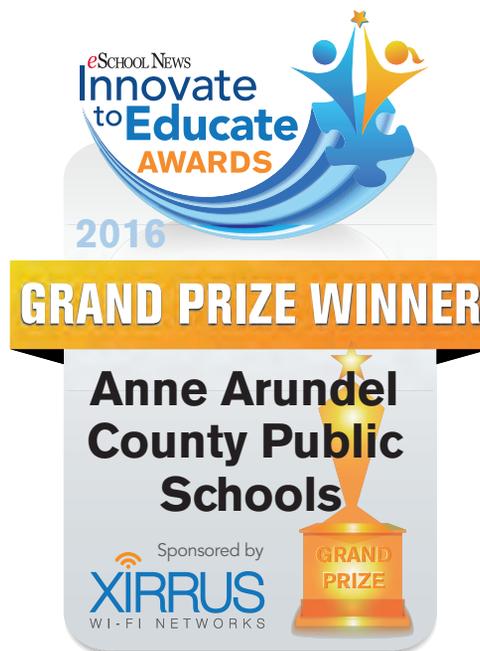
Along with Mary Tillar, the district's assistant superintendent for Advanced Studies and Programs Kelly attended a state-level meeting for assistant superintendents and watched as robotics company Double Robotics demonstrated how the company's telepresence robot was piloted to help homebound students have a more personalized distance learning experience.

The robot features a rolling base with a tablet on top, secured to a middle part that the user can move up or down.

Kelly knew the robot could change learning experiences for AACPS, and she asked to take one of the robots back to the district with her that day. After a few phone calls, the company made it happen.

Kelly and Patrick Malone, an instructional technology online specialist, took the robot to Shady Side Elementary School to pilot it with a fifth-grade student who needed an elevated mathematics program. The student could not physically attend a sixth-grade math class and travel between the middle school and the elementary school for one learning period each day—but the robot made it possible, and the first pilot was a success.

Next, an educator in Kelly's division had a knee operation and was unable to attend a professional development opportunity in person. Once again, the



robot came to the rescue, and the educator attended the all-day meeting using the robot's platform.

Kelly and Malone reached out to Colleen Childs, who manages home and hospital teaching for AACPS, to ask Childs which students might want to use the robot. Childs pointed them to Old Mill High School, and after sitting down with Principal James Todd to address concerns about logistics and teacher training, the plan was set in motion to connect homebound student Peter Jauschnegg with the robot.

"Peter was at Johns Hopkins Hospital for a three-month stay at that time, and he jumped on this very quickly when we were asked if we would be interested," said Kathleen Jauschnegg, Peter's mother.

## Marvin's debut

Malone gathered Patrick's teachers and school counselors for training to get them comfortable speaking to and teaching in front of the robot. They developed a deployment plan to address concerns such as minute schedule adjustments that

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## Virtual Inclusion

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would let Peter move the robot through the hallways when they were least crowded, along with elevator access to travel to classes on different floors.

They also wanted the robot to have a bit of personality. “I asked Peter to name the robot—it was going to be his,” Malone said.

“I named it Marvin, after the robot from *The Hitchhiker’s Guide to the Galaxy*,” Peter said. “It’s a funny character, so I figured it’d be the right choice.”

The name stuck. “Everyone refers to

The full implementation went off without a hitch.

“The process went very well because the teachers he had were excellent teachers,” Malone said. “That’s one thing Old Mill has a reputation for—I’ve worked with some of his teachers and they were right on board with it. They didn’t have to modify things too much.”

Peter’s friends also helped ensure the robot’s success. For instance, using the elevator in the older school building caused the robot to lose wireless connectivity, so one of Peter’s friends carried the robot up the steps to maintain its connection.

school math class,” Malone said. “Network security was tested to ensure that security measures from Double Robotics were compatible with the district’s own measures. As far as Peter going through the hallways, there really wasn’t ever an issue—the robot can run on as little as an LTE signal. We had it fully connected to the wireless network. With any wireless technology, unless you have wireless boosters and transmitters everywhere, there will be some dead spots, particularly in a building constructed in the 1970s with more cinderblock than you can imagine.”

“We really want to thank AACPS,” Kathleen said. “This made a huge difference—Peter will graduate on time. And sometimes, certain courses weren’t available online, and this way, Peter was able to keep up with certain Advanced Placement and Honors courses.”

### Supporting students’ social needs

Peter’s mother said the robot did wonders for Peter’s desire to see his friends.

“It was so cool using it,” Peter said. “Even more, I was just looking forward to being back in class with my friends and having social interaction while still being in the protected environment of my home. At the time, because I had just received a bone marrow transplant, I had the immune system of a newborn baby. I could see maybe one friend at a time and I couldn’t go into big crowds.”

“Peter is a very social kid, and one of the problems we had due to his illness, which was over roughly a 3-year period, was that he felt, and was, isolated. With Marvin, that changed,” Jauschnegg said. “The kids and the teachers started to see Marvin as just Peter. They forgot about the robot and just interacted with Peter. It was amazing, because he enjoyed going to school. When he was enrolled in online learning, it wasn’t quite the same experience.”

“Two or three weeks into it, Kathleen told me that since Peter had been using Marvin, she couldn’t remember the last time he laughed or smiled as much,” Malone said. “When kids have the abil-

**Virtual Inclusion, page 15**



“Using the robot allows a student to interact with their classmates and be included in activities that learning in isolation at home cannot provide,” said Stephanie Kelly, the district’s senior manager for instructional technology.

the robot as Marvin,” Malone said.

Next came a dry run through a typical day. Malone went to the Jauschnegg home to help Peter become familiar with the robot’s controls and take the robot on a “driving test” through the district’s staff development center.

“Peter’s a pretty big gamer, and he understood the first-person environment really well,” Malone said. “He picked it up right away.”

The infrastructure to support the robot already existed, Malone said. AACPS was already working to upgrade its infrastructure, and by the time Peter began using the robot, all of the district’s high schools were on a fiber optic network with 10 gig speed into each school.

“We tested the infrastructure and wireless with the elementary school student who used a robot for the middle

## Virtual Inclusion

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ity to work together, they learn better. When they have the opportunity to interact, they benefit.”

Because the robot is mobile, students aren’t restricted from group collaboration like they might be with a traditional and less flexible video conference.

“I could still move around and join a group. If I couldn’t see the screen from a certain position, I could move the robot,” he said. “Another featured I used quite a bit is the ability to change the robot’s height. I’d keep it at the low height, and in order to ‘raise my hand’ in class, I’d raise its height.”

The mobility also makes for a more traditional high school experience.

“Moving from class to class gives a sense of normalcy to things,” Malone said.

Before his illness rendered him homebound, Peter worked on the school yearbook and found a mentor in the club’s adviser. But once he was in the hospital and, later, required to stay home, he was unable to participate—until the robot made it possible.

“One day, I surprised my friends and the yearbook adviser by rolling into their classroom,” Peter said.

“From watching him interact with the people in his class, they seem to forget it’s a robot,” Jauschnegg said. “That made a huge difference. In a video conference, you’re always aware of the video connection, and you’re always aware of how you’re looking at it. With the robot, students just treated it like it was Peter.”

“The recognition of the individual and the added movement component made a huge difference, even though you might not initially think it would,” Malone said. “The robot was him, and that was the intent. That takes it to a level that typical video conferencing doesn’t reach.”

After word spread about Peter and Marvin, AACPS purchased additional robots—the district now has four—with leftover funding and donations. Today, Peter is in remission and is back in school. As class president, Peter hopes to organize a fundraiser to generate funds for another robot.

At the end of the day, AACPS educators didn’t select a telepresence robot for its cool factor or to make headlines. They did it for a simple reason—to help a student keep learning. **eSN**

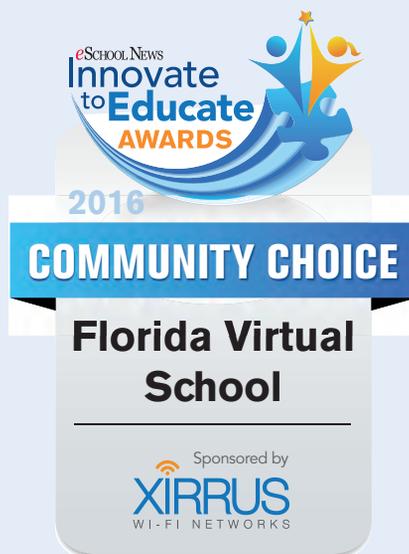
## When virtual class time is innovative, student engagement soars

Innovation doesn’t simply involve throwing technology into a classroom. It requires unconventional ideas, foresight, thoughtfulness, and dedication to student learning. And as the world becomes more connected, schools are making every attempt to help students develop the skills they’ll need to be a part of that interconnected world.

In the Florida Virtual School (FLVS), students are learning in unique ways while developing these much-needed skills through individualized and personalized learning methods, said Sarah Sprinkel, FLVS elementary principal.

FLVS is one of two Community Winners in the eSchool Media and Xirrus Innovate to Educate awards program, which recognizes the unique ways schools and districts are leveraging technology to improve student learning.

Sprinkel’s expertise spans 35 years in education, and she retired more than once when she had what she described as “a wonderful opportunity to learn what was going on in the virtual world.”



Her past experience in child development involves using observations about how children learn to form standards and course requirements. FLVS leaders wanted to see if she could do that, and develop best practices, in the virtual world.

“I was always the go-to person who made sure the practices our teachers used were developmentally

appropriate,” Sprinkel said. “People used to talk about developmentally-appropriate practices as though they weren’t good. But it simply means that if you teach kids the way they learn, they’re going to learn.”

FLVS implemented a strategy called ClassTime, which uses live video lessons that require students and teachers to work as a class in a blended learning environment online twice a week. Students work independently with their parents three times a week.

Students interact online by participating in class discussions, sharing information, answering questions and working as a class with teachers. The strategy keeps students engaged with approaches such as voting tools, chat boxes and breakout rooms.

In order to help students learn together and learn as much as possible, FLVS leaders purchased cameras, writing tools, and other devices to make sure teachers could present

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## Engagement

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things such as science experiments as well as deliver discussion-based assessments online.

Teachers make every effort to personalize learning for students, including assignments that are individualized and tailored to a student's specific needs, or breakout rooms where students gather online in smaller groups to work on assignments.

"We've taken the tools we have through virtual delivery and we've put a very high-quality teacher with those tools, and we've gotten the best of both worlds," Sprinkel said. "It's amazing how the students believe the teacher is talking just to them. They feel very individualized."

Teachers also strive to incorporate

enhances the instruction students receive, she said.

"A teacher cannot discover as quickly as a personalized system when a child is ready to move to the next level," Sprinkel said. "When the analytics allow that—wow!"

### Meeting virtual challenges

As with every new initiative, ClassTime didn't come without challenges.

Skeptics might wonder how an online learning program helps students work on interpersonal skills and develop relationships, but FLVS educators work hard to maintain those relationships with their students.

"Best practices in education, for kindergarten, include developing relationships first," Sprinkel said. "We know developing relationships is

be provided for students who have outdated access to technology.

For instance, if a student cannot watch a video, alternatives are provided. FLVS teachers always put the video link in the chat box for students to access at a later date, and it is included in students' written assignments. But in case that does not work, teachers describe the video and/or provide an alternative lesson that teaches the same concept.

### Ensuring success

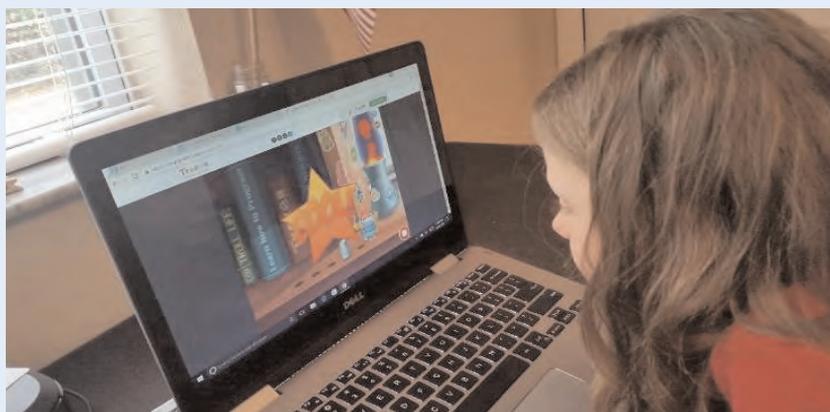
When it comes to three components that helped technology innovation succeed at FLVS, Sprinkel said:

- It is imperative that the attitude of teachers, staff, students and families are that this approach will work. However, it will take adjustments since it is a non-traditional delivery method.
- Adequate hardware and software are also necessary so the technology used is actually available to the users. Showing a video that students are not able to view does not work. Many alternatives have to be provided for students who have outdated access to technology.
- We will benefit from continued innovation to better involve students in the process since many platforms do not provide enough interactives for young students.

Part of the initiative's success is due to the "why" behind it, Sprinkel said. "The popularity is because we are doing what every teacher out there wants to do—we are meeting the needs of students."

Establishing best practices for classroom delivery at the elementary level is an evolving process, she added.

"We didn't do anything with the idea that it was set in stone," Sprinkel said. "Whatever our program looks like in the next 10 years, it will continue to evolve and change—but it will evolve and change with students, and that's what is so powerful about it." **eSN**



**Adequate hardware and software are also necessary so the technology used is actually available to the users.**

as many modalities as possible in every lesson. "The more you can involve all your modalities—vision, hearing, doing things in a kinesthetic manner—our lessons involve many modalities. That's optimum learning," Sprinkel said.

"We have some of the finest teachers in the world," she added. "They're the difference makers. They're the ones who do this all the time."

The data coming from online tools

important. For every lesson, the first thing we do is have an engagement activity—you have something to make sure relationships are developed."

Adequate hardware and software are also necessary so the technology used on the school's end is actually available to the students. For instance, Sprinkel said, showing a video that students can't view due to outdated or absent technology on their end will not work. Many alternatives have to

## Looking inside classrooms can reveal surprising innovation

As any educator will no doubt agree, stepping outside of the traditional classroom box can lead to innovations that result in extraordinary experiences. And sometimes, as Arizona's Yuma Elementary School District One discovered, those innovations are already sitting in the classroom, waiting to be discovered.

The technology-rich district has always put an emphasis on ensuring students have access to devices even before it rolled out a personalized one-to-one initiative. But educators wanted to take that richness to the next level.

"The technology wasn't always being used to its fullest potential—there was a conversation about how to ignite that change," said Christa Fairman, an educational technology specialist in the district.

"We would talk about the greatest resource we have, and that's our students," she said.

The district is one of two Community Winners in the eSchool Media and Xirrus Innovate to Educate awards program, which recognizes the unique ways schools and districts are leveraging technology to improve student learning.

When educators thought about bringing technology use to a new level by tapping into the district's biggest resource, a new idea was born: the iTEAM KiDS Technology Ambassador Program.

Through the program, elementary and middle school students help teachers and other students learn to effectively use different technology tools and integrate them into instruction, assignments and projects. The students work with a teacher at each school and build problem-solving and teamwork skills.

iTEAM KiDS launched in the fall of 2014, and a year later, Fairman said

teachers reported that the program was helping them manage and troubleshoot devices and introduce new apps and technology concepts to students.

In fact, 75 percent of teachers said the program increased their comfort level when it comes to using available classroom technology with students. And by the spring of 2016, iTEAM KiDS were directly supporting teachers' Apple TV use, troubleshooting Promethean interactive whiteboard and ActivInspire software issues, and providing technology-related professional development.

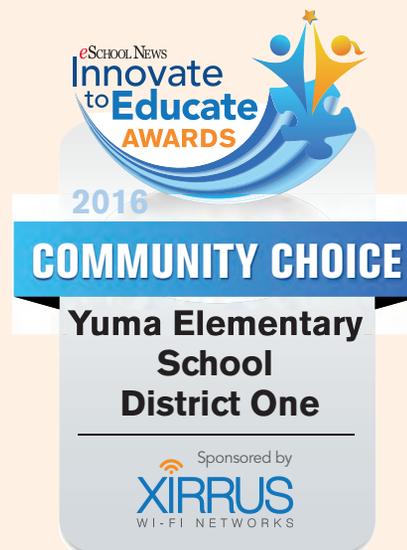
"We had a superintendent who understood that our kids often knew more [about technology] than our teachers," said Duane Sheppard, the district's associate superintendent in charge of curriculum and instruction. "We had to get to this place of releasing that control so teachers would allow students to show them how to use an app or a device. It's a philosophy change. Most people got on board with it, but it's hard to do."

### Funding success

In addition to teacher buy-in, the program needed something else to be successful: funding.

Fairman consulted with Sheppard and Lurinda Ward, director of learning services, and then talked with a grant writer to see what could be done to finance the program.

"We had this big, wonderful ideas that required money," Fairman said. "We took an inventory of grants in place at the time, thought about how iTEAM KiDS could support those individual grant goals, and we partnered with those grant programs to fund iTEAM KiDS. In the fall of 2014, the district had a series of STEM grants and 21st Century Community Learning Center grants



that could directly benefit from the implementation of the iTEAM KiDS Technology Ambassador Program. We partnered them up and hit the ground running."

The first year of project funding came from 21st Century Community Centers, Dodea Grants, Helios, and a partnership between the district, Yuma County, and Cisco, with all but Helios continuing to fund the program after the first year.

### Students become the teachers

As part of the program, students participate in a district-wide PD day where they lead sessions and work with teachers one-on-one.

iTEAM KiDS members present two 50-minute sessions that serve as the culmination of their year training, working with teachers and participating in the program. The combination of sharing information and working directly with teachers in hands-on learning situations seems to appeal to the students, Fairman said.

"Every year, kids come to me after they've completed their two sessions and they ask to do it again," she said.

Students also traveled to larger conferences to share their program and demonstrate how it works.

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## Innovation

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“We took two of our student teams to a conference and they presented a fairly large session to teachers,” Ward said. “This is really a special thing, and it was great for them to get feedback from other educators.”

“We take tremendous pride in our iTEAM KiDS program,” Sheppard said. “As the teachers participate in their PD, you can sense the students’ pride—it’s incredible. Our kids get to present to our school board, too, and that experience is important.”

### Unexpected benefits

In addition to helping teachers become more comfortable with technology and more willing to try new apps or tools, Fairman said the program helps students develop workplace skills such as collaboration and problem solving. It also helps some break out of their shells, she added.

“It has been a real confidence-builder. Some of the best presenters we have are our ELL students,” she



In fact, 75 percent of teachers said the program increased their comfort level when it comes to using available classroom technology with students.

said. “It really helps them with their speaking and their self-esteem.”

### Students’ soft skills are improving, too.

“They’re really learning communication and leadership skills. This is an opportunity for us to give our students that leadership ability and that experience,” Fairman said.

The iTEAM KiDS program was put into place in advance of the district’s one-to-one initiative, and because teachers reported increased comfort levels with technology, it also paved the way for an influx of support for the one-to-one initiative.

“We’re on this journey together, and it helps perpetuate the feeling that we’re a community of learners,” Fairman said.

**Editor’s note:** This story is part of the eSchool News Innovate to Educate Awards program, sponsored by Xirrus. The awards program recognized the country’s finest ed-tech initiatives and offered schools and districts across the U.S. the opportunity to showcase their groundbreaking approach to improving teaching and learning through the use of technology.



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**2004**

Founded by Dirk Gates, Patrick Parker, and Steve DeGennaro



**2005**

Began marketing and selling High Density Wi-Fi



**2008**

Presented new access point that provides up to 300Mbit/s data rate per radio



**2010**

Ranked as the 2<sup>nd</sup> Fastest Growing Private Telecommunications Equipment Manufacturing Companies



**2011-13**

Ranked #2 in Wall Street Journal's Next Big Thing list of the Top 50 Venture-Backed companies



**2012**

Made Business Insider's DIGITAL list of the 100 most valuable private tech companies



**2012**

Customers include Paul Hastings LLP's 18 international offices and Ashford and St. Peter's Hospital, the largest acute care provider in the world



**2013**

Reached over 10,000 customers, with products and services sold internationally

**2015**



Red Herring Top 100 Hottest Technology Company Finalist

## Libraries

continued from page 1

is often the best place to look for personalizing instruction through assessing, reading and making.

### How Libraries are Personalized Learning Hotspots

#### 1. Libraries can track unique student data

During Luhtala and Whiting's webinar "**Personalizing Instruction Through the Library**," hosted by **edWeb.net** and sponsored by **Mackin Educational Resources**, the library experts discussed how the New Canaan High School Library uses a database to keep track of the work done with students, enabling educators to keep tabs on any students in need of extra help.

#### 2. Libraries can help close learning gaps

The library also has a "text the library" service, which allows students to anonymously text questions to the

To personalize reading to the students, Whiting uses some of the library's empty shelf space to create book displays based off themes of interest like movies, sports, and history. She also asked New Canaan's teachers to take pictures with their favorite books and hung the pictures around the library. That way, she explained, students could get book recommendations from their favorite teachers. Luhtala and Whiting have also provided different spaces of the library for different kinds of learning. "We really want them to be thoughtful about how they're going to use their time in the space and choose a space that suits their learning needs at that moment," said Luhtala.

#### 4. Libraries can host real-world communication

New Canaan High School Library also participates in monthly virtual book clubs in which students discuss books over a Google Hangout, and different libraries take turns hosting the chat and leading the conversation each month.

for resources from a number of databases and get alerts for new sources.

#### 6. Libraries can be makerspaces

Lastly, personalized learning is encouraged within school libraries through making. In the library's makerspace, students have the ability to choose what they want to create using a variety of resources; the students' work is then showcased on the library's Instagram as a way to demonstrate the effort that comes out of the makerspace.

Ultimately, personalizing instruction through the library is a "PR thing," said Luhtala. School libraries must emphasize with faculty and administrators the crucial role that the library plays in this growing initiative.

### Join the Community

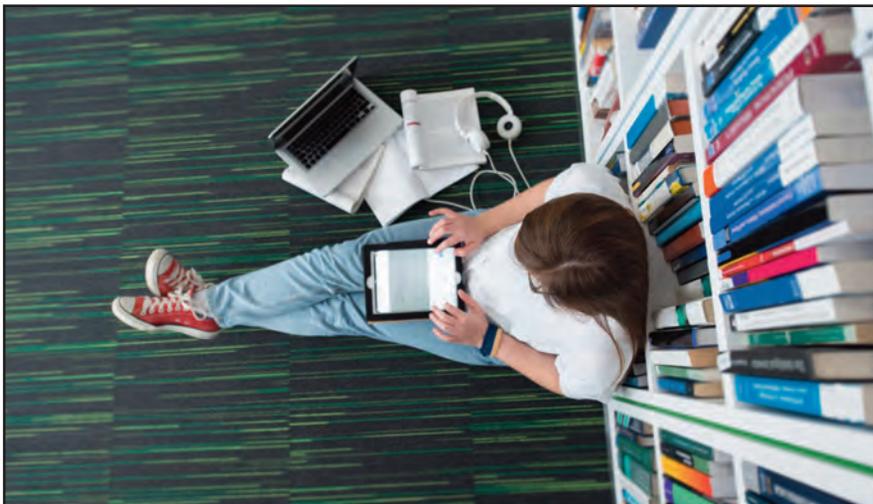
**Emerging Tech** is a free professional learning community (PLC) where school librarians can explore all the ways to integrate technology and 21st century learning into school library programs. Members can post questions, start discussions, and get feedback from experts and peers on the issues and challenges of building and advocating for a school library program that is a critical support for teaching and learning in your school and district.

The recording of the webinar can be viewed by anyone at: <http://home.edweb.net/webinar/personalizing-instruction-through-the-library/>

### About the Presenter

**Michelle Luhtala** is the Library Department Chair at New Canaan High School in Connecticut and was one of five school librarians named as a "Mover and Shaker" by Library Journal in 2015. She is the winner of the 2011 "I Love My Librarian" Award and the Library Association's 2010 Outstanding Librarian Award. The New Canaan High School Library won AASL's National School Library Program of the year in 2010. Follow her on Twitter @mLuhtala. 

*[Editor's note: This piece is original content produced by edWeb.net. View more edWeb.net events here.]*



library. The webinar presenters said these questions help provide insight on any instructional gaps within the classroom, which the library can later give a lesson on. By encouraging the use of technology, the students can help take charge of their learning, as well as highlight what they would like to focus on during their lessons.

#### 3. Libraries can encourage learning through personal interests

#### 5. Libraries can harness personalization through online tools

According to the presenters, libraries can personalize learning for students through the use of online tools. Using the free resource **Mackin Classroom**, students can choose resources, highlight sections, take notes, rate resources, and more. New Canaan High School also has a search feature on the library's home page where students can search

# iPads ignite furor in schools

In Apple's backyard, a battle over digital learning tools—specifically iPads—is growing in one school district

**By Sharon Noguchi**

In the shadow of Apple Computer's 1 Infinite Loop headquarters, an initiative requiring public middle schoolers to use iPads in class and at home has spawned a growing battle over education in the digital age.

District officials and many teachers tout the iPads as innovative learning tools. Students, it seems, are thrilled to have them. But many parents in the affluent district—including some software engineers, Apple employees and a brain researcher—question the benefit of the devices, and hundreds have signed a petition to limit their use.

They say the iPads have introduced new worries, from privacy to video-game distractions, sowing family discord over screen time. And they resent being asked to pay hundreds of dollars for school equipment that state law says is the district's responsibility.

"iPads are entertainment devices," said Noemi Berry, a network engineer and mother of a Lawson Middle School seventh-grader and two other children. "They're not designed for education, and they're very hard to restrict. I have a 12-year-old boy who has a horrible screen addiction problem."

But so far, the iPad proponents are winning, and soon hundreds more Cupertino middle-schoolers will be expected to use iPads linking them to their lessons, resources and the internet.

Cupertino Union School District spokesman Jeff Bowman insists placing iPads in every middle-schooler's hands has improved students' quality of work, language ability, behavior and organizational skills, though the district has no quantifiable evidence of better learning. He said principals talk to parents about how to rein in excessive video-

Apple Computer had no comment on Cupertino's program, and Bowman said the company didn't influence the district's decision to use its product.

It's common for districts to provide students computers or tablets for class use. A small but growing number now require students to use those devices, or their own, for homework as well.

Few, however, specify a manufactur-



er such as Apple, whose products tend to cost more than devices like Chromebooks, designed for use with Google software. Bowman said they chose iPads because they considered them more durable and versatile and to offer instructional advantages.

Schools using iPads and providing each student with one include Hillview Middle in Menlo Park, some campuses in the Acalanes High School District in Lafayette, and private schools such as Head-Royce in Oakland and Archbishop Mitty in San Jose.

Cupertino's one-to-one program has cost the district at least \$363,000 this school year for hardware, software, management, security and teacher training. The program is in three middle schools and expanding to two others early next year. Bond proceeds help pay for a supply of loaner iPads for students whose parents do not provide them one.

But school officials, who launched the program three years ago at Lawson, implied it was families' responsibility to

provide the devices. To ensure the program's success, they urged parents to buy the \$563, 64-gigabyte iPads for their children to use at home and at school.

In doing so, they tread carefully around state law mandating free public education and barring districts from making parents pay for required school supplies. The district hasn't required parents to buy them—it recommended that parents equip their kids. With much negotiation, some parents have arranged for their children to use laptops or even paper. But parents say they feel school and social pressure to go along with the iPad program.

"Nobody wants their kid to be the outlier," said Berry.

About 60 percent of students at three middle schools use their own iPads. Lawson Principal Kit Bragg said that no one is pressured into purchasing one.

But parents like Vaishnavi Sridhar, mother of a Lawson sixth-grader, said Bragg indicated at a meeting that district-owned devices were reserved for needy students.

"A lot of families that day went back home thinking they had to buy an iPad," Sridhar said.

Victor Leung of the American Civil Liberties Union's Southern California branch, which sued the state over schools charging fees or requiring supplies, said that, technically, Cupertino complies with the law by offering to provide devices. But he added that, legally, districts cannot pressure students to buy equipment and supplies.

The price tag is only a small part of some parents' objections to the iPad program. Linda Wang saw her son's grades plummet after he delightedly received his own iPad. She takes the device with her when she leaves the house, and hides it from him at night.

"We cannot control his usage at all,"

**iPads, page 25**

# 7 signs of effective IT infrastructure

Realizing full potential means making sure that employees, educators, programs, websites and applications have the best IT infrastructure possible.

By Dr. Tim Harper

Seminole County Public Schools (SCPS) ranks among the largest public education systems in the U.S., with 67,000 students across 67 schools—and we're continuing to grow, adding nearly 1,000 new students a year. While our large size may seem daunting, we've been recognized at every level, from state governments all the way to the White House, for our leading role in transforming education through technology.

We're using technology to give our K-12 students greater choice in what, how, and where they learn by integrating digital learning that supports their interests. Such implementation has led to improved grades, test scores, and graduation rates, and more of our students are going on to attend college.

But our road to revolutionizing the way educators teach and how students learn did not come without its set of challenges. Our mission to give students a leg up on the road to entering a highly educated workforce includes introducing computer coding to kindergartners through play to providing high school students with impactful internships by partnering with local businesses.

Such a dedication to the growth of student learning, across all grades and ages, required an IT infrastructure that could deliver the performance and capacity needed by both physical and virtual environments to drive this collaboration and innovation.

## Aging IT Infrastructure Limits Growth

An aging and inflexible storage area network (SAN) was holding us back from realizing the full potential of digital learning and integration. District school websites were often slow, resulting in frustrated users and triggering the need for support calls. We transitioned e-mail to the cloud to allow some lea-



way, but it wasn't enough, as our resources were nearly exhausted.

Complex, expensive and slow tape-based backup and recovery systems also proved difficult for our IT team to manage. It could take up to 32 hours to complete full backups of our critical administrative file server, and local restoration required a day to clone from tape. Equally time-consuming were recovery tests for off-site tapes—a plane ride was required to the contracted provider, coupled with countless hours to simply find and restore a single file.

Without a more powerful, flexible, and efficient storage infrastructure, our goal of furthering sustainable operations and scholastic excellence faced significant hurdles.

## A Comprehensive Solution: Responsiveness, Accessibility, Savings

A technology refresh was needed. We sought an IT storage solution that offered nonstop, secure data access and fast application response. SCPS selected Greyson Technologies to implement a hybrid array storage platform and backup-to-cloud solution from NetApp. The positive impact was instantly felt. For example, parents and students navigating the Dining Services website to fund lunch

accounts saw an immediate difference when response times diminished from over a minute to just seconds.

Our new storage solution has afforded a number of benefits to help us continue to be an innovative driver in leveraging technology in education. Some signs of a successful storage infrastructure include:

- **Agile Operations and Seamless Growth.** Uniform management tools across models coupled with nondisruptive maintenance and upgrades have made it easy to support our ever-expanding environment.
- **Flexibility.** A hybrid array equipped with both SSD and HDD drives helps us leverage performance and value. Less costly, slower HDDs can be used for less demanding clerical applications while still preserving SSDs to support a faster and more interactive learning environment.
- **Improved Application Performance.** A storage solution that optimizes application performance has proven to be an added boon. Proactively monitoring performance over time allows us to gauge behavior and adjust accordingly, like expanding a database configuration linked to a student application.
- **Ample Storage.** A cloud-integrated storage appliance with the ability to support up to 160TB of data in the cloud has significantly improved our tape backup and recovery challenges. And easy integration with existing backup software was key, thus enabling the use of familiar tools for a speedy ramp-up.
- **Secure Backup of Data.** Aligning our cloud-integrated storage with our Microsoft Azure-based public cloud strategy, which currently includes our Microsoft Office 365 business platform and Canvas Learning Management System, was critical to improving data backup. Nightly

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# Report: Broadband access making 'dramatic' progress

New data reveals how schools are quickly upgrading broadband capacity, speed

**By Laura Ascione**  
Managing Editor

Eighty-eight percent of U.S. school districts have reached the minimum connectivity—100 kbps per student, as recommended by the Federal Communications Commission—to help students effectively use technology in the classroom.

The data comes from the second annual [State of the States](#) report from the nonprofit [EducationSuperHighway](#), which analyzed 2016 FCC E-rate data representing 10,499 school districts and more than 38 million students.

According to the data, this mean that 88 percent of school districts—38 million students—are achieving the minimum connectivity goal.

Thirty-four governors across the U.S. took bipartisan action to upgrade their schools in 2016, with 5 states connecting 100 percent of their students to high-speed broadband.

“It’s really a tribute to the governors—they recognize that this is a foundational issue for their schools,” said Evan Marwell, CEO of EducationSuperHighway. “To deliver high-speed broadband to students and

teachers, every school needs a fiber-optic connection and every classroom needs a wi-fi access point,” according to the report. “Today, estimates show 95 percent of schools are connected by fiber and 83 percent of schools report having sufficient wi-fi in their classrooms.”

Internet service providers have been crucial in upgrading K-12 schools, Marwell said. By giving school districts more bandwidth for their budgets and extending their networks to underserved schools, service providers have made broadband significantly more affordable and accessible across the country. In the last year, approximately 3,700 school districts upgraded their bandwidth and 40 percent of them did so at no additional cost.

Broadband has become dramatically more affordable for schools, with the cost of internet access falling 40 percent, from \$11.78 per Mbps in 2015 to just \$7 per Mbps nationally today.

Fifteen percent of school districts now have enough broadband—1 Mbps per student—to support innovative digital learning opportunities for all of their students.

Classroom wi-fi access increased as well, Marwell noted.

“Eighty-three percent of schools have what is termed ‘sufficient wi-fi,’ which means they can support a one-to-one initiative,” he said. “Back in 2013, that number was only 24 percent, so we’ve made tremendous strides putting wi-fi in our classrooms. You have to draw a straight line to the E-rate modernization on that.”

Through great progress has been made, the report notes that more than 11 million students still lack sufficient high-speed internet, including students in 3,723 schools in predominantly rural areas that lack high-speed fiber infrastructure. What’s more, over 15,000 schools do not have sufficient wi-fi infrastructure in their classrooms to support the one-to-one initiatives.

Districts that do not meet the FCC’s 100 kbps per student minimum threshold pay 2.3 times more for their bandwidth than districts meeting the FCC goal, while those meeting the 2018 goal of 1 Mbps per student pay 60 percent less than those at 100 kbps per student, the report notes. 

## Infrastructure

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backups of critical data are automatically synced to Azure at an 80% faster rate than with tape, all the while keeping data encrypted both in flight and at rest. And recovery times for entire datasets to single files have gone from days and hours to minutes and seconds.

- **Reduced Risk.** Removing the need for tape backups has improved recovery time and led to a reduced risk profile; our risk factors have decreased between two-and tenfold.
- **Resources are Maximized.** SCPS has

been able to achieve a 15-to-1 data reduction ratio in our backup-to-cloud environment. Such resource conservation enables us to further stretch storage resources and reduce monthly cloud storage costs, even as all environments continue to grow.

Our goal at SCPS is to help students realize their full potential. We can better achieve that by making sure that our over 10,000 employees and educators across multiple departments, programs, websites and applications have the best technology at their disposal to support that mission.

Becoming a premier educational system and a national model of excellence

does not happen overnight and requires both dedication and keeping up with and implementing the latest technological advancements. Only a robust data storage and backup-to-cloud solution could keep our over 40 departments productive, ranging from Digital Learning and Dining Services to Payroll and Security. And the benefits and savings generated from such a solution only paves the way for more IT enhancements, as SCPS is poised to take our progressive academic strategy to the next level. 

*Dr. Tim Harper is the CIO at Seminole County Public Schools.*

# 5 questions to answer about OER use

**By Laura Ascione**  
Managing Editor

As open educational resources (OER) grow in popularity, school leaders are tasked with identifying the best way to find, organize and use these resources.

But that process can be overwhelming, to say the least. As a result, many education leaders rely on best practices and success stories from other districts to guide the process.

During a CoSN webinar focused on using effective OER use, a panel of educators shared their experiences and offered insight on OER's impact on education. Here, we've gathered their responses to critical questions on OER use and implementation.

## 1. How does shifting to digital resources change teaching and learning?

"It changes it dramatically," said Andrew Marcinek, chief information officer at Worcester Academy. "I think the entire shift in pedagogy is something we're looking at here, in ways in which we incorporate project-based learning, competency-based models and blended models." Once those models and philosophies are established, the next step is to shift to the digital resources that support those models, he said.

"This is also a reexamination of what a teacher is in a classroom. More of a facilitator of learning. OER really allow for that to happen, and also allow students to explore more resources that are relevant and at their levels," Marcinek said. "The shift to digital resources by itself is not a strategy," said Lenny Schad, chief technology information officer in the Houston ISD. "This is a part of the journey, and so without the proper support, both from a technology perspective, a curriculum and leadership perspective, and also from the student side—how do [these groups] get used to using and learning with digital textbooks when they used to have paper textbooks?"

OER's impact on teaching and learning is part of a bigger issue, namely a strategy for changing the culture of

instruction inside a district.

To achieve that culture change, each support department within a district must understand its role in making that change happen, which is something Schad said his district aspires to do.

Technology departments should focus on reliable, scalable networks; curriculum departments should ensure digital resources are aligned to and fit into the district's instructional strategy, and school leaders should strive to ensure the culture change is successful.

## 2. How do you break silos between the instructional and technology departments?

Cross-departmental collaboration is key, said Grenita Lathan, chief academic officer with Houston ISD. "We work together as a team, and as team members we hold each other accountable. We meet regularly and align our tasks," she said.

"There has to be a level of understanding around what can be done today, and then developing a roadmap to the future," Schad said. "We make sure expectations are aligned. We will not be successful unless we work together. Communication really is the key to this—it's repurposing people's responsibilities, changing roles, and continually evaluating your processes."

"Technology and instruction should never be disparate and should never be seen as different entities," said Marcinek. "The focus should always be on learning. There's never a way in which you make technology the center of anything. We're looking at learning—period."

## 3. Who should be involved in selecting digital resources?

"Almost every stakeholder in a school should be involved in this decision and in the strategic planning for the curation, organization, and implementation of OER," Marcinek said. He added that the U.S. Department of Education's Go Open district launch packet offers resources and examples from other districts that are scaling up OER use and moving away from traditional textbooks.

"At the end of the day, this is about

making it easy for the teacher," Schad said. "Making it streamlined means they have a lot of resources in the learning object repository at their disposal."

## 4. What should districts keep in mind as they choose digital resources?

"Too much can be overwhelming for teachers and principals," Lathan said. "We streamline content into a one-stop shop. We're making sure it's not overwhelming."

"Always keep that end user in mind when it comes to what you're providing and how they're going to use it," Schad said. "Look at how content is going to be displayed in your object repository. Different providers will give you their content in different ways. It's about coming up with what your expectations are for the content and how it will sit inside your system and be used."

"One thing to keep in mind is that it's going to take time," Marcinek said. "We're still in the infancy of this shift. We're changing the medium by which we deliver content, we're taking the pedagogical framework and flipping it on its head. This is a mindset shift and a cultural shift."

## 5. How do you combine digital resources from different sources, especially combining OER and proprietary resources?

Having the right learning management system (LMS) can help educators manage.

"Our LMS helps us search and rate resources so teachers can sort through the learning objects we have," Lathan said.

"Teachers want a good resource that's aligned to standards," Schad said. "The integration of proprietary resources versus OER can vary dramatically. I think the focus has to be what the resources are that you're bringing into the system, and how they'll be leveraged and used inside the ecosystem."

"I think teachers want high-quality, efficient resources, and resources they can have autonomy to adapt and personalize to how their students will learn," Marcinek said. "That's the key point—are we creating new efficiencies for our educators?" 

## iPads

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Wang said. Her family, which moved into the district last year, is now considering leaving out of frustration over the iPad. “I regret so much moving to Cupertino,” she said.

For some instructors, however, the devices have transformed teaching. Andi Jackson, who teaches eighth-grade English and social studies at Lawson, said iPads offer students multiple avenues to show what they’ve learned.

“Before the iPad,” Jackson said, “there was basically one way—write an essay and turn it in.”

Peter Chu, a software executive whose 15-year-old daughter, Ashley is a ninth-grader at Cupertino High School, sees the iPad as a phenomenal education tool that’s “creative, engaging and appropriate for this day and age.”

Ashley said her classes at Lawson, where teachers embraced the iPads were her favorites. One of her memorable assignments was creating a video explaining how paleontology proves evolution.

“Making a story about an event lets me better remember that,” she said.

Of about 180 Lawson parents who responded to a district survey last year, just under half said they valued their

child’s iPad work. A third said it had improved their kids’ attitude toward school. The district plans to form a task force to review its educational technology use; meanwhile, it’s expanding its iPads-for-all program to Cupertino and Miller middle schools.

But a handful of parents, like Hua Zhong at Lawson, have arranged for their children to use a district-owned iPad while at school. Those devices don’t come home. An online petition is asking the Cupertino district to standardize that practice, providing iPads for students and keeping them in the classroom. It has attracted more than 650 signatures.

Lawson parent Vidya Sundaresan opted her son out of the iPad program altogether. She and her husband, both scientists, have seen no proof that iPads improve learning and worry the devices could increase risk of ergonomic problems and eye strain. Parent Carrie O’Leary shares their concern.

“I’m not against Apple products at all,” added O’Leary, whose husband is an Apple engineer. “I just want sensible policy.” **eSN**

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## Teaching

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ing the semester.”

By the end of the course, Malan’s students who might never previously have seen a line of code become problem designers. Not only that, many are inspired to go beyond the curriculum.

“Every week, he would say: If you get what we’re doing here, you can easily translate it to other things,” Dan says. “You can go out and learn anything else.”

I think that should be the goal of every teacher. Getting students to regurgitate what the teacher says is easy. But teaching them how to think and construct new knowledge and design their own increasingly complex problems—that’s what education should be.

*Perhaps we have underutilized a very powerful idea that we have had for decades. Maybe we need more learning fairs across the curriculum. When students present their work to the public, there is a different sense of excitement and motivation than sitting for a final exam.* **eSN**

*Alan November is the founder of edtech consulting firm November Learning. Join Alan in Boston July 26-28 for his 2017 Building Learning Communities edtech conference.*

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