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Closing the 30M word gap

Reading programs work to cancel the effects of poverty

By Dennis Pierce

Mention Napa County, Calif., and what comes to mind for most people are rows of sun-splashed grapes—and well-tanned couples sipping wine under the shade of a vine-covered pergola.

But Napa has its share of poverty, too. More than half of the student population is Latino, and many of these students come from poor households where English isn't spoken.

"Most of our preschool kids who are native Spanish speakers come to school without any-



Children from low-income families hear fewer words.

body having read to them," said Napa County Superintendent of Schools Barbara Nemko.

Gap, page 16

Classroom video that helps

By Miriam Greenberg

One of the biggest challenges in K-12 education is finding an effective and productive way to evaluate teachers' performance. In a world where technology is rapidly reshaping the classroom, it's natural to look to its potential, especially



Video, page 31

Going beyond the basics of LMS

Some schools use their LMS in innovative ways

By Bridget McCrea

Learning management systems originally got their start in higher education, serving as central hub for college students to drop in assignments, check grades, and contact their professors. Needless to say, it caught on with universities—and eventually school districts.

Today's LMS is a bit of an upgrade, with new features and design elements frequently drawn from the social networking sites students love so much. Developed by Blackboard, Desire2Learn, itslearning, Takai, Canvas, and a host of others, these solutions focus on helping educators organize and orchestrate learning tools, educational approaches, and whole courses.

LMS, page 34



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What does risk-taking really mean?

Encouraging student risk-taking means taking some yourself

Let's face it. We are of two minds when it comes to how we feel about kids and risk-taking. We know that the teenage brain is wired to ignore consequences and to take risks without any adult encouragement, so parents spend a lot of time trying to keep their kids from doing stupid things like drinking and driving or having unprotected sex.

In the classroom, however, risk-taking is often viewed as a good thing. We educators tend to praise and encourage students to take gambles and learn from their mistakes. At least, that's what we say.

This idea can raise a few hackles and more than a few questions. What characterizes a "good risk?" How can we create a culture of risk-taking in our classrooms? And what might we currently be doing that discourages risk-taking in our students?

Good risk = potential growth

By definition, all risks have potential negative outcomes and obviously, there is plenty of risky behavior that we don't want to encourage children to take. In a sense, the decision to take any risk involves a cost-benefit analysis. The risk taking I encourage in my students generally involves some potential for growth. In some cases, this growth is social.

Not too long ago, I had a student who was very talented, but he needed to step back and give his teammates a little more control over their shared project. This was incredibly difficult this for student, and risky because he had to trust in the quality of his teammates' work if the project was to be successful. The end result was substantial growth in his collaboration skills. Other types of growth are more traditionally academic.

In my eighth-grade Physical



Trevor Shaw

Computing course, students all begin with an idea of an invention that they want to build, but they have no idea how they will build it. Each decision in the design process involves a leap of faith as they learn how to work with unfamiliar materials and tools using an untested, original design. Occasionally, despite careful planning, students realize half-way through a project that their original design isn't going to work, and they need to go back to square one—a huge risk!

Find risk-opportunities and align them to student needs.

Fostering healthy student risk-taking means understanding where your students need to grow and what each of them perceives as risky. One student, for example, might not think twice about working out a problem on the board, while another might be terrified by the very thought. When I identify an opportunity for growth like this, I work hard to help the student understand why it is important to grow in this area. I try to provide support and encouragement around things that the student might find scary. I also get personal. I say things like, "I would love to see you take this on and be successful. I would be really proud of you." Clearly, you can't force a student to take a risk. If it isn't voluntary, it isn't really risk-taking. The conversations and assessments required to identify risk opportunities and to encourage kids to take them require a lot of time. Personally, I can't think of a more important way to spend that time.

Look for ways you might be punishing risk-takers.

Funny thing about risks—they have their own system of rewards and consequences built right in, and grades and rubrics tend to screw that up. It's ridiculous to think that a student is going to

try something innovative and untested if, in addition to the consequence of an idea that doesn't work, he is punished with a failing grade. If a project is really well designed and grows out of a student's genuine interests and passion, using a grade as a reward or motivator makes little sense.

Ideally, when the criteria for a project are designed, the student should have a substantial voice in how to define excellence. This allows the student to articulate what she is trying to accomplish by taking on a particular risk. For example, a student might say on a criteria sheet that she "is going to try to program her robot using the more difficult Robot-C programming language as opposed to the block-based EV3 software." Trying this for the first time would be a huge risk, and even if the robot never gets completely programmed, the student will have learned far more than her classmates who stuck to the easier programming language. Allowing the student to incorporate her personalized learning goal into the criteria sheet as a risk, allows the teacher to assess her on her progress toward her personal goals without penalizing her for not achieving the same outcomes as her classmates.

As teachers, we need to be mindful of the fact that risk-taking is an unnatural act in most classrooms. Unless we take explicit steps to create a classroom culture that fosters risk-taking, it will not happen organically. This means talking openly about risk-taking, encouraging it, and praising it publicly when we see it in our students. It also means providing some opportunities for students to pursue personalized learning goals without being penalized for departing from teacher-defined outcomes. 

Trevor Shaw is the founder of the educational consulting firm, Genesis Learning, and is currently the director of technology at the Dwight-Englewood School in Englewood, N.J.



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This is how your infrastructure should look before your next tech rollout

Most educational organizations want the classroom to change; to improve teaching and learning by leveraging technology. The terms blended and flipped learning are touted extensively as useful educational goals.



Peter West

However, to increase the

probability of long-term success and to reduce teacher/instructor frustration, organizations need to ensure that the broader fundamentals are in place before asking teachers to change. If teachers walk into a lesson and the technology regularly fails, even for just a few minutes, they lose confidence. They become frustrated and lose commitment.

For long-term change to occur, the technology behind the scenes must be like the electricity system in a modern country—it must “just work”—all the time and every time. It must be invisible. If it fails, it must be able to be fixed quickly and painlessly.

Infrastructure requirements

Thus, there are some requirements for change in the classroom to begin. This is not an exhaustive list, but it contains some major points.

1. A solid, reliable, well-designed network

a. The network (servers, switches, operating systems) must be fast and reliable. They must work virtually all the time.

b. Preferably there should be SSO (Single Sign On) for most resources. Staff and students should have one user name and password that works across all major systems. If a password is changed, the change should flow through to all systems.

2. A fast, stable, campus-wide wireless network

a. Wireless access is a key part of many modern organizations. The wireless network must “just work.” It should be

easy to access, reliable, and fast. It should saturate the entire campus, with limited or no areas with weak signal.

3. A fast and reliable internet connection

a. Access to the internet must be fast and reliable. It needs to be of sufficient speed even when it is being

accessed by most students and teachers.

b. It must also provide fast and reliable external access to teaching and learning resources that are on campus. Thus, the connection speed into the organization and the connection speed out of the organization both need to be fast.

4. A robust and feature rich LMS (learning management system)

a. Modern systems have moved beyond the old concept of a LMS, and are really much more than they were 10 or 15 years ago.

b. The system being used must fit the educational needs of the organization now and in the coming years. Staff needs to know that it will grow with them to provide capabilities that they may not have thought of yet. (I know of organizations that have had four LMSs in a decade; I know of schools that invested in a system that didn't suit their needs and then wanted the staff to change to “something better” two years later—after staff had invested time and energy learning the system). Teachers deserve better.

c. Research, understanding, and planning are vital. These aspects need to be done by eLearning staff; staff members who understand technology and teaching and learning. This is not an IT decision. The IT department is important to ensure that the technical aspects are appropriate, but the LMS is a tool to enhance learning, not IT.

5. Reliable and suitable devices (laptop computers) for staff

a. If we want staff to embrace tech-

nology to enhance learning and teaching, we need to provide them with devices that empower them. The devices need to be powerful enough to do what needs to be done and reliable enough that they do not frustrate staff.

b. The devices also need to align with the educational goals of the organization. For example, my school provided Surface Pro 3 devices to all staff as the educational goals required the power of a full laptop computer, the form factor of a tablet, and the advantages of “real” granular stylus.

c. It is then a matter of budgeting, and this can be difficult. However, it is a barrier that must be overcome. Money must be found to provide devices to the staff, and then money must be found to provide enough professional development for the staff to use the devices effectively.

6. A friendly, supportive, efficient IT support team. There are several important factors here.

a. The team must be friendly and supportive. They must treat each person with respect and be genuinely interested in helping to solve the current problem, even if they have seen the same problem by the same person a few times. Staff and students must feel comfortable when they ask for support.

b. They must be experts in all aspects of the technology within the organization or must be able to source solutions quickly. Reporting a problem and having it fixed a week later, with little or no communication in between, just doesn't work.

c. Is it possible to have a “dream team” with all of the skills and the appropriate attitude? The short answer is yes, and if you are lucky enough to have one, ensure that they know that they are appreciated. **eSN**

Peter west is director of eLearning at Saint Stephen's College in Australia. Contact him at pwest@ssc.qld.edu.au and at www.blended-thinking.com.

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Paper-free days spark a tech transformation

Cutting out paper and pencils one day a week gets everyone thinking more creatively

By Ron McAllister

Sometimes one simple question is all it takes to trigger revolution in a school. In the case of Kelly Mill Elementary outside of Atlanta, the question was: How can we more effectively engage our learners? It's loaded, I know. The idea migrated from my head into staff meetings, and a variation on that question eventually ended up posted next to every copy machine in our school to prompt teachers to find new ways of teaching—without paper and pencils.

The term “paper-free days” may sound like a tactic to cut spending, but that wasn't the main goal. I wanted to challenge my teachers to think differently about educating and engaging students. Are doing worksheets and reading textbooks really teaching our students what they need to know? Probably not.

What if we were to get young learners moving, get their hands dirty through project-based learning, incorporate more technology, and actually engage them in material? Would it make a difference? From there, paper-free days were born, and traditional teachers quickly embraced the true meaning of being paper-free.

Forward-thinking

Kelly Mill Elementary is only 4 years old, but from day 1 we have been a bring-your-own-device school. We're a school that's willing to take new ideas, apply them, and see if they work.

About two years ago, I sat down with my staff for a brainstorming session on how to reallocate resources to build a more effective learning environment. We had a goal of making technology available to every student, increasing engagement levels, and closing the achievement gap. I walked out of the session with pages of notes for different ideas on funding, new tools, and ideas about how to make our school even better on a tight budget. Word quickly spread to the rest of my staff, and I was



Paper savings can be put toward tech

flooded with e-mails from teachers about how they believe teaching could be improved.

The topic of paper-free days kept coming up. It was something I'd only read about and never actually seen, but through research I found much negative coverage about the topic. Most schools ended up going to paper-free days due to year-end shortages or budget constraints. In programs like that, the teachers weren't supportive of the administration, which, in turn, caused backlash against the system. I did not want that to happen.

At Kelly Mill, we have never met our county copy allotment for the year and never had a problem staying within our paper budget. Nearby, schools are paying thousands in overage charges because of their high paper usage. I reassured our staff we were not in any budget trouble, but wanted to jump on the technology bandwagon before it was too late. I also assured them that money saved on paper would be put toward new technology.

I pitched paper-free days to my team as a new mindset toward engaging children. Teachers and staff embraced it, viewing the day as a good challenge. They saw it as an open opportunity to try something new, to incorporate technology and hands-on activities instead of doing the same old lessons, many of

which are tired and outdated. Teachers ran with the idea without thinking twice, and I credit that to our approach and our school's overall frame of mind on being paper-free.

I wanted to make it clear: Our school isn't anti-paper. There are a lot of needs for paper in a school, and teachers do continue to use paper lessons as an alternative. Some have truly embraced being paper-free, and literally emptied out entire file cabinets, retiring old lesson plans and giving them new life through virtually appealing flip charts, songs, and videos. Soon, teachers started to look forward to the paper-free day.

Teachers from each grade got to choose what day of the week they would be paper-free, so they feel included in the implementation and planning. It also gave them an opportunity to look forward to their paper-free day and plan ahead for lessons.

Removing paper from the equation

Since we are a BYOD school, our community was well aware of the power of technology and what devices can do for engagement. Prior to launching our paper-free days, each classroom had an ActivPanel interactive flat panel installed, which of course helped teachers move away from paper. While many teachers use technology in their personal lives, much of the staff had never used it for classroom instruction, which was a big adjustment. The panels went from being a scary, cumbersome piece of technology to becoming part of everyday life in the classroom.

In the beginning, teachers used the panels as large overhead projectors, but with a bit of professional development, they realized the capabilities and engagement opportunities. Though some were timid, every teacher stepped out of his or her comfort zone to use the board on some level; where they started,

Paper-free, page 43



 Carrie Schiel, M.S., CCC-SLP
Speech-Language Pathologist, Schools

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Kiosks bring wi-fi and parent engagement

Kent School District's new kiosks are bringing the SIS and free wi-fi to the community

By Joelle Bejarano

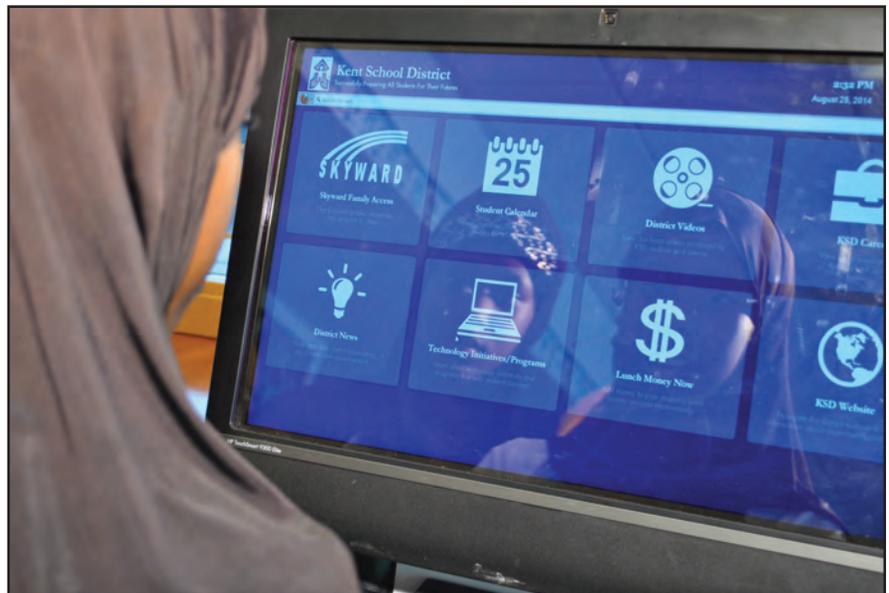
As the typical school day ends at Kent School District, in Washington state, many of our 27,000 students file onto school buses for the ride home. For some students, leaving their school's campus means leaving internet access behind—and all that comes with it. As a forward-thinking, technology-driven district, we've long considered ourselves pioneers in bringing technology to students, and we're proud of our mature, successful one-to-one laptop initiative. However, there still exists a digital divide to conquer.

Kent's success in today's digital world is, in part, reliant on electronic resources and timely, effective communications. This includes the delivery of educational programming, access to online tools, and leveraging technology to aid in the overall learning experience. Our laptop initiative provides the hardware and software for secondary students to complete homework assignments and collaborate digitally. But how do those students and their families take advantage of these tools if they're not connected to the internet before and after school?

Enter the STAR program.

STAR, which stands for Student Technology Access & Resources, is a project that is changing the way we provide equitable access to technology resources for students. At the center of this project are touch-interactive kiosks equipped with digital signage displays. The interactive interface hooks parents into our student information system, and allows them to check their children's grades, attendance, upcoming assignments, and important announcements. Additionally, visitors may access lunch menus, student calendars, job openings, volunteer opportunities, and more.

While this avenue of garnering parent engagement is important, what makes these kiosks really unique is their



The community kiosks grant SIS access and double as wi-fi hotspots.

75-foot radius of free wi-fi. We've strategically placed these kiosks in housing communities with the lowest connectivity rates to help create a bridge between students' district-issued laptops and the problematic lack of internet access at home.

Community links

Increasing student achievement requires strong partnerships and commitments among educators, businesses, and the community. And naturally providing access for students and their families doesn't come without a cost, and our district has used donations and partnerships to help defray the costs associated with the kiosks.

By using the digital signage display, Kent bases its business sponsorship levels on the time each sponsoring business' advertisement displays on the top screen. While the interactive interface and wi-fi remains uninterrupted, this ad space allows the district to recoup costs for procuring, maintaining, and supporting the hardware; thus, creating a program that is fiscally self-sustaining and exemplifies responsible stewardship of

taxpayer investments. Host locations provide the wireless access, so there is no ongoing cost to the district.

As the STAR program is the first of its kind, Kent continually plans upgrades and improvements, with the focus squarely on educating students. On the horizon—adding video to the kiosks in five of the most common foreign languages spoken in our district. With the positive outcome of the kiosk program pilot, expansion is also in the works. Recently, the Kent School District has also begun planning the addition of digital signage displays in schools, focused on informational content such as wayfinding, announcements, events, and more. Additionally, signage will begin to be used in cafeterias to display nutritional information of lunch offerings and prices. 

Joelle Bejarano is part of the web and applications team in the IT department of the Kent School District. She is presenting a related session at DSE 2016, the Digital Signage Expo, in Las Vegas. For more information, visit www.dse2016.com.

Classroom observations may hurt teachers more than they help, study says

Classroom observations are one of the most widely used forms of teacher evaluation. Here's why they might be setting teachers up to fail

By Laura Devaney,
News Director, @esn_Laura

Teachers might be at a disadvantage during classroom observation of their instructional practice, which is one of the most widely-used tools for high-stakes job performance evaluations. And whether or not students have a history of high classroom achievement could be the reason why.

Research from the University of Pennsylvania Graduate School of Education (Penn GSE) and the American Institutes for Research (AIR) indicates that evaluations based on observing teachers in the classroom often fail to meaningfully assess teacher performance.

The study, published in *Educational Evaluation and Policy Analysis*, adds to the ongoing policy debate around when and how teachers should be evaluated.

Researchers Matthew Steinberg, from Penn GSE, and Rachel Garrett, from AIR, found that students' prior academic achievement is a significant predictor of teacher success in the high-stakes evaluation system.

"When information about teacher performance does not reflect a teacher's practice, but rather the students to whom the teacher is assigned, such systems are at risk of misidentifying and mislabeling teacher performance," Steinberg and Garrett wrote.

When teachers were assigned a class with higher incoming achievement, they were more likely to see an increase in their measured performance.... Teachers with higher-achieving students are rated higher in "communicating with students" and "engaging students in learning."

Among Steinberg and Garrett's findings:

- Math teachers were six times more

likely to be among the top performers when assigned students who were the highest achievers the previous year. English language arts (ELA) teachers with high achievers in their classroom were twice as likely to be among top performers.

- Only 37 percent of ELA teachers and 18 percent of math teachers assigned the lowest-performing students were highly rated based on classroom observation scores.
- When teachers were assigned a class with higher incoming achievement,

based measures for high-stakes teacher accountability without understanding and accounting for classroom composition will skew results, with potentially significant consequences.

"The misidentification of teachers' performance levels has real implications for personnel decisions and fundamentally calls into question an evaluation system's ability to effectively and equitably improve, reward, and sanction teachers," wrote Steinberg and Garrett.

The pair reviewed data from a previous study that looked at six school dis-

When teachers were assigned a class with higher incoming achievement, they were more likely to see an increase in their measured performance....

Teachers with higher-achieving students are rated higher in "communicating with students" and "engaging students in learning."

they were more likely to see an increase in their measured performance.

- Teachers with higher-achieving students are rated higher in "communicating with students" and "engaging students in learning." These areas reflect teacher interaction with students, so they tend to be student dependent.
- However, measures that depend more on the instructional strategies teachers bring to the classroom—"using questioning techniques" and "assessment to drive instruction"—were largely uncorrelated with student achievement.

Based on their results, Steinberg and Garrett caution that using observation-

tricts over two years, including the New York City Department of Education. This Measure of Effective Teaching study randomly matched teachers to classrooms, differentiating between grade and if a teacher is a subject matter generalist or specialist.

The study comes as schools across the country have stepped up efforts to evaluate teachers. By the start of the 2014-2015 school year, 78 percent of states and 85 percent of the largest school districts and the District of Columbia had implemented teacher evaluation reform. 



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What does research really say about iPads in the classroom?

Two educators put the research to the test

By Jeanne Carey Ingle and Tanya Moorehead

Popular mobile devices may come and go, but the iPad remains a big hit in the K-12 classroom. But even though they're in schools, our work with teachers has led us to understand that while many of them would like to use iPads meaningfully in their classrooms, they can't because of time, access, and training.

So for the past year and a half, we've both been working with teachers and university students integrating iPad technology into the classroom in a controlled way. While doing this, we came across several outcomes that made us question and dig deeper into what the research actually says about using them in the classroom. Do students and younger teachers use them more effectively? Do they work better for some student populations? It's probably not giving much away to say that the most important learning outcome we found was that experience is the greatest teacher.

First, a note about who we are. Jeanne is a teacher (elementary and part-time professor) and Tanya is a university professor (former special education teacher) who loved using technology as a teaching tool. Jeanne wrote several grants to bring technology into her school and her classroom, but she kept noticing that she was flying solo—very few of her school's teachers were using iPads in the classroom beyond the usual Friday afternoon fun time and as a reward for being "good." We wanted to know more about this resistance and hesitation when it came to the use of iPads in the classrooms.

Much of the research done on iPads in the classroom is anecdotal and practitioner based, with limited research on student use of iPads. Surveys of student use of iPads report overwhelmingly that students enjoy learning and stay more

focused when using iPads (Mango, 2015). The research on teacher integration and the results are much more limited. More commonly, studies report that teachers are often resistant to truly integrating iPads into their classrooms because of the constraints of time and training (Clark and Luckin, 2012).

For our own work, we had our university assign 15 pre-service teacher interns to Jeanne's elementary school, and we gave those students training in how to use iPads in the classroom and how to troubleshoot problems. Great idea, right? It was, but it was also full of hurdles and, let's not call them mistakes, let's call them, ahem, "learning experiences." We synthesized the research and connected it to not only our findings but our own teaching experience. What follows are our top five take aways.

Research says that digital natives can do it!

We thought "younger" teachers and our interns would naturally know how to use iPads. But just because they know how to use Instagram, Snapchat, and Twitter to meet up with friends or keep current on the latest hipster fashion doesn't mean they know how to design and implement lessons that effectively integrate mobile technology. Working with mentor teachers, we found that they had an assumption that young student teachers would naturally know the latest and greatest. The truth is that some do but many don't, so training is essential! We gave our interns time to "play" on the iPads—with and without kids. We also gave them lesson ideas and activities for the classroom. They became models for the classroom teachers and were able to go into a room and help a teacher not only implement their lessons but also help with planning ideas. Our interns got very good at saying, "Hey, there's an app for that!"

Research says that kids are digital natives too (Prensky, 2006)

Just like we made mistakes with assuming that millennial teachers would automatically know how to use technology, we also made the mistake of assuming the kids would immediately know how to use the technology in an appropriate way. It became clear early on that the teachers weren't the only ones who needed training. Our elementary students needed to learn how to care for and respect the iPads and the apps, but they also needed to learn how to navigate Google, Safari, and Chrome. These search engines and web browsers may be well within our adult comfort zone, but children need to understand the mechanics of how and when to use them.

Research says that iPads can improve classroom learning

(Maich & Hall, 2016)

We found that iPads did improve classroom learning but not because they are iPads, if that makes sense. Success was more attributable to the fact that teachers who integrated iPads into their lessons tended to do more project based learning (PBL), which has been found to improve student learning across grade levels (Cheu-Jay, 2015). Our teachers used iPads as a tool to become more innovative educators and this in turn led to improved classroom learning. We should note that as this finding became more obvious, we gave our interns further training in PBL.

Research says iPads improve student engagement

When teachers and university faculty asked Jeanne why she wrote that first grant for the iPads, she immediately said, "I was looking for a way to improve student engagement, but really when I'm saying that I think of one student: Edward.

Edward came to my class mid-year from another poor school across the state. He had many home and learning challenges that were well documented in his academic file. My problems with him started immediately—reluctant reader, disruptive behavior, a general refusal to work. I've been a teacher for a long time and I've had other students like this. My approach is to find their talent or interests. Fortunately for me, Edward was a fabulous artist—he loved to draw, and I saw his whole body relaxing as he doodled while waiting for the bus. I couldn't get Edward to do much, but when I gave him the task of figuring out an app that would allow our

they could write and edit on the iPads using keyboards.

Research says that iPads have the potential to level the playing field for all students

We would most certainly agree! Our findings as researchers and teachers made it clear that all of our students could access iPads easily and eagerly. All classes in our research site were inclusive, with a diverse community of learners at every grade level including students with individual education plans, 504 plans, autism spectrum disorders, and English language learners.

creating videos, podcasts, and slide shows, and the list goes on.

In the end, the research and our data merged. The greatest truth was that the less a teacher uses technology, the less comfortable they will be with technology in their classroom—this is neither age-dependent nor years of teaching dependent. We know many “old” teachers (present company included) who love the latest technologies and embrace them joyfully in our classrooms. What has been the most interesting outcome for us in our research is the number of classroom teachers who, with a little hands-on support, created technology-rich lessons with a minimum of training or professional development. The bottom line was that when we mixed training with support, we created a successful and innovative learning experience for teachers and their students. **eSN**



Both teachers and students need training on using iPads in class.

students to draw using the iPads, he became a different student. I told him that this was his responsibility and that he could also serve as a trainer for the other students. It was also his reward and in a way his therapy—when he was particularly upset or disruptive, focusing him on the iPad calmed him and allowed me to work with him in a much more productive way.”

We heard variations on this story throughout our research; the hard-to-reach, reluctant, oppositional Edwards all became engaged when introduced to opportunities that the iPad gave them. Many of them read more easily on the iPads; they willingly did research for projects, and as we moved forward,

Beyond that there are children who fall under the category of reluctant learners and at the same time (since the school did not have a gifted and talented program) many students who consistently perform above grade level.

The explicit intention of using iPads in the school was to reach this rainbow of learners. How does one teacher differentiate for so many different children? Using a PBL framework, we found that iPads could be used to support children in long-term projects and in daily core subjects reviews. More specifically, we used iPads as a research tool, for reading books, practicing facts, writing books, sight word review, for

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Waterford helps close early gaps in students' skills

Maryland's Prince George's County uses Waterford Early Learning software in all K-2 classrooms to help differentiate instruction—and level the playing field for disadvantaged students

Sixty-eight of the 80 elementary schools in Prince George's County, Md., are Title I schools, and students come to school from a variety of circumstances. Many come from low-income households or families where English isn't spoken at home, and their exposure to rich English language and vocabulary has been minimal.

"Because we serve such a wide range of students, it can be challenging to meet all of their needs," said Deborah A. Mahone, director of state and federal programs for the district. "We find that our youngsters are often lagging behind when they get to school, and we see large gaps in performance across various groups."

Prince George's County is closing those gaps early on with help from Waterford Early Learning software.

"This program can very quickly bring young students up to grade level," Mahone said. "It's affordable—and it's making a difference."

Personalized instruction

Waterford Early Learning is a research-based program that adapts to each child's skill level automatically, giving students a unique learning experience that is tailored to their own pace and abilities. As students progress through the engaging, multimedia lessons, they are getting reading, math, and science instruction that targets their specific learning needs.

The software sends progress reports to teachers, so they know which students need extra time on certain skills. These reports also let teachers know which students have excelled and are ready to move to another level. In essence, the reports show teachers exactly what they need to focus on for each child—helping them place students appropriately for small-group instruction or identify which children might need individual attention.

Prince George's County started using the software in some of its Title I schools, and the program proved so successful that it is now used in every first- and second-grade classroom in all 68 Title I schools. This year, the district began using the software's reading component in all kindergarten classrooms as well.

"We have found that the schools using it every day are the ones making the biggest gains," said Title I and Instructional Technology Specialist Terri Jefferson.

What's more, these gains continue with students as they advance to higher grade levels: Teachers have seen a noticeable difference in the reading skills of their fifth-graders who had used the Waterford software in the early grades compared to those who did not, Jefferson said.

Changing the culture

Test scores are one indicator of success, but Mahone pointed to another benefit that has arisen from the district's use of the Waterford software: The culture of its schools is changing as well.

For students who begin school already behind their peers, "providing a level playing field helps boost their confidence," she said. "We've seen a lot of excitement and engagement in learning."

"Since I started using Waterford with my students for at least 30 minutes a day, I have seen dramatic improvement in their vocabulary, reading fluency, and comprehension skills—especially among my English language learners," said Rosemarie Taguba, a first-grade teacher at James McHenry Elementary School. "You can see the eagerness in their faces whenever they have a chance to work in Waterford."

In what might be the program's biggest achievement, Taguba observed: "I could see that they were more engaged (in their education)—and they began to love reading."

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Waterford



Gap

continued from page 1

“Most of the parents of those children are not even literate in Spanish, so they’re not reading books of any kind.”

Nemko and her staff were aware of the “30 million word gap”: the research-backed idea that children who grow up in poverty come to school having heard 30 million fewer spoken words than their peers from middle-class or upper-class homes, putting them at a sharp disadvantage in terms of their language skills.

This gap is even wider when students grow up in non-English speaking households. Nemko and her staff knew they had to do something dramatic to close it.

Five years ago, the Napa County Office of Education piloted the use of Footsteps2Brilliance, a digital platform for building early literacy skills, with a small group of preschool students.

The product features interactive books that can “read themselves” to children in English or Spanish, Nemko said. As the words are being said aloud, they are highlighted in red, so children can learn to associate the written word with the sound they’re hearing. Children also can click on pictures within a story to see animations that bring the story to life.

The preschoolers loved the program, Nemko said, and the results of the pilot were “phenomenal.” As the children consumed the digital books, assessment data showed a 250-percent increase in their English language skills.

“That’s almost unheard of,” she said, adding that students were learning “hundreds of new words a day” by using the system.

After this initial success, Napa County partnered with a private, nonprofit foundation called Napa Learns to make the program available to all of the county’s parents with preschool-age children at no cost. The books can be read on any device, including smart phones and tablets—and they are helping to immerse young children in the English language before they come to school.

“Almost every family now has at least one smart device,” Nemko said. “We thought that if we could help parents download [the software] and show them how to use it, then we could quadruple the amount of time it was being used.” Children are using it at home, she explained, or even while they’re in line with a parent at the grocery store.

“We’re seeing phenomenal use,” she noted. “It’s helping us close the achievement gap before students get to kindergarten.”

‘Learning begins at day one’

Napa County isn’t alone in focusing on children who aren’t even old enough for school. In Weslaco, Texas, Superintendent Ruben Alejandro has launched an early literacy program called “Zero to Three Weslaco Reads,” which provides access to an online library of digital books called myON for

“Education doesn't start on the first day of school. It starts on the first day of life.”

—Dana Suskind,

University of Chicago

the entire Weslaco community. Houston has a similar initiative.

These are just a few examples of how a growing number of K-12 leaders are realizing that, to overcome the effects of poverty on student achievement, school districts have to begin reaching children before they even arrive at school.

“We need to reimagine what education looks like, because we need it to follow the science,” said Dana Suskind, head of the Pediatric Cochlear Implantation Program at the University of Chicago, during a radio podcast for *Freakonomics*. “Education doesn’t start on the first day of school. It starts on the first day of life.”

Suskind continued: “We have made

little progress on what we call the achievement gap. And I truly believe that until we address education as it should be, in a scientific and biological way—because learning begins at day one—then we’re never going to move the needle. We’re remedial rather than preventive. And that’s the larger issue.”

Suskind is the director of the Thirty Million Words Initiative and author of *Thirty Million Words: Building a Child’s Brain*. Her work refers to the groundbreaking research by Hart and Risley in the mid-’90s, who found that children living in poverty have been exposed to about 13 million words spoken in the home by their fourth birthday. But children growing up in homes with parents who are professionals—doctors, lawyers, teachers, engineers—have heard an average of 45 million spoken words by age 4.

That means children from poor homes have had more than 30 million fewer opportunities to learn vocabulary and become accustomed to grammar, sentence structure, and the other aspects of language that are so important.

The children who heard more words were better prepared for learning when they started school, Hart and Risley found—and these same children, when followed into third grade, had larger vocabularies, were stronger readers, and got higher test scores.

What’s more, this gap typically widens as students continue their education, said Martha Burns, an adjunct associate professor at Northwestern University, during a recent webinar on the effects of poverty on school success.

“By the time the students are in about the sixth or seventh grade, they have a five-and-a-half year difference in their oral language skills compared with children who started with high language skills,” Burns said. “The reason is that when you come to school and your language skills aren’t as good, a lot of what the teacher says—and 80 percent of classroom instruction in elementary school is a teacher talking and students listening—is going to go right over your head.”

These children aren’t going to know

the vocabulary, she explained; they aren't going to be confident in what the teacher is saying. "They'll probably tune out, or they'll just miss a lot of the content."

Even more alarming is that the number of U.S. students living in poverty continues to climb.

In 2000, half the students in four states were eligible for free or reduced-price lunches. Just 11 years later, more than half of public school students were poor in 17 states. Student poverty is the dominant reality in three of the biggest states—California, Texas, and Florida—and is nearly the majority in New York, Michigan, and Illinois.

It's this rising poverty that is most responsible for stagnant reading scores on tests such as the National Assessment of Educational Progress, Burns said.

The most recent NAEP scores showed that just 36 percent of U.S. fourth-graders read at or above proficiency. That's virtually unchanged from 2013, when 35 percent of fourth-graders were proficient in reading. Put another way, nearly two-thirds of all U.S. students struggle with reading—and for low-income students, that number exceeds 80 percent.

Audio books aren't 'cheating'

Suskind's 30 Million Words Initiative has developed programs that encourage parents to communicate verbally with their children and immerse them in language-rich activities at a young age. These boil down to getting parents to follow what she calls the "three Ts": Tune in to what your child is doing; talk more to your child using lots of descriptive words; and take turns with your child as you engage in conversation.

But the challenge goes beyond just speaking to young children.

"There is a distinction between speaking in sophisticated ways to your children and just talking to them," said William Weil, CEO of Tales2Go. "Even in the most sophisticated homes, parents don't say to their children, 'Observe, child'—they say, 'Look over there.' The



Software may help bridge the gap.

words that kids need to hear are actually in books."

A recent Pew survey found that just half of U.S. parents read to their children every day, and that figure drops to 33 percent for parents with a high school diploma or less. Weil said many parents aren't reading to their children because they aren't fluent in English themselves, or because they work multiple jobs and don't have the time. But "if you can't read to your children often enough, someone has to," he said.

That's where Weil's company comes in. Tales2Go streams audio books to children's computers or mobile devices wherever they are, as long as they have an internet connection. When schools buy a site license to the service, their students can have unlimited, simultaneous access to any of the 8,000 fiction, nonfiction, and Spanish-language titles in the company's collection.

Proficient reading is predicated on having a large vocabulary, Weil said—and "it's through repeated exposure to spoken, sophisticated words that you build vocabulary." Listening to audio books can increase the frequency that kids are getting this exposure, both in the classroom and at home—which is why the Los Angeles Unified School District and Florida's Orange and Broward counties are using Tales2Go as part of their literacy efforts.

For many people, "it doesn't make sense" to use audio books as a key liter-

acy tool, Weil acknowledged: "I know there are parents who think audio books are cheating, and I know there are educators who think, well, that's just lazy."

But the Common Core standards "raise up listening to be a skill that is equivalent to reading and writing and speaking," he said. In response, more elementary schools are adding a listening component to their station rotations, where students can listen to fluently spoken language.

This is "driving vocabulary acquisition and attention," Weil said. "It also exposes children to more complex texts than they can decode on their own."

More than just literacy skills

Poverty affects more than just literacy skills, Burns said during the webinar: Researcher Kimberly Noble in 2005 published a study showing how it also affects cognitive functions such as working memory and attention. And last year, she published new research suggesting a strong correlation between family income and how a child's brain develops.

A big reason for this is something called "toxic stress," stress that is continual, where the child doesn't have a break from it. "What happens is that children are learning to respond to stress more than they're learning to read or write or do math problems," Burns said.

Positive experiences, in which children are exposed to an environment that is rich in opportunities for exploration and social play, can help offset these effects—and so can caring relationships with adults.

"For children who come from stressful homes, if school is a safe haven and a place where they trust, that alone has been shown to compensate for some degree of negative experiences," Burns said.

Reading software also can help—especially if it's designed to target not just literacy skills, but also the cognitive skills that are affected by poverty, such as activities that build memory and attention.

That's the idea behind Fast ForWord

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5 ways cloud computing will impact students, teachers, and IT in 2016

By **Bridget McCrea**

It's no secret that being able to access enterprise applications and other types of software online—in a 24/7/365 environment—beats having to install, maintain, and upgrade individual applications across multiple desktops and laptops. Especially when maintaining software at school, classroom, teacher, and individual student levels is such an arduous task.

Software-as-a-Service (SaaS) or “cloud computing” has helped districts and schools streamline their applications while at the same time introducing new challenges to the mix—such as online privacy and security concerns. These and other obstacles aside, cloud computing has been growing in popularity lately due to its low entry costs, short installation/implementation times, and the fact that it lessens the burden on schools' IT teams when it comes to software maintenance and upgrades.

Formally defined as a software licensing and delivery model where applications are licensed on a subscription basis and centrally hosted, SaaS is often used interchangeably with “cloud” or “on-demand” and usually accessed via a web browser and password (if applicable). Here are five ways this software deployment method is changing the K-12 environment right now:

Leveling the playing field for smaller institutions

Calling SaaS a “great equalizer,” David J. Hinson, director of technology services at Yeshivah of Flatbush in Brooklyn, N.Y., said the software delivery method can be a boon to smaller schools and districts, which may have trouble luring top IT talent. “The pressing need to find sustainable, affordable technology solutions has driven much of the trend toward cloud-based services in K-12,” said Hinson, who adds that

even in relatively “talent-rich” markets like New York, finding, hiring, compensating, and keeping technically savvy employees is a challenge. “Our forte is supposed to be education, not talent acquisition. Using SaaS allows even the smallest school's IT department to ‘punch above their weight,’ and provide services that were once available to only larger enterprises.”

Helping schools rethink technology budgeting

At first blush, cloud computing appears to be a budget-conscious way to acquire new software. Generally offered up on a subscription basis, applications delivered online boast fairly low barriers to entry and require less of the IT team's time when it comes to maintenance and upgrades. However, for the school that's used to buying software and systems and then running them at “no additional cost” until they break, the transition to the subscription-based model may seem like a costlier option. “The biggest challenge is communicating the savings in opportunity costs that SaaS affords,” said Hinson, “and the advantages of being able to deploy a smaller number of people in a more synchronous alignment with your core mission.” Hinson said Yeshivah of Flatbush has worked through the challenge and currently uses Google Apps for Education for email, documents, spreadsheets, and collaboration software in the cloud. The institution's infrastructure management software (i.e., controlling its firewall, routers, switches, and access points) is also cloud-based, as is the software it uses to deploy and manage mobile devices. “We have not purchased a major, enterprise-scale software package in the last year that was not cloud-based,” said Hinson. “Cloud-based systems are our ‘new normal.’”



Cloud computing can lead to savings.

Letting schools work with the computers they have

One of the cloud's biggest selling points is the fact that it takes the burden of “having enough hard drive space” off the individual computer and puts it out onto the web. With programs like Adobe InDesign requiring at least 2.6 GB of hard drive space for installation on a machine that's running Windows—and with districts like Alief ISD of Houston serving 46,000 students on 46 campuses—the need for more memory was a perpetual struggle before the introduction of cloud computing. Now, Dan Blevins, instructional technology specialist for Killough Middle School/Alief ISD, said the cloud provides an easy and reliable way to both store data and deploy programs, such as Adobe Creative Cloud. As an added bonus, it also frees up the IT team to work on more “mission-critical projects,” he added. “The cloud doesn't solve all of the problems that IT has to grapple with, but it does play a part in helping the department be more effective and efficient.”

Managing automatic upgrades, migrations, and patches

Blevins remembers the time when software upgrades meant rifling through

Cloud, page 43

Teach students to communicate effectively in the Innovation Age

By Sharon "Sam" Sakai-Miller

Ready or not, education has entered the "Innovation Age," where it's not about what students know but what they can do with what they know. Teachers can prepare students to thrive in the Innovation Age by teaching them to think at three levels: "what," "so what," and "now what." Students might think of it in terms of three overarching questions: What is the basic concept? What is its relevance and what is it related to? And now, what can I do with what I have learned to find solutions to unmet needs?

In the Information Age, the era we are just now emerging from, knowledge was power so educators taught students to access, gather, analyze, and report information. In the Innovation Age there is a glut of information and data are readily generated or at fingertip accessibility. Successful educators in the Innovation Age must empower students by leading them discover their agency, define their purpose, and be open to fresh perspectives.

Power and purpose

In the Innovation Age, educators must wield technology and media to become change agents and innovators with scalable concepts because they have a voice and a broader platform. Trends change by the hour and the day instead of seasons and years.

Before innovators can successfully meet needs, they must understand their users and think empathetically. In the Innovation Age, success is in the eye of the user. Students must ask themselves what success looks like from many perspectives. Instead of a singular focus on presenting a single solution, innovators have to be adept at two-way communication to sustain their relevance and connection with their audience or market.

Educators must now focus on collaboration, communication, creativity, and

critical thinking, all hallmarks of the ISTE Standards for Students, to prepare students for college and career readiness. Many teachers have put off incorporating these "soft skills" because they feel too nebulous or abstract to teach. In my district, we addressed three critical teacher needs through our 12-hour technology academies: (1) exploring new laptops and peripherals, (2) instructional strategies for integrating technology and incorporating the 4 Cs, and (3) experiencing a one-to-one learning environment before teaching in one. While the results are preliminary, initial responses and evaluations from participants show the focus on communication is very immediate, applicable, and thought-provoking.

Consider these fresh perspectives on communication

Communication is critical throughout the innovation process, and excellent communication skills are essential in every walk of life. Learning and teaching boil down to communication. There are three things that we stress when we work on communication: agency, empathy, and fluency. As educators, we should be working on all three with our students. What tools can we provide students to give them voice (agency)? How can we develop their empathetic thinking (empathy)? Can we enhance their communication skills so they can better communicate using words, data, and graphics (fluency)?

Agency: Empower students to be contributors and problem solvers

1. Voice – Students become aware of their voice and agency when they are producers and publishers. Teachers can help students to find their voices by teaching them to be smart consumers and creative producers.

2. Impact – Collaboration and networking increase the impact students can make. The more teachers collaborate to build richer curriculum, the more they understand the power of student collaboration.

3. Scale – Technology improves the scalability of projects.

Empathy: Connect and impact your audience by building empathetic thinking

1. Think in terms of "What. So what. Now what," where "what" equals content or skill, "so what" equals relevance or related concepts, and "now what" equals what your audience/user will take away or do as a result of your message. After identifying the "now what" of your message, you can better refine or streamline your "what" and "so what."

2. If you prefer to be hands-on or active, so does your audience. Add two-way communication strategies to one-way presentation skills to increase audience involvement.

Fluency: Communicate more fluently

1. Communicate through words by using word processing features to build structure that encourages flow and try built-in tools such as Voice Text and Research in Google Docs.

2. Introduce graphic elements in a progression so their repertoire of skills builds in complexity with each successive project.

3. Assign an infographic project using templates on easel.ly, piktochart.com, Canva, or Venngage. 

Sharon "Sam" Sakai-Miller, Ed.D., is a director of technology integration and the author of the newly released ISTE book "Innovation Age Learning: Empowering Students by Empowering Teachers."

11 ed-tech buzzwords and phrases

Do these “edubabble” terms have meaning or are they just empty rhetoric?

By Stephen Noonoo
Editor, @stephenoonoo

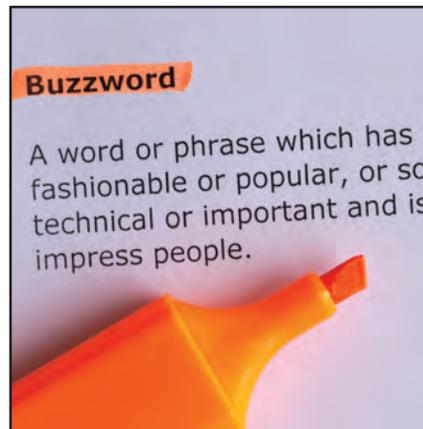
Get a group of educators together either online or in person and at times it can seem like they’re speaking a different dialect. Want to disrupt the fixed mindset and combat the device gap in the age of the digital native? Well, have you tried innovating your hidden curriculum? Just add more grit (or should that be rigor?). And do it all like a pirate. No, wait—a rockstar.

At best, ed-tech buzzwords can serve as a sort of shorthand when conversing with like minds to quickly touch on relevant, universally understood phenomena, perhaps with an eye toward saving precious Twitter characters to add additional insight. At worst, as one blogger put it, edubabble is “an act of unconscionable self-indulgence.”

Moreover, in fitting with language’s protean nature, shiny new terms are likely to elude a single, fixed definition, making them even more incomprehensible to outsiders, or even other insiders. The following is our list of the most popular buzzwords, jargon, edubabble, and everything in between.

Grit

Popularized by scholar Angela Duckworth, grit is something of a modern day rebrand of the millennia-old heavenly virtue of diligence. Students need to look beyond passing a class and start to invest in long-term learning goals that interest them. Grit is a popular concept these days, and it’s been bolstered by books, a section in a recent Carnegie Foundation report, and splashy articles in media outlets like the *Atlantic* and the *Washington Post*, but even Duckworth is pulling back, worried that she may be making converts that are too-zealous and warning that the concept cannot truly be measured for accountability purposes.



The downside to buzzwords.

Rigor

The gist of rigor in an educational context seems to be that kids rise to expectations, and if you set them high, while giving them enough support, they will perform at a higher level. Perhaps owing to the fact that its dictionary definition is different than its educational definition, it’s a term that can lead to confusion. When some educators hear the term they think it means presenting lessons that are “more harder.” But authors Barbara R. Blackburn and Cris Tovani, who have both written about rigor, contend that teachers need to be flexible in their approach and tailor it on a class-by-class or student-by-student basis.

Mindset

Another scholarly concept that got its start as a book, Carol Dweck’s “Mindset: The New Psychology of Success” has been held up as exemplary practice by schools everywhere. To Dweck, and her legion of fans, you can either have a fixed mindset (the belief that traits, such as intelligence and ability are pre-set and unlikely to change given time and effort) or a growth mindset (the belief that a lack of natural ability can be overcome through hard work). The problem, as schools realize when they move toward adopting

growth mindset practices, is that the growth mindset is often at odds with traditional classroom pacing, assessment, and feedback. It can be tough, for example, for a student to shed a fixed mindset when the prospect of an F looms over a course.

The ___ Gap

Equity, learning, achievement, device, vocabulary. “Gap” all but invites educators to fill in the blanks. Most often it comes down to the timeless struggle between haves and have-nots and how education is—or isn’t—compensating appropriately.

Authentic learning

The concept of “authentic” learning is nothing new, but much like suede and tartan, the term drifts in and out of fashion. These days it can refer to experiences that encourage students to put down their books and get a taste of the real world (perhaps via a trendy genius hour or 20 percent time). But it can also be one more adjective piled in a string of buzzwords to lend a veneer of change to practices that aren’t much different than what was done before.

Student voice and choice

Increasing student agency has been on educator’s minds for a while now. Letting students decide how to go about tackling a problem or learning a concept ties into a number of education philosophies from UDL to rigor and grit, which all require teachers to give up some control to students and use approaches that students favor, even if they’re out of the teacher’s comfort zone. Plus, it rhymes.

Maker

Every educator queried for this article mentioned some form of maker or makerspace as a must-include. And why not? Making and hands-on learning are certainly buzzworthy enough, garnering a White House-approved week of cele-

bration and rocketing out of nowhere into the Horizon Report's list of almost-mainstream trends. But it can be a fuzzy, overly-broad term to describe basically anything that students create, from coding simple apps to building robots out of cardboard or custom Lego creations. Like with any educational concept, thoughtfulness is key.

Personalized/adaptive

For some it can be hard to tell these terms apart. Personalized learning, which is kind of the umbrella term, means an instruction approach that takes individual student needs, interests, and potential learning difficulties to customize the course for that particular student. Adaptive learning primarily uses technology such as software to benchmark where a student is, and then adjust the material, pace, or presentation to suit the learner. True adaptive learning, however, is more than just making quiz questions easier if a stu-

dent starts to pick wrong answers. It looks at why the student got the answer wrong and puts them on a path to figuring out how to correct those mistakes.

–preneur

A suffix that can be portmanteau'd with virtually any education-related noun from teacher to student to passion, it's essentially a buzzword defined entirely by other buzzwords. The term has come to mean less about getting people to make money or start businesses (the traditional meaning of entrepreneur), and more about innovation, risk-taking, leadership, and planning for the long-term (aka, grit).

Future ready

Talk about top-down, this one came straight from the White House. While it's still used to refer to the Future Ready pledge, more recently educators have begun using (or overusing) it to refer to the ideas in that pledge, namely

how to get their schools ready to deal with an onslaught of device, infrastructure, and privacy concerns.

Teach like a Pirate/Rockstar/Ninja...

The cynic might note how many terms on this list have skyrocketed in popularity thanks to the catchy titles of popular books or workshop series. Nowhere is that marketing gimmick more apparent than the "Teach like a ..." phenomena, which are basically selling new ways of thinking about technology and the teacher's role in the classroom. While that in itself isn't a bad thing and while there's nothing wrong with a gimmick—you could argue hashtag-friendly "edubabble" is gimmicky itself—devoid of context, words like "rockstar" and "ninja" are empty calories that sound more like a who's who of fourth-grade Halloween costumes than a strategy to inspire students to take a greater interest in their own learning. eSN

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Major momentum behind micro-credentials

Digital Promise's badging movement gets a new push

By Jennifer Kabaker

Educators are, by definition, continuous learners. They spend their careers striving to become better practitioners, whether through formal professional development activities like workshops and in-service days, or informal engagements like Twitter chats, EdCamps, and virtual coaching and communities. In fact, research conducted by Digital Promise and Grunwald suggests that educators often pursue these learning activities to satiate their own love of learning and desire to better serve their students.

While we know educators are always learning, our systems for recognizing that learning have not quite caught up. Professional development structures typically recognize educators for the time they spend learning in formal activities and rarely acknowledge informal learning. Similarly, these structures often do not focus on competency (whether an educator can apply their learning in their classrooms), which is an important step toward understanding the impact of each learning activity.

Digital Badges, also known as micro-credentials, present one tool to address these imbalances. Micro-credentials provide individuals with portable, shareable badges that recognize the learning activities they participate in or the skills they have developed. As a result, they can both highlight the wide variety of learning activities educators engage in and facilitate the shift to competency-based learning for educators.

During the past two years, Digital Promise has been building an ecosystem of micro-credentials to provide competency-based recognition for the skills educators develop throughout their careers in both formal and informal contexts. Supported by the Open Badge Standard (developed by Mozilla) and digital badging technology, these micro-credentials provide educators with concrete validation of their learning that can be used as a type of curren-



Idea Generating micro-credential.

cy in professional learning.

To earn a micro-credential, educators pick either a single micro-credential or a stack that is aligned with their interests or needs, collect the required evidence to demonstrate competency, and submit it online for assessment. For example, if an educator wants to earn a micro-credential in Wait Time—asking a question and then waiting 5-8 seconds before following up—she would select that micro-credential, access any resources or further information she needs to develop that skill, and submit a video of herself demonstrating wait time during instruction, as well as some context and a reflection, via the micro-credential platform. An assessor will download the video and evaluate it through the publicly available rubric. If successful, he or she will earn the micro-credential in the form of a shareable digital badge. Micro-credentials can be posted on social media, shared with administrators or colleagues, and published on profiles and resumes.

Thus far, Digital Promise has partnered with more than 15 organizations with specific content or pedagogical expertise to develop and publish more than 120 micro-credentials on a variety of topics, such as deeper learning, teacher leadership, and data literacy. Micro-credentials are currently available from organizations like the Center

for Teaching Quality, Relay Graduate School of Education, and the Friday Institute at North Carolina State University. This ecosystem is constantly growing to meet the needs of educators across the sector, from new classroom teachers who need support with classroom management to experienced administrators looking to increase their skills with coaching and observations.

While micro-credentials are a new and emerging idea in professional learning, some schools and districts are already experimenting with them and finding success. Kettle Moraine School District in Wisconsin has been implementing micro-credentials for the past year to ensure its educators are receiving the personalized learning opportunities and recognition they need to be successful. To sweeten the deal, the district provides educators with an increase in their base pay for every micro-credential they earn. Teachers are now motivated to learn more, and the district has seen greater collaboration and collegiality within schools.

Financial incentives are not the only way schools and districts are encouraging educators to participate in micro-credentials. A middle school outside San Diego has chosen to incorporate micro-credentials into its weekly Professional Learning Community (PLC) meetings. Educators can select a micro-credential that meets the goals of their PLC and support each other as they embark on learning a new skill and collecting the necessary evidence. And the Houston Independent School District is working with the University of San Diego to develop micro-credentials aligned with their new “Global Graduates” priorities to provide educators with competency-based opportunities to grow their skills. 

Jennifer Kabaker is director of educator micro-credentials at Digital Promise.



Leading a Digital Transformation

How to use E-rate and the power of digital to transform education

In Mooresville, North Carolina, school leaders haven't bought a textbook in nearly five years. Yet achievement is on the rise, students are more engaged, and the level of sophistication in their work is remarkable.

In one recent project, a sixth-grader gave a presentation on the authentication of Mesopotamian religious artifacts. She had done extensive research on the topic, and she used archival photographs comparing real and fake artifacts. She even interviewed a professor with expertise in the field and created some faux relics to display.

"It was stunning," said Superintendent Mark Edwards. "It could have passed for graduate-level work."

Nearly nine years ago, the Mooresville Graded School District began its journey toward what Edwards calls a "dig-

ital conversion," transforming its classroom instruction and central office operations with the help of technology.

Today, all students in grades kindergarten through 12 have access to a digital device—students in kindergarten and first grade use iPads, and students in grades 2 through 12 use MacBook Airls—and they can take their devices home for learning beginning in fourth grade.

Mooresville uses an all-digital curriculum, and its technology conversion has led to more personalized, student-centric, and data-driven approaches to teaching and learning. "It's rare that you see whole-group instruction anymore," Edwards said. "What you see is small-group collaborative work, where students are developing expertise working in teams."

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“It’s all tied back to improving student outcomes.” These outcomes are not only academic, but also experiential—such as developing important skills in communication, collaboration, critical thinking, innovation, and leadership.

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At the same time, Mooresville has begun streamlining its operations as well—and it has seen a fantastic return on its technology investment: Although it’s near the bottom of the state in per-pupil funding, the district ranked third last year in student achievement.

Mooresville’s example shows not just what is possible with technology, but that any district can make the same transformation, regardless of its resources—provided it follows the right steps.

A Digital Transformation

In other industries, technology has had a transformative effect as it has become embedded into organizational processes, said Irfan Ali, director of global industry Internet of Things sales strategy and operations at Cisco Systems.

The same is possible for education, although districts like Mooresville have mostly been the exception rather than the rule so far. But with the right tools and techniques, K-12 districts can experience the same transformational benefits that businesses have realized over the last few decades.

Ali describes digital transformation in K-12 schools as using technology to create better access to educational experiences for students. For instance, can students learn anytime on demand, rather than having their education limited to attending a class at a particular time and place? Can they have a different level of experience that is more personalized to their needs? Can teachers deliver instruction in more innovative ways that both engage and empower students?

“It’s all tied back to improving student outcomes,” he said. These outcomes are not only academic, but also experiential—such as developing important skills in communication, collaboration, critical thinking, innovation, and leadership.

Some of the key technologies that enable this transformation include:

Mobility solutions, which include mobile devices as well as wireless connectivity, broadband networks, caching servers, filters and firewalls, network monitoring tools, mobile device management software, and other technologies that enable remote access. “These are paramount,” Ali said. “We want to make sure students can connect in a secure manner and have opportunities for anytime, anywhere learning.”

Collaboration tools, or technologies that enable students to interact with each other and with subject matter experts, creating a shared learning environment that leads to richer experiences. “There should not be a big gap between in-person learning experiences and remote ones,” Ali said.

Data analytics: Having access to actionable, real-time data through the use of analytics tools can help educators target their instruction more effectively

do advanced research on topics that interest them, such as the student who took her learning to a deeper level by researching Mesopotamian artifacts.

In McAllen, Texas, educators are seeing similar results from their own digital transformation. The McAllen Independent School District has given each of its 25,000 students an iPad, leading to a dramatic rise in student engagement and a shift toward inquiry-driven, project-based learning.

“Students are finding information without the teacher holding their hand,” said Ann Vega, director of instructional technology.

Students are connecting with and learning from their peers in other countries. They’re peer-editing each other’s work. Elementary students are recording and timing each other reading aloud to test for fluency. Fourth-graders are blogging about the books they’re reading in class.

As a result of these efforts, elemen-

transformation, you have to have a clear vision for what you hope to accomplish with technology and how it will transform teaching, learning, and school operations. You also have to get buy-in from teachers, parents, and other stakeholders.

McAllen ISD is guided by a strategic plan called “Transforming Learning in the Classroom, Campus, and Community,” or TLC3. Its goals include focusing on the instructional needs of teachers and the learning needs of students; providing job-embedded professional learning opportunities for teachers; and integrating technology into all aspects of the community. The plan also calls for all students to master the “four Cs”: communication, collaboration, critical thinking, and creativity.

To create its plan, McAllen assembled a cadre of students, parents, teachers, and other community members, who all had input. Mooresville went through a similar process in forming its

As a result of these efforts, elementary reading scores are on the rise, and McAllen’s three comprehensive high schools are ranked among the best in the nation by Newsweek. “We’ve equipped our students and staff to compete at a global level,” said Superintendent James Ponce.

to fill gaps in students’ skills, and it can help administrators recognize significant trends and focus their resources on the areas of greatest need—leading to smarter practices.

In Mooresville, giving all students a powerful digital device that enables 24/7 learning has opened new possibilities for their education. Mooresville has shifted to a more student-centered, inquiry-based model of instruction, in which students are challenged to find information for themselves instead of being given all the knowledge by their teachers.

By taking ownership of their own learning, Mooresville students are learning how to use digital resources to

tary reading scores are on the rise, and McAllen’s three comprehensive high schools are ranked among the best in the nation by *Newsweek*. “We’ve equipped our students and staff to compete at a global level,” said Superintendent James Ponce.

Five Keys to Success

Leading a digital transformation on the scale accomplished by Mooresville or McAllen is a huge undertaking. As you prepare to lead a digital transformation in your own district, here are five keys to success.

Have a plan

Before you can embark on a digital

own strategic plan.

“Approaching this as a community-wide effort and engaging parents, community leaders, your local chamber of commerce, and other stakeholders is important, so there’s a communitywide understanding about the essential need to move in that direction,” Edwards said.

Invest in your network infrastructure

Before rolling out devices to every student, both Mooresville and McAllen built out their network infrastructures to ensure that it could handle the load.

“We had to ramp up our wi-fi from being almost nonexistent to having seam-

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less coverage throughout our buildings,” said Patrick Karr, network services manager for McAllen. “Relationships with companies like Cisco and Apple made it easier, but trying to ramp up from where we were to where we are today has taken many hours.”

With phone service, you expect to place a call and have the person on the other end pick up without a hitch, Karr said. Internet connectivity is the same way; it should work smoothly, without students and staff having to think about it—and that requires a solid infrastructure.

“You have to have leaders who understand the importance of your network infrastructure, and you have to have the financials to be able to achieve it,” Karr said. “When you build something like this, you don’t build it on a shoestring budget, because you can’t afford to. If you do, you’ll fail.”

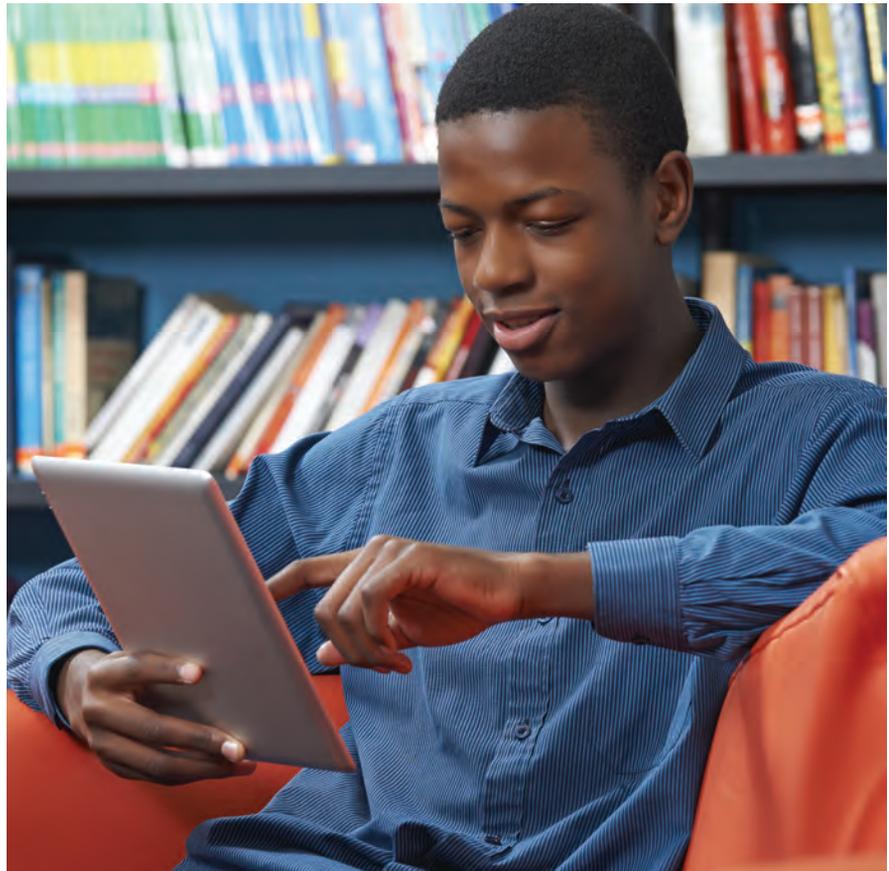
The State Educational Technology Directors Association (SETDA) recommends that schools provide at least 1 gigabit per second (Gbps) for every 1,000 students and staff members by 2017 to enable rich, transformative teaching and learning experiences.

Karr suggests planning for more bandwidth than you think you need, because network demands increase exponentially as students do more bandwidth-intensive work. “When we built out our network, we were anticipating a need to support two devices for every user,” he said.

Consider the human element

The biggest challenge standing in the way of a digital transformation in K-12 schools is not the technology itself. “I would say the biggest challenge is cultural and operational,” Ali said. “Schools have to shift their culture to leverage these new tools, and that has been the biggest impediment in most cases.”

Edwards would agree. Shifting this



We had to ramp up our wi-fi from being almost nonexistent to having seamless coverage throughout our buildings,” said Patrick Karr, network services manager for McAllen. “Relationships with companies like Cisco and Apple made it easier.”

culture involves developing the capacity of teachers and administrators to use technology effectively, he said, noting that most school systems “have not paid enough attention to change management and building a culture that embraces innovation.”

Professional development is a key part of this capacity building, and it should consist of sustained, ongoing professional learning opportunities that are directly relevant to teachers’ needs. Teachers also should have plenty of

chances to learn from and collaborate with their colleagues in designing dynamic, technology-enabled lessons.

But building a culture of innovation requires more than effective professional development, Edwards said. It also involves creating a safe environment for teachers to experiment and try new things.

“We knew that some teachers would move faster than others,” he said, “but we respected and showed appreciation

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How E-rate 2.0 Can Help with Digital Transformation

The Federal Communications Commission's historic overhaul of the E-rate Program in 2014 has paved the way for digital transformation by helping more schools upgrade their broadband networks.

Here's what you need to know about these changes.

More funding is available for network upgrades: The FCC has raised the funding cap from \$2.4 billion to \$3.9 billion per year, with at least \$1 billion of that pledged for network upgrades. The agency also changed the E-rate rules to extend this funding for network upgrades to more applicants.

Network upgrades are no longer a Priority 2 service: Until last year, wi-fi and other internal broadband connections were considered "Priority 2" services and were funded only after all requests for Priority 1 services (telecommunications services and Internet access) had been met. However, that left most schools without any E-rate funding for internal connections. Starting with the 2015 funding year, the FCC changed the description of these services to "Category 2" instead of "Priority 2," reflecting that these services no longer will be given a lesser priority.

Network services have a five-year funding cap: To spread Category 2 funding to the broadest number of applicants possible, the FCC has taken two key steps: (1) It has limited the maximum discount on these services to 85 percent instead of 90 percent, and (2) it has capped the amount of funding that applicants can receive on these services within a five-year period.

For schools, the cap amounts to \$150 per student per site on the pre-discount cost of Category 2 services over five years. For instance, a school with 1,000 students that qualifies for a 60 percent discount could buy up to

\$150,000 in wi-fi and other network services over a five-year period, receiving \$90,000 in E-rate discounts to offset the cost.

To ensure that smaller schools can buy the minimum amount of wi-fi gear they need, the FCC created a "funding floor" of \$9,200 per building. (Again, this refers to the pre-discount price of equipment.) So a school with only 50 students and a 60 percent discount would not be limited to \$7,500 in Category 2 services over five years; instead, it could spend up to \$9,200 and receive up to \$5,520 in

The FCC has raised the funding cap from \$2.4 billion to \$3.9 billion per year, with at least \$1 billion of that pledged for network upgrades.

E-rate support during this period.

Because of this five-year cap, K-12 technology leaders will have to think strategically about their wi-fi needs—and they should look at purchasing equipment with a five-year life cycle in mind.

Changes have been made in eligible services: The redesigned E-rate Program also contains significant changes to the kinds of services that are eligible for support.

For instance, funding for all voice-related services is being phased out entirely by the 2019 program year. Email, voicemail, and web hosting are no longer eligible; also ineligible now are all products and services in the categories of circuit cards and components; interfaces, gateways, antennas,

and servers; storage devices; video components; and data protection components (except for firewalls, uninterruptible power supplies, and battery backups, which are still E-rate eligible).

The new rules make caching servers, which store information locally so it can be accessed more quickly, eligible for the first time. Support for the basic maintenance of internal connections also is available, but only if the equipment itself is eligible for E-rate support—and only if schools haven't exceeded their five-year limit on Category 2 funding.

The new rules also created a new category of eligible services: "managed internal broadband services." Before, schools could apply for E-rate discounts only on the purchase of routers, switches, wireless access points, and other internal connections, or on the basic maintenance of this equipment. Now schools can enter into contracts that call for wi-fi providers to install and manage this equipment—and this full-service approach to wireless service is E-rate eligible.

What's new for 2016: The filing window for the 2016 program year is likely to open in January and will last until March. And there are several procedural changes that school leaders should know about, said John Harrington, chief executive officer of the E-rate consulting firm Funds for Learning.

For instance, applicants now are required to use a new online portal to apply, meaning that there will be a learning curve for applicants to get used to this new system. If you haven't already done so, Harrington recommends that you create a user account and start familiarizing yourself with the new system as soon as possible. 

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for any forward movement. Nurturing and support are very important in this process.” Mooresville also identifies teacher leaders and has them help train other staff members.

“Hearing a veteran teacher say, ‘I can do this’ has been motivational for many teachers who had some reticence,” Edwards said.

Be creative with funding

Funding is another huge barrier to digital transformation in schools—but successful districts such as Mooresville and McAllen have found creative ways to overcome this hurdle.

McAllen has been able to use the

The E-rate Program has played only a minor role in Mooresville, because its discount percentage is not as high. So Edwards and his staff have had to think outside the box. (A school district's discount percentage is determined by the percentage of its students who are eligible for free or reduced-price lunches.)

To help get its digital transformation off the ground, Mooresville tapped the power of community partnerships. Lowe's Home Improvement, which has its corporate offices in Mooresville, stepped up with an initial \$250,000 investment. The district also has partnered with community organizations and local companies to help extend broadband service into students' homes. “Ninety-five percent of our students now have home broadband access,”

rate “speaks loud and clear to the support we have from the community,” Edwards said.

Don't go it alone

Investing in the right technologies to support a digital transformation, and making sure all of these technologies work together for a seamless, secure user experience, can be difficult. Choosing a supplier that is not just a vendor but a full partner in your digital transformation efforts can help you eliminate this challenge.

For both Mooresville and McAllen, Cisco has been that partner, supplying not just industry-leading technology but also the expertise needed to make these initiatives a success.

Cisco has been a partner in McAllen's digital efforts for nearly 17 years, Karr said. Its role has included building an identity services engine for the district, designing and testing the network, helping IT staff analyze network traffic, and installing next-generation firewalls that have supported new ways of teaching, learning, and connecting securely from home, school, or in between.

“It has been a very good relationship that has provided a huge value-add for us,” he noted.

Edwards said he appreciates Cisco's thought leadership as much as its technical expertise.

“When we hit some implementation challenges early on, they sent engineers to help evaluate our infrastructure and worked as advisors for us,” he said. “We also had somebody from Cisco give a presentation for us last year on where things are going with technology. We try to build relationships with service providers where we're working together and solving problems to improve teaching and learning, and Cisco has been a really good partner for us.” 

The State Educational Technology Directors Association (SETDA) recommends that schools provide at least 1 gigabit per second (Gbps) for every 1,000 students and staff members by 2017 to enable rich, transformative teaching and learning experiences.

federal E-rate Program, which provides discounts on telecommunications, Internet, and network services, to pay for much of its network infrastructure.

The E-rate Program is phasing out support for voice-related services by 2019 to focus more on broadband, but McAllen qualified for a high enough discount (near 80 percent) that it was able to use the program to fund internal connections even before those changes began last year. “We were only spending 20 cents on the dollar for our network services,” Karr said.

Edwards said.

Mooresville hosts its own educational technology conference and uses the proceeds to help pay for its professional development efforts. And its digital conversion has saved on the cost of curriculum materials, paper, toner, and postage—money it has reinvested in its technology initiatives.

With a history of success behind it, Mooresville last year was able to pass a large bond referendum that will help pay for technology for many years to come. The referendum's 70 percent pass

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Cisco Solutions Simplify Digital Transformation

Successful digital transformation requires technology that is easy to deploy, use, and manage—and that’s a key area of emphasis for Cisco.

“We make it as simple to acquire and use technology as possible, so school leaders can put all of their muscle behind their true focus: education,” said Charles Garcia, director of sales for Cisco’s U.S. public sector business.

Here are some Cisco® solutions that can help simplify school IT, helping ensure that technology is not an obstacle but an *enabler* of transformation.

Cisco Mobility Express

Setting up a wireless network can be challenging, especially for smaller K-12 districts with a limited IT staff. Cisco Mobility Express aims to make the process easier. Designed for a site needing up to 25 wireless access points and serving up to 500 client devices, the solution enables non-IT personnel to build a wireless network using a simple, over-the-air configuration interface.

The Cisco WLAN Express Setup Wizard configures multiple access points simultaneously in minutes. What’s more, you can access the dashboard through a web browser or Cisco’s Wireless Mobile app to operate, monitor, and troubleshoot your network.

The Mobility Express technology is built into Cisco Aironet® 1850 and 1830 Series access points, which support 802.11ac Wave 2, the very latest wi-fi standard—enabling speeds faster than 6 gigabits per second (Gbps).

Cisco Meraki for K-12

Cisco Meraki® is a cloud-based management solution that simplifies both network and mobile device management, said Xan Stevenson, a sales manager for Cisco’s Cloud Networking Group.

Meraki includes 802.11n/ac access points, Layer 3 Ethernet switches, security appliances that provide Children’s

Internet Protection Act (CIPA)-compliant web caching and content filtering, and cloud-based network management functionality that also includes mobile device management capabilities. All hardware and licenses are E-rate eligible, with the exception of MX Advanced Security licenses (50 percent eligible) and Systems Manager licenses (not eligible).

The Meraki cloud-based dashboard provides visibility into bandwidth consumption and allows IT staff to shape bandwidth usage and troubleshoot the network, Stevenson said, adding: “You can hotlink right to the switch and access point it’s connected to.” What’s

“We make it as simple to acquire and use technology as possible, so school leaders can put all of their muscle behind their true focus: education.”

—Charles Garcia, director of sales for Cisco’s U.S. public sector business

more, Systems Manager, the mobile device management solution, allows you to create network access policies for all devices in specified groups, letting you easily manage 1:1 and bring-your-own-device (BYOD) programs—and it connects with an Active Directory server to make the onboarding process even simpler.

Meraki cloud-managed security appliances include anti-phishing and intrusion-protection capabilities, as well as a SafeSearch feature. The content filtering capabilities make it easy to give students limited access to YouTube videos for educational purposes, while blocking access to inappropriate videos.

Because the Meraki platform is cloud-based, Cisco is able to push out upgrades over the Internet, so schools always have access to the latest network technologies, Stevenson said. The system scales to any size and sends automatic alerts if there is a network problem that needs addressing. Plus, remote troubleshooting capabilities allow previously time-consuming tasks, such as cable tests, to be performed anywhere. For schools with limited budget, staff, and time, the Meraki solution fits the bill.

Collaboration Solutions

Cisco also offers a number of solutions that help students and staff collaborate within or outside of school, such as:

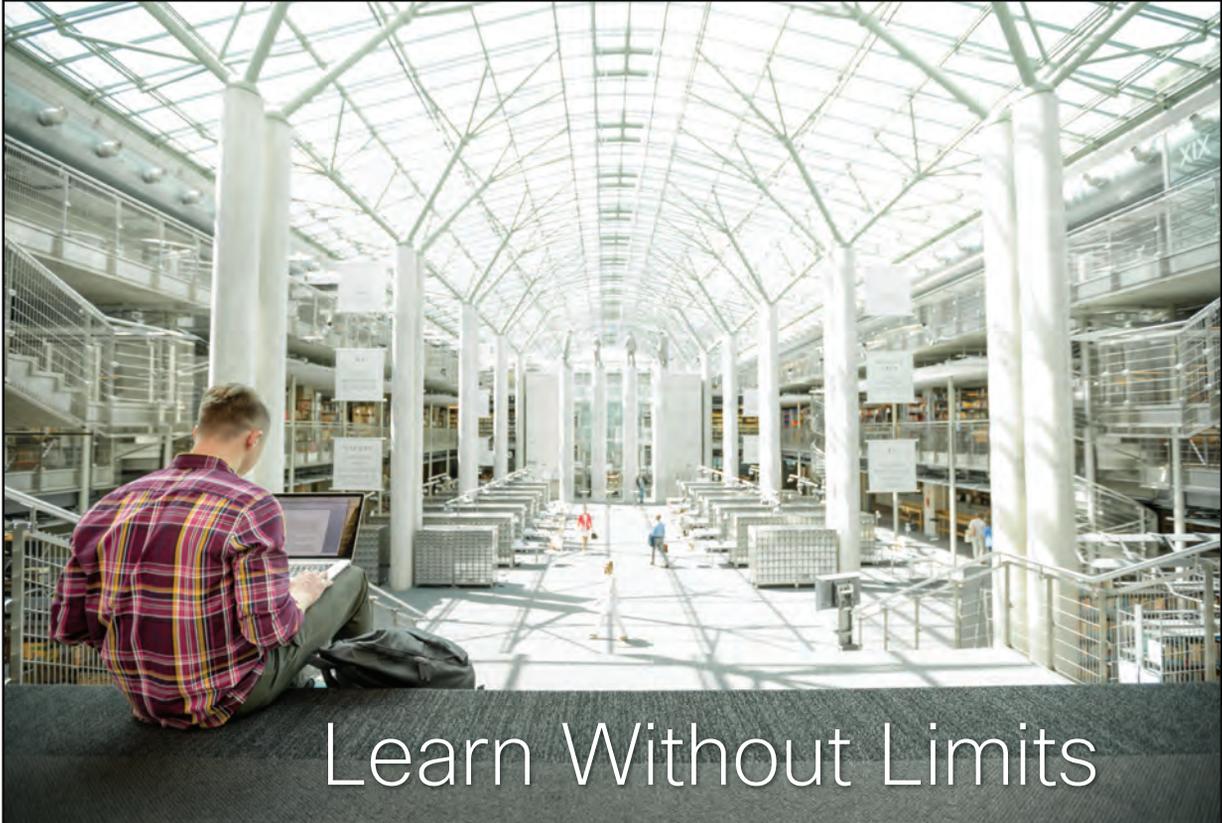
Cisco Unified Workspace: Using virtual desktop infrastructure (VDI) technology, this platform unifies voice, video, and data within a single user experience, allowing students and staff to use the device of their choice for working on or off campus.

Cisco WebEx® for Schools: Schools can use the Cisco WebEx platform for online meetings, office hours, classes, study groups, or review sessions. Cisco WebEx Meeting Center allows you to meet online in real time with parents, staff, and students, without requiring everyone to gather in one place. Interactive features include real-time testing and grading, instant feedback, assessment tracking, breakout sessions, and hands-on labs to deliver a variety of dynamic e-learning opportunities.

Cisco TelePresence®: This next-generation video conferencing technology brings users together for a high-quality, immersive experience. 

For more information about Cisco’s learning solutions for schools, go to www.cisco.com/web/strategy/education/primary.html.





Learn Without Limits

In the past, learning was constrained by time and place. But today, the transformation to digital is opening a new world of educational opportunities—opportunities not only for students to learn more, but to learn in new ways, in new places, with new connections to resources around the globe.

Cisco is leading this new digital world in education with visionary technologies that support blended learning experiences, worldwide collaborations, and rich online media experiences. From the network up, our solutions are building digital schools, colleges and universities so that campuses are fully connected, educators are fully empowered, administrators are fully informed, and students can learn without limits.

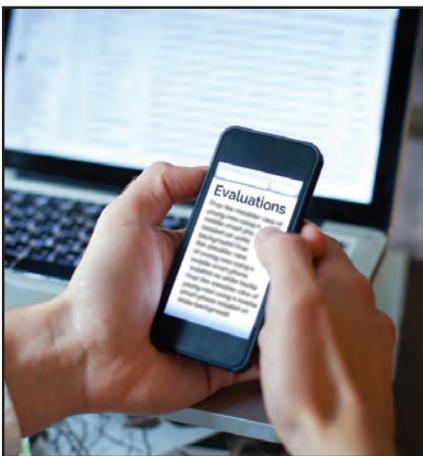
Learn more www.cisco.com/go/education



Video

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considering that many schools now have the technology to do classroom observation via video. However, these same schools aren't yet convinced whether the investment will change status quo evaluations. To find out, in 2012, the Center for Education Policy Research at Harvard, where I work, piloted the Best Foot Forward (BFF) Project, a study that grew out of the Measures of Effective Teaching (MET) study.



Video enables constructive feedback.

BFF began with pilot programs in large districts in Georgia and North Carolina as well as Relay Graduate School of Education. In an effort to gather data from large and small districts in both urban and rural areas, we then expanded the study to include Los Angeles Unified School District, the state of Delaware, and a number of districts in Colorado.

We randomly selected half the teachers to be in a treatment group that would take videos of themselves in the classroom. These videos were then passed along to their principals for evaluation purposes. We also had remote peers provide our treatment group teachers with formative feedback on their subject matter. The control group did “business as usual” when it came to their evaluations.

To capture the video, we used a camera that had been manufactured specifically for the project. It had two lenses so

that it could record two different views of the classroom at the same time. In the last year of the project, we wanted to use technology that many teachers already had and knew how to use, so we also recorded with an iPad connected to a microphone and mounted on a Swivl tripod. We have since published a toolkit, available on our website, which advises educators on how to pick the right video technology for their district. It includes recommendations for cameras, microphones, and viewing platforms, such as Insight ADVANCE. As we had done in the MET study, we had teachers choose which videos they would submit to the principal for evaluation.

Big benefits

Our two-year impact study ended in May 2015, and we found that teachers in the treatment group had a better experience of evaluation than those in the control group. Here are the top three reasons why:

1. The conversation was less adversarial. As anyone who has ever sat through a job evaluation can tell you, they can be combative, and it is hard to change the way you do your job based on a conversation in which you are constantly on the defensive. Using classroom videos as a common reference point, teachers and principals in our treatment group found that they agreed more during their evaluations, which made teachers more open to constructive feedback.

2. They got more specific and more actionable feedback from their principals. Audiovisual documentation made it clearer what teachers were doing right, as well as the areas in which they could use some improvement.

3. They saw more of what their students were doing. In today's tech-enabled classrooms, there's a lot going on at once, and teachers can't always take it all in. Videos helped them see what they were missing. One great example of this was a teacher who recorded a class, and only when watching the video realized that a student had been bouncing a golf ball against the wall throughout the entire period.

Principals benefited from video observation as well.

1. Their conversations with teachers were more fruitful. In the less adversarial atmosphere I described above, the door was more open to collaboration between principals and their teachers.

2. They spent more time observing instruction and less time doing paperwork. Although the principals in the treatment group did spend more time overall on the evaluation process than their peers in the control group, a greater percentage of that time was spent watching their teachers teach.

3. They had more flexibility in when they did their observation. Rather than taking time out of their school day to be in a certain classroom at a certain time, principals could watch videos at home, during lunch, or whenever was most convenient for them.

Interestingly, one of the areas in which principals struggled when watching videos was in seeing student behavior and performance.

District size matters

From the focus groups we held with Best Foot Forward participants, we observed notable differences among the different districts. Teachers from smaller districts, where they were accustomed to frequent observation, were less satisfied with the results of their video observations than teachers from big districts who had had fewer observations. This is probably because larger districts have more difficulty delivering quality feedback at scale. Principals are responsible for evaluating many more teachers within the same period of time.

Since completing BFF, we have had a great deal of international interest in video observation pilots from countries such as Brazil, Argentina, Singapore, and South Africa. No matter where we continue our work, we look forward to finding ways to make teacher evaluations less about recrimination and more about collaboration. 

Miriam Greenberg is the director of education and communications at Harvard University's Center for Education Policy Research. For more information, visit <http://cepr.harvard.edu>.

Flipping when home access is a problem

A lack of reliable internet access at home can make flipping a challenge

By Jess Peterson

Ask any educator, and they've probably at least heard of flipping the classroom. There are articles for days about the benefits and rewards to be reaped from flipping. Plenty of teachers have given it a go, or at least considered it. Too many teachers have ruled it out on account of their students' lack of access.

It's true that our students come from all walks of life. We see the ones with the new Jordans or the latest iPhones, and their peers wearing the old hand-me-down sweater. All of them are our future. All of them are entitled to the best education possible. Only some of them are equipped with the means to achieve their fullest potential.

Believe it or not, flipping the classroom can actually help close this gap. If only the gap weren't the main reason educators choose not to flip in the first place. So how can we reach kids who don't have consistent access?

The barriers of flipping the Classroom

Life is full of barriers. Some of the most common barriers to flipping are:

- Students don't have consistent access to devices
- Students don't have consistent access to the internet
- Students don't have skills to use the technology

All of these can make flipping seem like an impossible, or even pointless, idea. But the benefits of flipping are so appealing that many teachers still (and should!) consider it. Fortunately, life is also full of solutions, or at least workarounds.

Understand the benefits

It's important to ensure that everyone is on board. This includes school administrators, students, and parents. In order to do this, the benefits need to be made clear. This will create buy-in and will increase the chances of success for



Students might use parents' smartphones to solve home access issues.

the flip. A parent might let their student borrow a tablet if they know it's for homework. An administrator might wrangle a little extra funding to support in-class technology.

Some of the most significant benefits of flipping are:

- Students work at their own paces (by pausing, rewinding, etc.)
- Students spend more time in class working with others on engaging activities
- Students get more individual attention from the teacher (because the teacher is free to circulate more)

Find out what access students have

This may seem obvious. Of course you already checked to see what access they had, and they don't have any. But it's important to consider a couple things here:

There are tons of different ways students can access videos outside class.

Taking a survey is a great way to find out what access students have. Ask if they have daily access to YouTube, a computer, a laptop, a tablet, a smartphone, a DVD player, or a library. If they say they don't, clarify. Ask them if it's a device issue or an internet issue. Maybe it's a transportation issue. Find out all the information you can, so you

can move forward with the best solution. Student aren't always aware of their access.

Once you think you've collected all the information, think again. Sometimes students don't realize that "access to YouTube" might mean "borrowing Mom's smartphone for homework," or "DVD player" means "XBox or PlayStation 4." Maybe they just aren't allowed on the internet, or can't use the family laptop except on weekends. Explaining to students, and their parents, that it would be for homework will often be enough to receive a different answer. Of course, there will always be some who just don't have access.

Workarounds for students without access

Let's face it, workarounds aren't perfect. But they're a start. Here are options and ideas for flipping a classroom, even if students don't have outside access:

- Set up alternative locations (get volunteers to allow students to use devices at lunch or after school, library access, opening your room before/after school)
- Show the video at the very end of the day, or at the very beginning of the activity the following day
- Have students who watched the video be the "teachers"
- Use a station so students can watch, while others begin the activity
- DVDs/flash drives

It is up to the teacher (and students!) to decide what will work best for any given situation. And there are plenty more options out there. Whatever you decide, remember to stay encouraged, and get creative. The future is in your hands. 

Jess Peterson is a teacher at Washington Manor Middle School in California.

How peer video coaching is completely changing how our teachers teach

Peer-to-peer video comments are changing how teachers think about their practice

By Diane Lauer

A new era of professional development is sweeping into districts across the country, and just in time. For many districts, the days of after-school PowerPoint-driven lectures not differentiated by content, expertise, grade-level, or delivery, not to mention day-long workshops on obsolete topics, have recently given way to face-to-face coaching programs and professional learning communities. And in St. Vrain Valley School District, where we serve 32,000 students in seven towns northwest of Denver, we've gone one step further.

We've augmented our professional development program with an online video coaching platform for classroom observation through one-on-one coaching and collaborative study teams. As one of nine exemplar districts designated by the U.S. Department of Education to be "Future Ready," the integration of video coaching is an extension of our pledge to empower educators through personalized learning. But our decision also created some cognitive dissonance as we migrated to video coaching.

Hard questions lead to the right answer

While our PD coaching team was excited by the promise of video coaching enhancing teacher support, we were cautious about implementing the new video-powered process. Would video coaching effectively build upon the high-quality relationships we hold so dear with our teachers? Would the time involved tip the balance for those who are already stretched too thin? Would teachers benefit from the process in noticeable ways? We found that the adoption of the Edthena online video coaching and reflection platform not only strengthened our district coaching program, but our school-based collabo-

rative learning programs as well.

Developed by a former certified science teacher and principal, the platform helps schools and districts implement video observation in many scenarios, including teacher induction, teacher mentoring, professional learning communities (PLCs), and peer observation. Teachers using the platform analyze their instructional practice through recorded video and online collaboration tools. They upload videos of classroom instruction and share with colleagues who provide time-synced comments.

The company just launched a new iOS app, which makes it possible to have a video uploaded before the class period is finished. Since our teachers and students each have access to iPad minis as part of our district plan to transform learning through robust technology-enriched learning environments, providing a video coaching tool they can use with their iPad minis really empowers teachers to own the observation and reflection process. That, in turn, accelerates the rate at which teachers implement changes to improve their craft, because they can now upload videos of classroom instruction directly from mobile devices.

A picture is worth 1,000 words

Teachers really appreciate watching themselves and their peers in action. It's powerful. It helps to generate ideas about how to teach concepts in new and engaging ways. And it instantly moves abstract theory into concrete conceptualizations. It also offers them the opportunity for pure, personal reflection, because they can see themselves in action, acknowledging their strengths and identifying where they need to grow. As I've told my team, video = data. When our teachers and their coaches connect face-to-face, the teach-

ers are primed for deep conversations that incorporate concrete examples. And that's beneficial for both veteran teachers and new hires.

For example, this year, one coach and teacher focused on the transition time between when the class bell rang and when learners actually got to work. They used the video to capture evidence of student behavior, and then they used the time-stamping feature in Edthena to measure it. Together, the coach and the teacher worked to decrease wasted learning time and clarify what engagement really looks like.

We also documented a case where a reflection from classroom observation raised questions relative to the ratio of positive interactions with students. The teacher thought she was providing a high ratio of positive interactions, but she couldn't recall concrete examples. So the coach invited the teacher to video her instruction to note the positive engagements on her own. Even before the coach returned the following week, the teacher set a goal for herself for a five-to-one positive to negative student interactions each day and began changing her practice. Again, video = data.

The fact that the online video coaching accelerated the pace of the professional development cycle even before the coach returned to the classroom was an important discovery for our PD coaches. Our teachers no longer had to wait until our next scheduled coaching conversation to reflect or plan a new goal. We started thinking about how we could empower teachers to drive their own learning and continuous growth with us as their guide on the side. 

Diane Lauer is executive director of professional development and assessment for St. Vrain Valley School District in Colorado.

LMS

continued from page 1

Any time schools get a new software program, they tend to pick off the low hanging fruit—i.e., the simplest functions or features—and never make full use of the program’s capabilities, and/or interoperability with other systems. For most, the LMS is rarely so different.

Not so at Houston Independent School District, Ontario’s Greater Essex County, and Brooklyn LAB Charter School—three places where the LMS is being used in pretty innovative ways. Here’s what these institutions are doing and how it’s working for them.

Pie in the sky

About two years ago, the Houston Independent School District (ISD), with its 283 schools and 215,000 students, went in search of an LMS that would help teachers create and use coursework that was both digital and aligned to Texas state standards (Texas pointedly does not use the Common Core). The district put out a request for proposal and worked with a research firm to get an idea of how far these systems had come in the K-12 space. “We wanted a solution that included curriculum and content management on a single platform,” said L. Beatriz Arnillas, director-IT, education technology at the district.

Ideally, Houston ISD wanted to be able to link learning objectives to specific standards, thus creating a system that teachers could use to determine subject mastery and proficiency of individual students. “It sounded like a ‘pie in the sky’ goal, but we actually had at least three good contenders to select from,” said Arnillas. The district chose itslearning, because it enables the meta-tagging of learning objectives within the district’s libraries and the creation of assessment data that tells teachers whether a student has gained proficiency (or not).

Arnillas said this advanced LMS functionality allows teachers to link individual questions—or groups of questions—to a specific learning objective. If an instructor is covering three

different learning standards within a specific module, for example, he or she can create a five-question assessment and quickly learn whether individual students “got” the material or not.

“Our teachers can review the assessment results and figure out who is and isn’t mastering the standards,” said Arnillas, “and then get a list of LMS-generated recommended objectives that can be used to re-teach the standards that weren’t mastered.” This, in turn, helps teachers provide a very personalized learning experience, she added.

Teachers then select the resources



The LMS is getting more flexible.

that they want to use/include and give students access to that information. Getting instructors to use the system has been easy in some instances and more difficult in others, said Arnillas, who sees this as one of the bigger challenges of integrating an LMS. “There’s a bit of a learning curve for some teachers, so the professional development piece has been very important during this process,” said Arnillas. “Those who have jumped in and learned how to use it are pleased with the results.”

Build it and they will come

When Erin Mote started looking around at the software market for an LMS to use at Brooklyn LAB Charter School in New York, nothing really stood out for this technology and mobile applications expert. So she decided to build her own system. As co-founder of the school and executive director of InnovateEDU, Mote developed Cortex.

Supported by the Michael & Susan Dell Foundation, Cortex was designed to leverage the Ed-Fi Data Standard to “generate actionable evidence that helps to improve and inform teaching and learning,” said Mote.

Using visual cues that include green for “mastery,” yellow for “near mastery,” and red for “no mastery,” Cortex allows students and parents to view progress against grade level standards as well as traditional metrics such as grades, attendance, and completed assignments. “It also allows teachers to see key indicators beyond mastery, such as progress vs. pace, for each student against the entire class,” Mote explains, “and how the student scores against prerequisite standards.”

Mote’s goal was to create a platform that teachers, parents, administrators, and students could use to “digest a wide range of data in a way that doesn’t include 16 different spreadsheets or 10 different technology systems,” she explained. “Teachers already do so much. They’re leading and teaching classrooms, serving as part-time guidance counselors and social workers, and aligning their courses to standards and other protocols,” she continued. “We shouldn’t be asking them to talk like PhD-level data scientists.”

According to Mote, Cortex’s biggest strength is its ability to digest incoming data and make it understandable and accessible for users. For example, Mote said that the solution incorporates “playlists,” which can be created by either teachers or students. The playlist functionality allows students to progress through a series of lessons (e.g., Khan Academy modules or math manipulative units from Motion Math) and then take a unit assessment to “prove what they know.”

Teachers use the playlists to see how pupils progress through material. Schools have the option of locking and unlocking those playlists (on certain dates, for example, or by student mastery of the playlist content). “This allows teachers to not just deliver classroom content,” said Mote, “but also to support independent, self-directed

learning either outside of class or in the computer lab.”

Currently being piloted by several other K-12 institutions in New York, Cortex fills in some of the gaps Mote noticed in other LMS platforms. “We felt that there really wasn’t an LMS that worked with our academic model,” said Mote. “And while I don’t advocate going out and building an LMS from scratch, we had the expertise and the right setting to built it in, so we went for it.”

Out of many, one

At Greater Essex County District School Board (GECDSB) in Windsor, Ontario, teachers have always been able to select their own LMSs. Platforms from Desire2Learn, Edmodo, Moodle, and Blackboard, are used throughout the district, which encompasses 35,000 students, 57 elementary schools, and 15 secondary schools. This non-centralized approach has been in place for years, and often finds students and parents using multiple usernames, logins, and platforms to retrieve information.

“My daughter had five logins during her final year of high school,” said John Howitt, superintendent. On a mission to “reduce the number of places people have to go for information,” he said, the board has been working to consolidate its learning management systems. As part of that mission, GECDSB also wanted to integrate its student information system in a new, centralized LMS.

After researching its options, the board selected Edsby’s cloud-based system. Teachers aren’t required to use the new system, but Howitt’s hope is that they will see the value in consolidating information on a single platform that integrates the board’s student information system (SIS) and LMS. “Ontario has stringent reporting guidelines, so we don’t have much choice when it comes to student information systems,” Howitt explains, noting that the existing SIS lacked functionalities, such as parent portals, electronic attendance capabilities, and certain reporting tasks.

“The fact that Edsby could wrap around our existing SIS was a big draw;

it allowed us to implement change management without any risk to our funding,” said Howitt, who also liked the fact that the platform’s developers previously worked for FirstClass, an email client. “We used FirstClass for 15 years very effectively,” he adds, “and we really missed its conferencing capabilities.”

As it happens, the platform offers a similar “group” conference capability, mixed in with a “bit of a Facebook-wall kind of feel,” said Howitt. Using the timetable that’s built into the SIS, for example, ninth-grade science teachers are automatically placed in collaborative “groups” that allow them to pose questions about the curriculum, share resources, and interact without have to send out email messages to the entire group.

With LMS pilot programs currently underway at four of its schools—and the rest of its secondary schools coming onboard this month—GECDSB’s IT department should benefit from the centralized information-sharing system. “We continually struggle with maintaining sufficient IT support, so any processes that we can automate are a big deal,” said Howitt.

The SIS houses all student and parent contact information, timetables, and attendance data, for example, and populates the LMS with that information automatically. That means IT no longer has to set up accounts, manage accounts, and/or create groups, Howitt said. “As students change classes or schools, the associated data is all controlled in an automated way.”

Acknowledging the stumbling blocks that can come up when 4,500 teachers are asked to voluntarily switch to a consolidated technology system of any kind, Howitt remains confident in the board’s decision. “We’re never going to be able to satisfy everyone,” he admits. “No matter how great the tool is, there’s always someone who will want to use a different one, but at some point you have to make a decision and go with it. That’s what we did.” 

Bridget McCrea is a contributing writer for eSchool News.

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The project-based STEM curriculum that's big on real-world rigor

A STEM curriculum introduces students to real-world engineering

By Diane Curtis

Berrien Springs Public Schools in rural Michigan started off with a modest enough goal—to add an engineering component to their curriculum in order to draw out-of-district students to their schools and to meet anticipated state standards. But perhaps not even they could have foreseen the sea change that came next.



Project Lead the Way curriculum.

These days, first-graders design a shoe for a traveler going to an extreme climate. Second-graders investigate numerical relationships and sequence and structure required in computer programs. Fourth-graders develop a vehicle restraint system. Middle and high school students build VEX robots and program them using RobotC software. They also use Autodesk Inventor to create 3D models that are then printed on their own 3D printer. And all grades are doing various levels of coding.

The breakthrough came two years ago when Berrien Springs took a cue from its neighbor to the south, Indiana, and the work they were doing with Project Lead the Way (PLTW), a

provider of STEM curriculum to 8,000 schools nationwide that takes a problem-based approach to learning focusing on critical thinking, problem-solving, and real-world relevance. The curriculum has a strong engineering component, as well as separate units in biomedical science and computer science. A course on cybersecurity will be added in 2017.

“It’s a great, great program,” said Emma Haygood, a middle school science teacher for 16 years who moved to the Berrien Springs district office last year to become STEM coordinator. “We looked at a couple of other programs, but this was the most engaging. It makes kids think.”

Jessica Donaldson had a similar reaction when she first encountered PLTW. As instructional technologist for the Berkeley County School District in South Carolina, she was being given a tour of a middle school class where the students were designing and building robots. “They were so engrossed. They were just completely oblivious to the fact I was even in the room,” she said. She was hooked by the student engagement, the teacher enthusiasm, the projects that linked to the real world. When she was given an opportunity to go back to the classroom and use PLTW, she “jumped at the chance” and is now teaching fifth-through eighth-graders at Cane Bay Middle School in Summerville, S.C.

Real-world connections

One of Donaldson’s favorite projects has students creating a pull toy using VEX IQ, a robotics platform that combines physical kits with coding. “I’m amazed at what they come up with,” she said. One group of students decorated a pull toy so that it looked like a giant pumpkin. As the pumpkin was pulled forward using a string, a ghost made of Kleenex popped out and then dropped

back down again.

And students are doing it all themselves. “They learn to build these simple gears,” Donaldson explained. “After they build the series of gears and learn how they work, then the challenge is they have to create and design and build a toy that meets certain criteria: ‘It must do this. It must do this.’ They get no pictures.”

Haygood’s favorite project involved building a playground. The “clients” were the elementary students. The engineers were the seventh-grade students. The older students, working in small groups, first interviewed third- through fifth-graders about what they wanted in a playground. They wanted themes—Candyland, Minecraft. They wanted a slide, a climbing wall, a sandbox. The budding engineers researched playground safety, height and weight limits, other requirements for playgrounds and playground equipment. Using Autodesk Inventor—the same software used by professional engineers—they designed individual pieces and went back to their clients for feedback. “That’s not what I was picturing in my head,” was one reaction. When an older student complained that the younger kids should have been more specific in what they wanted, Haygood asked if they’d asked the children the pertinent questions, or if they should have asked the youngsters to draw a sketch of what they wanted.

“I always try to bring it back to: ‘Do you think these are problems engineers have in the real world?’ . . . There are so many real-world connections. It’s not building a project just to build a project.”

Grading was less about the final product than the process, and more about demonstrating their use of the 4Cs. The students got to present their projects in any form they choose.



“Too often our children get to the point, whether it’s the end of high school or into college, where they have significant deficits in math and science that limit their options.... We want to make sure they have those options.”

Both Donaldson and Haygood said students particularly enjoyed biomedical science projects that let fifth-graders become medical detectives and study the start of an illness from patient zero and how it spread. High school students do a bioscience unit in which they take evidence and information from a crime scene and figure out how a person died.

Dr. Vince Bertram, CEO of PLTW and a former principal and superintendent of schools in Indiana, said the PLTW projects aim to help students “thrive in this evolving world.” The future members of the workforce need to be able to solve problems, think critically, communicate, articulate and defend their ideas, and collaborate. “These are the skills that are in high demand and those are the skills we really try to foster in our students,” he said.

Changing teacher practice

As important a PLTW goal as creating 21st-century collaborative problem-solvers is making sure teachers get the right training to turn out those problem-solvers. “We take a lot of pride in making sure the training is relevant for teachers, but it’s also transformational from the standpoint that it changes teacher practice,” said Bertram.

Haygood and Donaldson praised the professional development. “You go through every activity the kids will go through. It’s absolutely the most intense professional development I’ve ever had,” said Haygood. Both she and Donaldson also said it was also the most successful because besides the original training, there is follow-up, regular updating of the curriculum, and inclu-

sion in a nationwide network of other teachers and experts.

Bertram said PLTW, which has grown 30 percent each of the last five years and has had 29,000 teachers go through the training, is not necessarily about creating future scientists, mathematicians, and computer experts—although he thinks that will be a byproduct of the program. Instead, it’s about giving students choices.

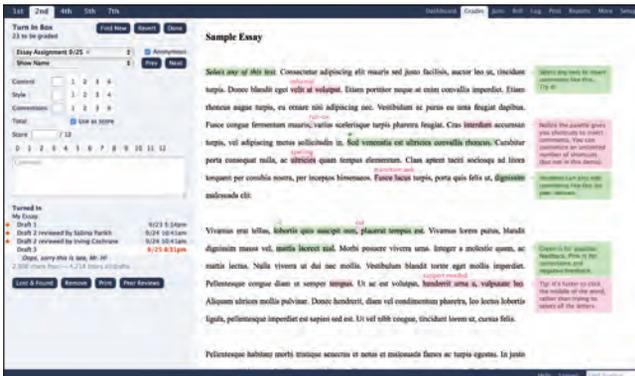
“Too often our children get to the point, whether it’s the end of high school or into college, where they have significant deficits in math and science that limit their options,” Bertram said. “We want to make sure they have those options.” 

Diane Curtis is a contributing writer for eSchool News.

Michigan's Grand Blanc Schools are Streamlining Learning with an All-in-One Data Solution

In the past, teachers in Grand Blanc, Mich., have had one system for their electronic grade book and a totally different system for their data analysis. If teachers wanted to explore how individual students or the class as a whole performed on an end-of-unit exam, they would have to log into this separate data system, which was cumbersome.

"They would have to remember a separate password and remember how to use and navigate a system that was totally different from their grading system," said Amber Hall, director of curriculum for the Grand Blanc Community Schools. "The work outweighed the benefit."



Teachers and students receive immediate feedback with the Jupiter iO essay writer tool.

Grand Blanc officials have found a solution to this problem: Jupiter iO, which combines a grade book, learning management system, and data analytics tool into a single platform.

District officials discovered Jupiter iO when they were looking for a data warehousing solution after their old provider went out of business. They wanted a system that would house the data from state and local assessments and provide analytics tools to help inform teachers' instruction.

They found that—and much more—in Jupiter iO.

"This is our first year of implementation," Hall said. "And I can't say enough about the support we get from Jupiter. They're top notch."

Jupiter iO has allowed Grand Blanc educators to deliver assessments online, so they can get immediate feedback. Teachers can assign a test using the program's Juno learning management system, and students can

take the exam on school-issued Chromebooks, in a computer lab, or using their own personal device.

"My department chairs can upload an assessment that all fourth-graders should take, for example, and it can be shared out to all the elementary teachers," Hall said. "The teachers can grab it, administer it to their students online, and then get immediate feedback. To get that information right after you give an assessment can be pretty powerful."

As an example of how the system is being used to improve instruction, Hall cited a first-grade quarterly assessment that is given at the end of October. "Typically, my math chair will take a look at the results and then send out a summary to all the first-grade teachers: These are the standards that we were looking really strong on; these are the standards that we need to go back and re-teach," she said.

Jupiter iO has helped make those determinations easier—and it has helped teachers plan interventions for students who are assessing below grade level, when they get together for "data days" at the elementary schools.

For now, many teachers are still using their old system for keeping grades and attendance. "This year has been a big transition for us, because teachers have had to get used to administering tests online—and we didn't want them to take on too much," Hall explained.

But next year, Grand Blanc will fully switch to using Jupiter iO's grade book features along with its assessment and data analytics tools—and Hall is excited about the possibilities. "When teachers give an assessment to their class, the results will go right into their grade book. We're really looking forward to that; it's going to be a huge time saver for them."

She added: "If we want teachers to use data in their planning and instruction, we have to make it easy for them. If they're in their grading system all the time to take attendance and enter grades, and it only requires a click of a button to look at assessment results, they're much more apt to use them."

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Changing the future through STEM

Seventy years ago, the Chattahoochee River was a beacon of opportunity, drawing men and their families to Phenix City, Alabama, to work on the mill. Seventy years later, many of those mill-workers' descendants are living in projects, and their choices for employment and education seem slim.



Randy Wilkes

When Randy Wilkes was appointed the superintendent of Phenix City Schools, located just across the river from Columbus, Georgia, in June 2014, he brought with him a mission for change. The small district had been hemorrhaging students after grade six, losing 120 kids out of a class of 600 to private and parochial schools and home schooling.

"There's not a better way to change the economic climate of a city than through education," Wilkes said. "The number 1 job in Phenix City is that of a meat cutter, or a meat trimmer, which earns \$11.50 an hour. The number 2 job is that of a cashier, which makes \$9.50 an hour. The jobs of tomorrow, the jobs that our students will see as opportunities for change, are all somewhat STEM related."

Wilkes and his team visited the Savannah STEM Academy, and met with Carnegie Learning to see its magnet school. They also visited some forward-thinking school systems in Alabama, such as Piedmont City School District and Fort Payne City Schools. Wilkes had worked on a one-to-one iPad initiative at Crenshaw County and wanted to revisit those ideas. Getting iPads in students' hands became phase one of Wilkes' new technology initiative at the district. Phase two is the creation of the STEM Center on the campus of Phenix City Intermediate School, a 9,500-square-foot state-of-the-art building filled with technology labs, engineering labs, virtual learning labs,

an aquarium, and more.

The district broke ground on the STEM Center in early October, and the building has been partially funded by businesses on both sides of the Chattahoochee River. "We asked local businesses to consider naming a room of the building for \$25,000," explained

Wilkes. In addition to the eight naming opportunities within the building, the district put a price tag of \$150,000 on naming the building itself, which was scooped up by a local businessman. "When we began this project back on June 18th, Mr. Gil Dyer and his family stepped up to make the first contribution—for \$150,000," recalls Wilkes. The building will be known as the Dyer Family STEM Center.

Inquiry and beyond

The top priority in these projects is not the technology or facilities, but the pedagogy behind using them. "This ideology of inquiry-based instruction is weaved into everything we do," Wilkes said. "When students take responsibility for their own learning, that's how you make a cultural change."

The building will house a digital media lab with 27-inch iMac computers on which students can do everything from Keynote presentations to Garage Band compositions. In the engineering lab, students will be able to design the plans for a glider, for example, on computers, and then build their glider in real life. Students will have access to Z-Space virtual learning tools, on which they can do virtual dissections and other simulations. "It's similar to Google Glass, in that the students will be wearing glasses and using a stylus to, say, remove a heart from a human body," explained Wilkes.

The building will also house four external labs, also funded by "Friends

of Phenix City Schools," which solicits private donations for the district. These labs take advantage of open spaces within the building, such as the atrium. "The external labs will be more of a museum type space," Wilkes said. "Again, we're the fourth largest Housing Authority in the state of Alabama. This is stuff our students don't typically have access to." There will be health and fitness exhibits licensed through the Museum of Science and Industry in Chicago. There will also be a Global Imagination Magic Planet four-foot interactive digital globe, on which students will have access to more than 60 IMAX movies and other science resources through NASA and the Smithsonian.

Finally, there are plans for a river tank ecosystem, which will be reminiscent of life in the Chattahoochee. "Our river system is so important and vital to our community," explained Wilkes. "Clean water is a tremendous issue here." There will also be a salt-water exhibit with three tanks housing species indigenous to the Gulf of Mexico in one area, species native to the Indian Ocean in another, and a large eight-foot predator tank in the middle of the room. "Half of the sixth- and seventh-grade science curriculum is relevant to water and oceanography," Wilkes said, "and a lot of our kids will never have the opportunity to visit salt water on their own."

The initiative has moved fast. It's been just over a year since Wilkes arrived at the district, and they've already broke ground. "I believe that vision needs to be developed by people within the organization," he said. "We kept brainstorming and looking at our current situation, and where we needed to go in the world, so this initiative was really developed not by the superintendent but by the people on staff and the people in the community." 

Jennifer Welch is a contributing writer for eSchool News.

Why later school start times are effective

Two researchers explain how tardiness and discipline problems are linked to start times in high schools

By Pamela V. Thacher and Serge V. Onyper

In the United States, 90 percent of high school students start their school day between 7:30 a.m. and 8:45 a.m. But is that the wisest approach? More recently, later start times have been advocated because adolescents have sleep-wake cycles that are delayed by puberty. For these students, in fact, peak performance has been shown to occur later in the day. Other studies show that two-thirds of adolescents on average get up to two hours less sleep than they need for optimal functioning. Maybe there's a good reason many teens aren't morning people.

We recently conducted a new study that used a longitudinal approach to measure the effect of delayed high school start times on students' sleep, achievement, and health—and whether changes persist. Our results suggest that delaying high school start times can robustly and persistently improve two variables that affect students, teachers, and administrators alike—tardiness and disciplinary problems in the classroom.

These results are consistent with many past studies that examined start time changes, adding further support to recommendations by the American Academy of Pediatricians that high schools should not start the school day until 8:30 a.m. or later.

In our research, we tracked sleep, mood, health, attendance, tardiness, problem behaviors, and academics, in a high school that delayed start time by 45 minutes.

Our participants included high school students in the Glens Falls, N.Y., school district. We collected data from school records, from academic testing results, and from the students directly. In May 2012, before the change was instituted, we collected baseline data, and then collected data in November 2012 and again in May 2013, after the

start time was delayed by 45 minutes (7:45 am to 8:30 am). Reports from school records regarding attendance, tardiness, disciplinary violations, and academic performance were collected for two years prior (2010-2012) and two years after the start time change (2012-2014).

So what happened? When the start time was delayed, virtually all students slept in later—consistent with what we would expect, given that students this age strongly prefer a later start time. The school records showed dramatic and persistent reductions in tardiness

When start time was delayed, school records showed dramatic and persistent reductions in tardiness and disciplinary incidents.

and disciplinary incidents. Other variables in which we were interested, however, failed to show improvements. For example, students showed no persistent increase in total sleep time in this study. And no changes—for better or worse—were detected in the areas of physical or mental health; no changes to exam grades or standardized test scores were detected, either.

Why did we not see improvements to these areas? We believe this is because, although students initially slept longer (by about 20 minutes at the first follow-up), these gains did not persist longitudinally. Therefore, the students experienced a delay in bedtimes and wake times, but no overall increase in the amount of time they reported sleeping. It's difficult to imagine that any changes to the broader well-being of students could occur unless students slept longer, as well as later.

Despite the fact that changes did not occur across all variables, we were encouraged to see the improvements to tardiness and disciplinary incidents:

improvements in these domains can help every student in the classroom. Furthermore, because schools are required to execute many expensive and time-consuming follow-up actions on behalf of late and aggressive students, anything that reduces these issues can be of tremendous worth to school districts.

In short, we believe that longer sleep times, coupled with delayed timing, may both be necessary to realize improvements to mood, health, and academic performance. A start time delay is a first step, and may, all on its own,

effect changes in behavior and on-time arrival. But school start time delays are not like Jack's magic beans in the old fairy tale: One can't scatter the seeds and then watch the bean plant grow toward the clouds, all on its own. Start time changes can provide the impetus for many students to sleep later, but our communities as a whole must provide the encouragement and the examples to our students in order to allow sleep to take its place as a critical element of physical, mental, and cognitive health. A comprehensive effort to educate and persuade constituents of the benefits that can occur when sleep is improved may be needed to implement delays in school start times and to maximize the benefits that can follow. **eSN**

Drs. Thacher and Onyper are associate professors of psychology at St. Lawrence University. Their new study appears in the February 2016 issue of Sleep, the publication of the American Academy of Sleep Medicine.

The 4 essentials of a successful Genius Hour

Genius Hour projects may be open-ended, but there are still some ground rules

By Jill Badalamenti

What are you passionate about? What do you want to do more than anything in the world? Well I hope you said what you are doing right now. This is not always the case. Some people hate what they are doing. They may hate it because it pays too little, but being a teacher doesn't make me very wealthy and I love what I'm doing. More importantly, people may hate their jobs because they would rather be doing something else. This is where I think we can do better in education.



Genius Hour can spark innovation.

As educators, we can help our students find and explore their passions. Once they discover what they're truly passionate about, the learning and engagement will never stop. The best way for students to explore their passions is through Genius Hour.

Genius Hour isn't new concept. Many schools and businesses have been doing this for a while. Some teachers, for example, have allowed students to read any book and present a book report in any format, giving them a chance to indulge their interests while learning. Of course, the true concept of Genius Hour is more open than a book report. It recognizes the need for students to have

the freedom to explore their passions and not be restricted.

However, even with all this freedom, we still need some rules. The way I see it, the four rules to Genius Hour are: propose, research, create, and present. As long as your students are following this basic structure, they should have a successful Genius Hour experience. Here some tips for making those rules work in your classroom.

Let students explore their passions—First things first: Make sure kids have enough time to explore what makes them passionate in the first place. After all, they need to know what their interests are in order to be able to explore them in depth. I use Thrively as a starter. The kids use the site to take an assessment that will show them their strengths. They can then use this strength assessment to watch videos, choose a Genius Hour project, or look at events happening around them. Letting students explore their passions is an essential part of Genius Hour. Another way to help students explore themselves is to create a Wonder Wall or a Problem-Solvers Wall. This is simply a space for students to put sticky notes with questions or problems they want to solve. These walls aren't just impactful for the students. The teachers can learn a lot about their students by looking at their "wonders" and "problems." Once the students have asked those questions and explored themselves, they can decide what they want their focus to be.

Create a project proposal—After being given time to explore their interests and discover their strengths, the students are ready to propose their project to me. This means they have to understand all of the parts from beginning to the end. I use a project proposal document, but it can take any form as long as students can tell you the topic, at least three inquiry-based questions, how they want to present, the materials they'll need, as well as any help they

will need from me. Some teachers have the students write in a journal that they keep for the whole project. That way they can reflect on the whole process from beginning to the end. After their project is approved by me, they can begin the research phase.

Do research—The research phase is usually where kids start moving at their own pace. Some will research very quickly while others will take longer. I encourage my students to research in as many ways as they can. Here are a few ways they have researched: online (videos, websites, pictures), apps, books, magazines, surveys, and through experts. Indeed, every student should have an expert that they can talk to either in person, by phone, by Skype, or via e-mail. This is one of the most important parts of the program, because it lets students see the real-world application of what they are researching. I use our local community and scour Twitter to find most of my experts.

Present and create—It's important for kids to know they can present in any way they want to. They could do a video, poster, 3D model, TED Talk, picture book, painting, and the list goes on and on. To make it easier on the kids and the parents, I try to get all of the supplies they need. After they create, I have a rule that every student must present. Presentation for kids can be scary, so I let the students choose any method to present. They can choose to talk or just show the videos they made. I make a big deal out of presentation day and invite parents, staff, community members, and experts. I also set a time expectation, so they aren't too long. Lastly, I make sure I record every presentation. This provides great feedback for everyone involved. **eSN**

Jill Badalamenti is technology integration coach at Reed School in Missouri. She has presented on Genius Hour at various conferences.

Paper-free

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it didn't matter.

I told them the students will know more and catch on faster to this kind of technology, and that's okay; use it to your advantage. I encouraged teachers to hand over the interactive whiteboard pen to the students, giving them the power to get involved in their learning. If they did that one more time each day, it's a win. Once they got comfortable, teachers were able to see the true difference between paper-focused and paper-free lessons.

The engagement level of students skyrocketed. There was a clear difference in activity, performance, and fun when paper and pencils were removed from the equation. Soon, parents started to recognize the benefits of technology in school, asking our staff for advice on what device to buy their

child to get them more involved.

The tale of our transformative initiative quickly spread. We communicate with parents and community members on social media by taking photos of students doing cool things in the classroom with technology, then posting the photos as daily updates.

As avid Twitter user, I once shared a photo of our inspirational signs posted above the copy machines with the simple question, "How can we more effectively engage our learners without running it through this machine?" Soon, educational leaders across the globe started to reach out, asking how we made paper-free days a reality. The biggest advice I could give them is not to look at it as a budget cut, but as a new way of teaching and learning. It's not about the money; it's about the students. **eSN**

Ron McAllister is the principal at Kelly Mill Elementary in Cumming, GA.

Cloud

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a stack of CDs to find the one that would bring a specific instance of a program (located on a certain machine) up to code, so to speak. Replacing old equipment and software was equally as onerous, as was orchestrating frequent software patches across multiple computers. Today, much of this activity takes place in the cloud and updates are automatically received from software vendors as those updates are developed and administered. Now, Blevins' district is migrating to Microsoft Office 365—a move that will find all teachers, staff, administrators, and students using the vendor's cloud-based option to access and use its programs. "This takes the pressure off us to worry about what needs updating, what's obsolete, and what new upgrades are available on the market," he said.

Stoking new levels of student collaboration

If there's one aspect of cloud computing that stumped even the most tech-savvy digital native, Blevins said it's the

collaborative aspect of working together in a virtual environment. "Traditionally, when a group of students would work on a project, one would sit at the computer and open up the files while everyone else hovered around, looking over his or her shoulder," said Blevins. "Then they would switch places to give everyone a chance to work on the computer." Now, the same group of students can be working from their own devices or computers and collaborating in real-time, online. And they don't even have to be in the same room. This sounds good in theory, but Blevins said effective collaboration on this level comes with a definite learning curve. "Utilizing the technology is usually the easy part; the cultural shift requires the most work," said Blevins, whose district enlists technology "champions" (e.g., teachers, administrators, para-professionals, and even students) to help smooth out the transitions and help pupils collaborate in the cloud. "It's definitely a team effort. The more champions you have, and the more you spread the word about it, the better off you'll be."

Bridget McCrea is a contributing writer for eSchool News.

Gap

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and Reading Assistant, two reading programs from Scientific Learning Corp. "Our software was explicitly designed to cross-train both those foundational language and reading skills with cognitive skills such as working memory, attention, processing, and the ability to sequence effectively," said Senior Vice President Steve Gardner.

For example, one of the software's activities is an exercise in which students listen to target syllables and have to identify when the these syllables change.

"We acoustically modify the sound to slow it down, and then we move it closer to natural speech as they move through the exercise," Gardner said. "Students are working on phonological fluency and sound contrast, but they have to hold the speech sound in their memory, so they're developing their working memory at the same time—and they are working on their attention skills as well."

Well-designed neuroscience-based technologies "can build the underlying capacities that are reduced in some children of poverty or with learning issues, so students can remember what you said or pay attention longer," Burns said. "Students come in with a fighting chance, and they're going to be much more capable of learning."

Whatever measures school leaders take to close the 30 million word gap, understanding the full nature of the challenge is an important first step.

"We blame schools and teachers for why we can't close the achievement gap, but nobody has recognized until recently that the gap exists before children get to kindergarten," Napa County's Nemko said. And the earlier school systems can intervene, the better their chances of giving all children a chance to succeed. **eSN**

The former editor-in-chief of eSchool News, Dennis Pierce is now a freelance writer covering education and technology.

Inside the school that immerses students in Spanish—and technology

A Spanish immersion program makes full use of technology in the classroom

By **Scott Spencer**

The thought of preparing our students for their 21st-century futures conjures up a number of different ideas. There's imparting the necessary technology skills students will need to thrive in their careers, as well as interpersonal skills such as collaboration and communication, and making sure students can function in an increasingly globalized world. On that last point, my school, Shiloh Elementary School in Monroe, N.C., wondered if we were doing enough. Wouldn't teaching fluency in a foreign language be the ultimate means to prepare students for a diverse and multicultural world?

Since 2012, Shiloh has been very proud to have hosted what we call the SPLASH Spanish immersion program. Currently, we have one immersion class—taught full-time in Spanish, with the goal of “immersing” or teaching Spanish to speakers of other languages, like English—in each of our kindergarten through third-grade classrooms. Our school has embraced this wonderful program, and our dedicated teachers have come to us from various Spanish-speaking countries, including Colombia, Venezuela, Honduras, Chile, and Spain through VIF International Education, a company located nearby in Chapel Hill, N.C., which has provided us the means for our immersion program. These classes are effectively preparing our students to become successful, responsible, and confident bilingual students, and the use of technology in each of these immersion classrooms has truly enhanced the curriculum.

Each immersion classroom has some student computers and either a Dell short-throw projector or a Promethean Board. Our students are able to embrace and interact with the technology on a daily basis. Our immersion teachers

state that these interactive tools empower them to have successful teaching environments, where the bilingual capabilities of their students are fully realized. For example, SPLASH teachers use educational programs and lessons that allow their students to embrace new topics and exciting facts in a 21st-century manner. Teachers view their students as “digital citizens” who are being given the tools each day to interact in the modern world.

Technology in our immersion classes helps to facilitate the design of the teachers' lessons, and allows our students to develop communication skills in a fun and interesting way. The internet provides resources for our students to learn a second language, and it also facilitates the teachers' processes of evaluation. For example, students may participate in interactive reading activities where they record their own voices to practice fluency. There are also games and videos to enhance and follow up on what is being taught in the classroom and help students develop effective communication skills in a fun and interesting way.

Global learners

By and large, we've found the use of technology increases students' motivation and concentration, and it engages them in meaningful, relevant, and intellectually stimulating work. Using the internet, students are able to research, organize, and share information with the teacher and each other. Students in our third-grade immersion class are using the internet to research important information about a person from Latin America so they can write a biography. In another instance involving a math lesson, students completed an interactive math problem on a flipchart with guided practice from the teacher. Then, students practiced the math concept

using a link in their Google Classroom.

Shiloh's SPLASH students appear to be very motivated to learn each day, because their teachers offer those activities in which they interact with computers, the internet, digital cameras, and other devices. The use of Skype allows students the opportunity to virtually interact with Spanish-speaking people from around the world. This virtual environment allows them to see how people look, talk, behave, and interact in those countries. More specifically, one of our SPLASH classes communicated with a woman in China. She told the students about her culture and showed them her home. Our students then followed up with the Skype session by visiting websites to read and view photographs related to the Chinese culture.

Beyond the classroom, technology in our immersion classes is used to communicate with parents through classroom websites, which offer information about events, assignments, and strategies to assist bilingual students at home. Teacher websites contain links to educational sites and videos that students can access from home for additional practice. And teachers participate in professional growth through webinars, online research, and the sharing of resources in a global learning community.

We're confident our immersion program will help students in the future become more aware of the world around them without thinking about limits and borders. Our SPLASH students respect cultural differences, knowing that those differences are what make people around the world unique, varied, and wonderful. Our students are becoming global citizens and learning that people do not have to “be the same” to be friends or to work and live together. 

Scott Spencer is principal of Shiloh Elementary in Monroe, N.C.

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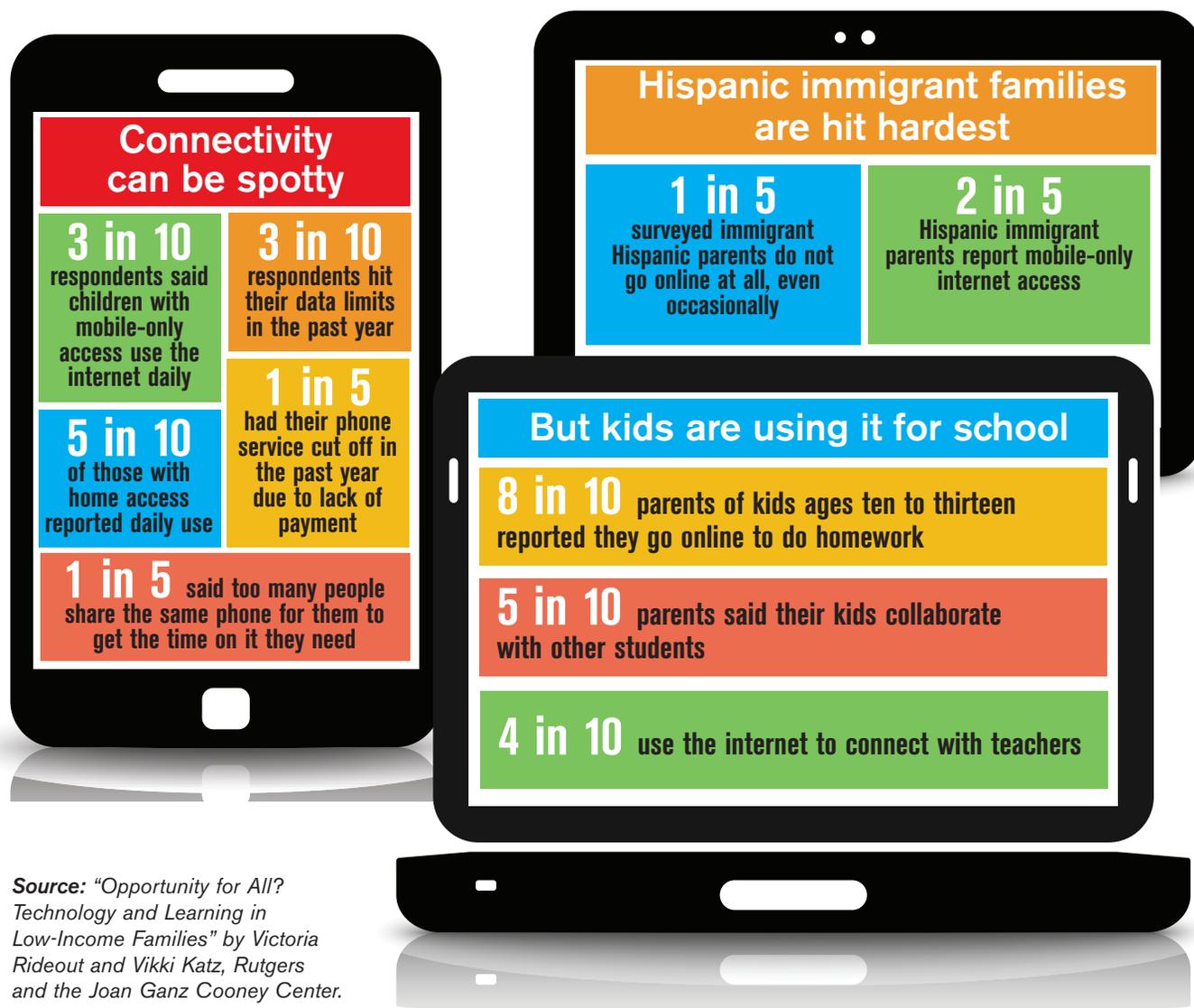
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Co-Founder Larry Siegelman 1954-2002

The new internet access challenge? The underconnected

Despite more and more low- and moderate-income families reporting internet connectivity, many of them are plagued by slow speeds or mobile-only device access, according to a new survey of nearly 1,200 parents of children ages 6 to 13 with household incomes below the national median, funded by the Bill & Melinda Gates Foundation. The vast majority of surveyed low- and moderate-income families reported that they are connected to the internet (94 percent), but many rely on mobile-only access (23 percent), more than half (52 percent) of those with home internet access say it is too slow, a quarter (26 percent) say too many people share the same computer, and only 6 percent of those eligible reported taking advantage of low-cost internet access. What else do the underconnected deal with?



Source: "Opportunity for All? Technology and Learning in Low-Income Families" by Victoria Rideout and Vikki Katz, Rutgers and the Joan Ganz Cooney Center. www.joanganzcooneycenter.org.

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