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How Technology Is Changing Every Educator’s Job

IN MY conversations with a wide range of educators over the past few weeks, one big idea kept coming up. With demand for technology in the classroom increasing and budgets (ahem) not increasing, everyone who works in K-12 education is grappling with job descriptions that are changing in fundamental ways.

As Marie Bjerede and Keith Krueger put it in their column on page 8, districts are now “holistically restructur[ing] budgets as new ways of working completely change the tasks and priorities of the IT and instructional organizations. Many of the jobs that belonged to IT will go away as it shifts to a service organization, eliminating old job descriptions while creating new ones.”

The CTOs I spoke to at last month’s Citrix Synergy conference agreed that their jobs have expanded far beyond keeping the server running. They now need to have a strong understanding of their district’s pedagogical aims before committing money and manpower to any new tech initiative. Even as they get more involved in instructional planning, they are adjusting to doing less in some areas traditionally governed by IT. As more districts implement BYOD policies, IT departments are being asked to allow teachers (and students) to have a bigger hand in managing their own apps and devices. It’s a delicate balancing act between giving students the freedom to explore and keeping them safe and on task.

Our two Innovators (page 33) in this issue are embracing the possibilities of their shifting job descriptions. Coachella Valley Unified School District Superintendent Darryl Adams has earned accolades from President Obama not only for passing a bond issue to fund a 1-to-1 iPad initiative in a low-income area, but also for his clever use of buses as WiFi hotspots in neighborhoods that lack Internet access. And in East Baton Rouge, LA, director of library services Susan Gauthier is helping create mobile makerspaces, connecting K-12 students to a college’s digital resources and offering augmented reality e-books. She’s a long way from the Dewey decimal system.

Thanks for reading, and I’d love to hear how your job description is changing. To continue the conversation, e-mail me at cpiehler@1105media.com.

As Marie Bjerede and Keith Krueger put it in their latest column, “Many of the jobs that belonged to IT will go away as it shifts to a service organization, eliminating old job descriptions while creating new ones.”
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Using Images to Keep Your Class Focused

According to our expert, smart deployment of pictures and videos in class engages students by tapping into the brain’s “delight in making connections.”

LYNELL BURMARK is the author of They Snooze, You Lose: The Educator’s Guide to Successful Presentations. Her teaching experience spans kindergarten to graduate school, and she is a highly applauded presenter. Her earlier book Visual Literacy: Learn to See, See to Learn won the book of the year award for publisher ASCD. Here, she offers tips to help teachers keep students focused during class time.

THE Journal: What’s the most common thing that classroom teachers do that’s likely to lose them the attention of their students?

Lynell Burmark: Probably failing to “change it up.” No one can sit-and-get for more than 10 minutes without at least 2 minutes of doing something else. No matter how fascinating the talking head, the clock is ticking....

Of course, the challenge is exacerbated by the increasing percentage of students with ADD or what my colleague Rushton Hurley calls ADOSS (Attention Deficit – Oh, Something Shiny!).

THE Journal: What are some techniques you recommend to help classroom teachers achieve the sort of 10 and 2 pacing you mentioned?

Burmark: Well, I don’t exactly set an alarm at the 10-minute mark, although I may try that in my next presentation, just to make the point. But I do go through my draft presentation to make sure that video clips, activities and other forms of audience participation are well distributed throughout the presentation.

THE Journal: Do you find video more engaging than still images?

Burmark: If you are talking about viewing video and images, they both have their place. Video has the advantage that music, dialog and engaging story lines are often already part of the clip. Videos can also be great for step-by-step instructions. I’ve noticed my 11-year-old niece Taylor no longer asks adults how to do things. She goes straight to YouTube.

But images offer more options for creative interpretation. I like to say that video gives you answers, whereas images ask you questions.

THE Journal: Can you give our readers a couple of practical, replicable ideas for engaging students in class using still images?

Burmark: You are welcome to help yourself to hundreds of ideas in the articles on my website educatebetter.org. For now, let me just share an audience favorite from the presentation I put together for the March 2015 National Art Education Association conference in New Orleans.

I have been inspired for decades by Bob Marzano’s research on the power of identifying similarities and differences. In my teaching, I’ve always found pairing and comparing items to be like a two-for-one sale: Students not only learn both items faster, they remember them both longer!

So I came up with the idea of making a “BrainTrain” of images where you
continue to add an image to compare to the last one before it.

For the art educators, my PowerPoint slideshow started with Degas’ *Dancers Wearing Pink and Green*, then added Manet’s *Roses in a Glass Vase*. The audience divided into groups of three and discussed the similarities between these first two paintings.

I then replaced the first image, the *Dancers*, with a woman holding a parasol, Manet’s *Spring*.

And finally, I replaced *Roses* with John Singer Sargent’s *A Morning Walk*.

With a slideshow, this becomes sort of a ping-pong activity. (In fact, I had initially called it “Ping-Pong Pictures.”) If, instead, you were to print the images out, they could become the visual BrainTrain of connections, working their way like a never-ending train around the classroom, until the wall space was covered or it was time to move on to another topic — whichever came first. You can create a BrainTrain slideshow on the iPad or iPhone by using a free app called Frametastic that lets you size images behind frames.

Participants in the lecture I mentioned above noticed things like “same color palette,” “same artist” or “same subject matter.” But given more time and more sophisticated observers, more subtle comparisons emerge. For example, one viewer was struck by the hand positions of the women holding parasols and compared that to how you would hold the bow while playing the cello. (Yes, we enrich the images with our own life’s experiences!)

This works equally well with images that are similar and images that — at first glance — have nothing in common. The brain delights in making connections, and it’s the connections between the images that become the glue to stick both images together for the activity and in the students’ long-term memory.

Of course, in the classroom, this becomes even more engaging because it’s small groups of students (rather than the teacher) who present the next image. They can ask the rest of the class how/why it fits and then give their own reasoning as well.

**THE Journal:** In this thinking-train activity, the students alternate between viewing images produced by others and adding images themselves. Is that a significant shift?

**Burmark:** Absolutely. But it’s really a third step to that shift that I believe can and will transform education.

Traditionally, students *consume* the teacher’s teaching plus whatever research they conduct as part of the topic or class. Then they *produce* something (a paper, report, presentation or form of media). My colleague Warren Dale refers to this most broadly as their “proof of learning.”

It gets interesting in my mind when the proof of learning for one student becomes the path to learning for the rest of the class. This is most efficiently accomplished when the proof of learning has a strong visual dimension and becomes what I call “Visual Proof of Learning.”

Train activity, that third step creates a cycle of consuming/learning, producing/teaching, consuming/learning that continues for as long as it makes sense for the topic in question.

I have to chuckle when I hear education pundits proclaim that we have shifted from teaching to learning — as if the one precluded the other! What is happening is that engaged students are learning and teaching their peers in ways that teachers never could. Lines blur between teacher and student as everyone consumes and produces at various points along the path to learning.

**THE Journal:** In closing, could you please share with our readers your top three tips to help teachers keep students engaged in the classroom?

**Burmark:** Just three? These may not be the “top” three, but they are a good place to start:

1. **Put students in groups.** There’s a Vietnamese proverb that says: “Respect your teachers; learn from your friends.” In most cases, students do not come to school to listen to their teachers; learn from their friends. Put their social energy to work in teams for creative activities and project-based learning.

2. **“Words can never recall an image we haven’t already seen.”** (Yes, I made that up, but I challenge anyone to refute it.) Use those LCD projectors; design activities that build from images that students select or montages and videos that they create.

3. **Deploy and encourage humor.** I don’t advocate gratuitous humor — “Okay, class, let’s take a break while I read you a joke” — but rather humorous juxtaposition to make a point, funny images that spark rich language and story lines and hilarious observations from students that add to the breadth and depth of understanding of the topics being discussed. In my opinion, the most valuable use of class time is to let laughter erupt from students’ comments that connect our ideas to their thinking, to their world, and — in those moments of magic — to their hearts.
How do we pay for it? This is often the first question that trailblazing districts implementing 1-to-1 programs hear from those hoping to follow in their footsteps. It’s typically followed by “What devices should we buy?”

According to districts that have already implemented mobile learning, these are the wrong questions. They come from an outmoded framework that doesn’t reflect just how dramatically and thoroughly everything changes once a district makes the decision to pursue a digital transformation. Instead of questions about costs and devices, districts should be asking themselves, “What are our reasons for implementing 1-to-1?” or “What will teaching and learning with technology look like here?”

When a district begins with these core questions, the answers to other questions will naturally ensue. Leaders will be free to choose devices based on the learning tasks for which students will be using them, then holistically restructure budgets as new ways of working completely change the tasks and priorities of the IT and instructional organizations. Many of the jobs that belonged to IT will go away as it shifts to a service organization, eliminating old job descriptions while creating new ones. Curricula and instructional approaches will change, and money will shift toward devices and digital tools rather than textbooks. Many districts are using these wholesale changes in day-to-day work to implement 1-to-1 without budget increases.

The Impact of 1-to-1 on Networks
Infrastructure investments, though they entail much higher upfront, capital costs, can be addressed using a similar, systemwide, holistic approach. When a district embraces 1-to-1, and particularly BYOD, the demands on the network go nonlinear. Leading districts find that they experience exponential growth in their need for network capacity. This growth varies from district to district and depends on how technology is actually used and implemented, but it is common to see 60 percent growth in demand on network capacity each year — meaning that demand on the education network doubles every 18 months.

Users’ expectations of network reliability also increase dramatically as districts move to 1-to-1 computing strategies. Where it used to be merely inconvenient for the network to go down, once teachers and students begin to depend on the network for their daily work, it becomes mission-critical. District leaders report that their administrators, teachers and students expect essentially zero downtime, yet CoSN’s E-rate and Infrastructure Survey indicates that more than one-third of districts reported more than three days of downtime annually. Shockingly, 5 percent of school districts reported that their education networks are down 30 or more days a year, more than one day of instructional time each week.

Districts also need increased ability to support more devices. When many school networks were established, they were intended to support at most one device per adult. Once districts move to 1-to-1, the number of devices may increase by more than 20 times. Where BYOD is allowed, some districts are seeing three or more devices per student. This means that the new networks need to
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support almost two orders of magnitude more devices than their old networks did.

Nearly all districts will have to accommodate 10 to 100 times the number of devices when moving from computer labs to 1-to-1. This change has important implications for addressing scalability of network appliances and security models.

**Increasing Demand Means Increasing Cost and Complexity**

Dramatically increasing requirements creates a number of dilemmas for districts in planning and budgeting for infrastructure purchases, installation and maintenance.

**Network capacity is expensive.** According to the CoSN survey, one-third of districts are paying more than $50 per month per Mbps. If a school is trying to achieve the Federal Communications Commission’s long-term recommendations of 1 Mbps per student, this means that a district of 10,000 students may have a hefty monthly bill of $500,000. Even at the 2014 targets of 0.1 Mbps per student, the cost could be $50,000 per month.

**Network appliances are expensive.** If districts expect to see a doubling of capacity demand every 18 months, the 1G appliances they currently use for filtering, switching and security will likely become obsolete. If so, they will need to update to 10G versions of the same appliances well before their five-year technology plan expires and replacement funds become available.

**Networks may be unreliable.** Many networks evolved under the assumption that most computer access would be to servers located in the school or at district headquarters. These networks have a traditional hub-and-spoke architecture, with a single line going from each school to the district, and the district then connecting to the commodity Internet. In this model, each connection is a single point of failure where an outage will affect a whole school, or even the whole district, until it is repaired.

**Network design is complex.** Designing highly reliable, high-capacity networks calls for professional expertise that many districts can’t afford to maintain in-house.

**Network maintenance is complex.** Managing networks proactively for performance, reliability and capacity requires specialized expertise that may be difficult for many districts to afford or even find in small or rural communities. Fortunately, many districts can address these challenges by mitigating market factors and mitigating approaches.

**Funding and Logistical Solutions**

First, the cost of network hardware and network capacity are on downward sloping curves. It is possible for districts to plan carefully for the capacity growth that drives hardware infrastructure investments, making judgments about how long they can afford to wait to upgrade appliances and balancing their needs against how costs decrease over time. As for network capacity, many districts find that though their costs stay constant, the amount of capacity they are able to provide over time increases to keep pace with demand.

Second, E-rate modernization has made it easier for districts to fund infrastructure to close the WiFi gap. E-rate has added $1.5 billion in funding per year for school broadband connectivity, with $2 billion available this year. E-rate now also supports long-term planning for infrastructure by making it possible for districts to receive funding over a five-year period rather than spending the full amount within one fiscal year.

Third, states and large districts are finding that they can dramatically reduce costs through the purchasing power they wield when they aggregate demand across districts or schools. This aggregation is effective not only for purchasing hardware and capacity, but also for getting the technical human resources required for professional network architecture development, network design and implementation and network management and maintenance. To make this approach easier, the FCC is encouraging consortia and bulk purchasing by removing constraints that previously prevented districts who were seeking E-rate funding from participating with other public sector entities such as rural healthcare providers, universities, counties and municipalities.

At the state level, the scale of multiple school districts makes it possible to negotiate for the best pricing on hardware and bandwidth. The same is true for large districts serving tens of thousands of students. Equally important, these large organizations are able to support network engineers to design and maintain their networks. For smaller and rural districts that don’t have access to state-supported services, other aggregation strategies become critical.

Aside from purchasing consortia, districts can cooperate to get network architecture and design support. This work is critical during times of build-out and investment, but there are significant logistical and practical challenges to realizing those benefits.

Instead, many districts find it more cost-effective to contract for their networks as a service, using third parties that provide network architecture and infrastructure build-out as well as day-to-day network management, maintenance and scaling. In cases where operational expenditures are easier to budget and plan for than capital expenditures, the whole network, including devices, may be obtained as a service or lease. These districts generally enjoy automatic device refreshes as well as upgraded bandwidth and appliances when needed.

Finally, districts are beginning to take advantage of market aggregation by building a carrier-neutral data center where colocation, telecommunications, Internet and cloud services are available at much higher levels of service and much reduced cost.

By taking advantage of the collective power of consortia, collaboration with other districts, market aggregation and/or third party services, even small districts gain the power to ask — and cost-effectively answer — the right questions. 

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**Marie Bjerede** is the project director of the Consortium for School Networking’s Leadership for Mobile Learning and Smart Education Networks by Design initiatives.

Keith R. Krueger is the CEO of CoSN. You can contact him at keith@cosn.org.
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6 WAYS VIDEOCONFERENCING IS EXPANDING THE CLASSROOM
With instant access to international collaborators, virtual field trips and courses in other districts, learning can happen anywhere in the world.

BY DAVID RATHS

THREE YEARS AGO, more than 125 students in three high schools on the Kenai Peninsula of Alaska spent the night sleeping at school in order to be awake for a 4 a.m. videoconference with students in Nazareth, Israel. After the students’ virtual meeting was finished, parents arrived at the schools to cook them breakfast. The students then showered and went on with their normal school day.

This kind of meeting has become increasingly common as Kenai Peninsula Borough Schools have embraced videoconferencing technology as a way to open up students’ connections to the lower 48 — and the rest of the world.

More recently, Kenai Central High School world history teacher Greg Zorbas and Skyview High history teacher Rob Sparks have had students work on longer-term projects with students in Palestine and Ghana. “Teams made up of students from Ramallah and our school developed conflict trees to understand root causes and effects,” Sparks said. “They posted their work in our Google Community for everybody else to see.”
Over the last decade, as high-speed Internet has become more accessible, videoconferencing technology has grown more sophisticated and easier to operate. School districts are finding an increasing number of innovative ways to bring students together virtually for meaningful interactions, whether for one-time field trips or more extensive long-term collaboration. Here are six examples of the impact video technology is having on classroom experience.

Connecting Classrooms for Collaborative Projects
What Zorbas and Sparks call their “Classroom WithOut Walls” program has allowed their Kenai Peninsula students to connect with students in Afghanistan, Israel, Yemen and several U.S. states. But the videoconferencing exploration grew gradually, from the two teachers team-teaching in the same school, to team-teaching from different schools in the same district, to student-to-student collaborative group work.

Zorbas said, “We used videoconferencing to share content between classrooms, but we wanted to take it to the next level. We wanted our students to work together in small groups using videoconferencing. The dynamics of group work is one thing, when you have kids all in the classroom. We wanted two of my students to be working with two of Rob’s students and have a videoconference going on as they worked.”

Using both Polycom RealPresence Desktop and then Microsoft Lync, they moved from videoconferencing with a big TV set for classroom-to-classroom interactions to a setup in which small groups of students have face time with students in another school to work on projects together. (They color-code individual and collaborative work in Google Docs for assessment purposes. Each teacher assesses his own students’ work.)

One challenge has been figuring out which technology is best for students’ computer-to-computer collaboration. “Recently we have been doing a lot of things with Google Communities with our foreign partners,” Sparks said, “and we may try Polycom’s RealPresence CloudAXIS in working with students in Ghana. We just keep searching for whatever works best to solve the problem we have.”

They’re learning about much more than new technology, according to Zorbas. “The combination of videoconferencing and student collaboration has completely changed the way we teach,” he said.

Making Courses Available Anywhere
For the past three years, most German classes that Marissa Wanamaker teaches at Lincoln High School in Nebraska also have a student or two attending remotely via videoconference. “I have had students from several rural communities,” she said. “It has forced me to rethink how I deliver the coursework every day. I make sure to include the remote students in group activities. My students get excited about working in the remote student’s group.”

The system allowing rural Nebraska students to study German and other topics that may not be offered at their school is a synchronous course exchange that uses videoconferencing and was established several years ago with state lottery funds. Almost 9,000 Nebraska students per year take courses through the system.

When students from a remote school register for a course at Lincoln High, they actually become Lincoln Public Schools students, noted Linda Dickeson, the distance learning manager for Lincoln Public Schools. “They get all the same rights and privileges a Lincoln student gets,” she said, “with their own login and password to resources, and an e-mail account the teacher can use.”

To beef up its infrastructure, Lincoln Public Schools has added 22 Lifesize Video Centers to control, store and stream video to large flat-screen TVs. These videoconferencing setups are mainly distributed in high schools and the district office buildings.

One course, Literature of the Holocaust, is so popular that Lincoln Public Schools has to turn away some remote students. The teacher might have 30 local students, so the district limits the number of remote students to an additional three per section. The videoconferencing equipment is also used within the district to make some courses, such as Chinese, available to schools that don’t offer it. Dickeson said, “We don’t have a systemic way to do intra-district offerings yet, but I think the needs are going to drive that more.”

In remote areas of Nebraska, the system has allowed for course swaps where one school would offer Spanish and another physics, with their students attending each other’s classes remotely. At the end of the year, the state validates all the courses that had videoconference enrollments. The sending school gets $1,000 for the connection, and the receiving school gets $1,000. “That was the motivation for this clearinghouse building up over the years,” Dickeson said. “It has worked out great.”

Nevertheless, the legislation that created the clearinghouse is set to expire after this school year. “We have been camped out with senators over the past year, hoping bills will make it to the floor and give us additional funding,” Dickeson said. “But the synchronous course clearinghouse has proved so successful that even if we don’t get incentive funding, I think it will still be sustained, because it has served a need.”

Overcoming Rural Isolation
It’s no coincidence that some of the most innovative work on classroom videoconferencing is coming out of Alaska, where the vast and rugged geography makes travel and in-person meetings challenging. In addition to the Kenai Peninsula example mentioned earlier, Kodiak Island Borough School District has been working since 2004 to unite its community of small rural schools, said Phillip Johnson, director of Alaskans Transforming Educational Access in Communities and Homes (AK-TEACH), which is extending KIBSD’s distance-learning offerings statewide.
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The initial goal for KIBSD was to focus on improving math instruction in six fishing villages and one town on a road 40 miles from Kodiak. These villages have populations of 40 to 260 people, and the schools there have enrollments of 12 to 45 students. Eighty percent of the students in village schools are Alutiiq (Russian-Aleut).

“Our village students were not getting the level of education that students in urban settings were getting,” Johnson said, because teachers were asked to be generalists and teach multiple content areas. When the district offered village schools videoconferencing access to a teacher who could specialize, with the village teacher facilitating in a co-teacher model, things began to change. “We began to develop our ‘One School’ concept,” Johnson said. “We are sharing staff and sharing students,” he said. “We aligned all our schools’ schedules and calendars with Kodiak High School’s.”

The district has experimented with several technologies over the years. “We are not married to one technology,” Johnson said. “We use a Polycom system; other courses are offered through Blue Jeans. We have one-on-one instruction happening with Skype for home-school students.”

Johnson said it has been fascinating to watch the impact of the technology on students’ relationships and academic performance. “Actual experiences tend to lend themselves to virtual experiences,” he said. “When we started this program, we recognized the students were not adjusting to the virtual format. They were shy and didn’t like the camera. So we brought all our rural students together for a math and science academy to work on projects together. By the end of that experience, they had developed actual relationships. When they went back to their schools and we started asking them to work in a virtual world again, it had changed the entire experience. They were now willing to interact.”

Students who had had very little exposure to other students around the island started to develop relationships, he said. “We began to see behaviors between students that you would expect to see between students in a brick-and-mortar school: students beginning to go off-task and chatting with the technology that the tool was no longer the barrier. It was now the world they were comfortable living in.”

In fact, Johnson said, whereas before students from different villages expressed no interest in joining together for team sports, now they play together at the state level regularly and do well. Village students also participate in synchronous orchestra and band classes. They meet with the instructor virtually a few times a week and use SmartMusic to support their daily instruction. “Then we fly them in from rural communities for concerts,” Johnson said. “They perform incredibly well. They have met or exceeded the level of their peers, and blend in with all the other students performing. And they are sort of like celebrities, because the Kodiak High School students have seen them virtually and now here they are in person.”

Virtual Field Trips
Not all uses of videoconferencing have to be as extensive as the examples in Nebraska and Alaska. Many school districts have built up a collection of regular “virtual field trips” that their students can take in conjunction with curricular support to prepare the students to appreciate their experience.

The concept of virtual field trips got a big boost on April 30, when President Obama took part in “Read to Discover a World of Infinite Possibilities,” which was part of a virtual field trip series called “Of the People: Live From the White House,” sponsored by Discovery Education and the White House. The April 30 event featured sixth-grader Osman Yaya interviewing President Obama about his favorite books and love of reading.

In another example, over the last several years California State Parks has fine-tuned and expanded a free distance-learning program called Parks Online Resources for Teachers and Students (PORTS), which allows more than 7,000 K-12 students each year to enjoy interactive lessons with park interpreters about the natural and cultural resources in California’s state parks.

Lone Tree School, a K-5 school on Beale Air Force Base near Marysville, CA, started doing PORTS classes in 2008 and now does 75 to 100 per year, said technology facilitator Donna Tarble. One of the students’ favorite classes is about tide pools, because the ranger has a remote truck she takes down to the beach, Tarble said. Students can explore Crystal Cove State Park’s fragile tide pools and learn about the biology and ecology of the park’s ecosystem, even though an in-person trip would be difficult to arrange.

Lone Tree has a dedicated videoconferencing room equipped with an LCD
screen and a Polycom system. Tarble has taught the teachers how to turn on all the equipment and log in so she doesn’t have to be involved unless there is a technical problem. “Teachers tend to be apprehensive when it comes to new technology,” she said, “but now we use technology so much here on the campus that we have tried to encourage them to take more on themselves.”

**Vocational Education**

Both virtual field trips and more extensive school videoconferencing programs can give students glimpses of potential careers or help them practice developing skills they may use in the future. Paul Eichelberger, a biology teacher at Jim Thorpe Area High School (PA), has found a virtual field trip that really resonates with his students interested in medical careers. For the past seven years, his anatomy and physiology students have attended an interactive session (put on by the Center of Science and Industry in Columbus, OH) that allowed them to watch a live knee replacement operation. “The students usually say that was the coolest thing we have ever done,” Eichelberger said. “The majority of people taking this class are thinking of going into some sort of medical career,” he said, adding that they appreciate the chance to see physicians in action and to ask them questions.

Synchronous videoconferencing has had a positive impact on a vocational welding program on Kodiak Island. Johnson said. Previously it had been a blended program with some hands-on instruction, but students were flying in to Kodiak for expensive certification tests — and many were not prepared. “I drew a line in the sand and said if we can’t demonstrate proficiency, then those kids shouldn’t come in for testing,” he recalled. “Last year we went to a synchronous welding program and the instructor makes sure the students demonstrate proficiency via videoconferencing before their departure from their rural community for certification testing, and the results have been phenomenal.”

On the Kenai Peninsula, Zorbas and Sparks stress to their students that in addition to learning history, they also are learning 21st century workplace skills by getting comfortable with videoconferencing and collaborating remotely with Google Docs. “Everywhere you look in the workplace nowadays you see the use of face-to-face video,” Sparks said. “Most colleges and hospitals are getting into videoconferencing. Five years ago, nobody talked about a videoconferencing coordinator. It wasn’t really a job that existed. Now we work with several of them all the time.”

**Including Homebound Students in Class**

At any given time, Lincoln Public Schools may have a dozen students using videoconferencing to attend class due to accident or serious illness. Dickeson also said, “Some students have behavioral problems because of anxiety or autism, where some classrooms are overwhelming for them.” When those situations come up, she consults with a special education coordinator to assess whether videoconferencing is an appropriate solution for that student. Lincoln uses a solution called Scopia Desktop. “When we were buying our tools in 2010, one of my criteria — a real dealbreaker — was videoconferencing on the desktop,” she said. At that time, Scopia was the only desktop videoconferencing solution she could find for Mac and Windows. “It has worked well for us,” she added.

Another innovation being deployed around the country is the VGo Telepresence Robot, which gives disabled and immune-deficient students a virtual presence in school to allow them to participate in a full school day from home or the hospital. The student operates the VGo with an Internet-connected computer equipped with audio and webcam capabilities.

Rick Lemke, principal of Durham Public Schools’ Hospital School at Duke University Medical Center (NC), said the district is piloting three VGos in homebound settings and plans to test three in a hospital setting. One of these pilots, he said, “involves a girl who has multiple disabilities, and it has enabled her to participate in a school classroom. She would never have had that opportunity otherwise. It has worked out brilliantly.”

He said research shows that students coming back from serious and long-term health issues have trouble transitioning back to school. “We think this technology can minimize the extent to which the transition is difficult if we can keep you connected with school and peers. If you are a transplant patient and are waiting for a heart, you have time and could stay in class. After an operation, while you are recovering, you are still not going to school, but you could virtually. You could maintain connections and keep the mind rolling academically.”

The six VGos that Durham bought cost about $12,000 each. From one perspective, it is a considerable investment, Lemke noted. “But if it is achieving its intended outcome of keeping these kids in school and they are not falling behind and are prepared to return when medically approved, then it is not much of an investment.”

David Raths is a freelance writer based in Philadelphia.
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Sheer choice is any indicator, there has never been a better time for school systems to adopt a learning management system. The traditional market leaders that have delivered LMSes into higher education for years — Blackboard, D2L, Moodle and Pearson — have expanded their reach to support K-12. They join plenty of products that have been there all along: Aspen, itslearning and Edmodo, among others. And there are plenty of relative newbies in the LMS ranks angling for their own slice of the education pie, such as Google Classroom and Instructure with Canvas.

Many public school districts in the United States have never adopted an LMS, so there’s a ripe market opportunity for vendors. What’s driving schools into this category of software is the uptick in student computing, the pursuit of technology that can simplify the personalization of instruction, a desire to broaden communication throughout the school community and a craving to use data to guide decision-making.

**21st Century LMS Shopping List**

It’s a sure bet that every program calling itself an LMS these days offers the course-management basics: providing a way for students to submit assignments and for teachers to run online discussions and deliver announcements. But those were the same features LMS users wanted a decade ago, and they pale in comparison to what users are looking for now:

- An intuitive interface that mimics consumer social networks;
- collaboration that goes far beyond standard teacher-student communication;
- assessments with analytics responsive enough to drive instruction for that day, week or month; and
- the capacity to provide a structure for organizing digital learning resources and sharing them locally and broadly.

Like districts all over the country, Roaring Fork School District in Colorado is in the midst of an LMS evaluation right now. According to Technology Integration Facilitator Ben Bohmfalk, the teachers have never had an LMS, and they are trying two. About 20 percent of the teachers have picked up Google Classroom; and a handful of educators are piloting Schoology.

The district arrived at this point after adopting Google Apps for Education several years ago, then beginning the steady trek to 1-to-1. Because it seemed to be a simple fit with Google Apps, the district picked up Google Classroom when it was officially introduced in August 2014. While the free program has added to what teachers are “doing in the classroom,” he noted, it lacks some of the curriculum features teachers most want, whereas Schoology appears to fill those gaps.

Evergreen School Division in Manitoba, Canada, sought an LMS as a way to consolidate the functionality being provided by a bunch of different software that its schools had adopted through the years. According to Superintendent and CEO Paul Cuthbert, the district used one tool for attendance, another for a gradebook and various programs for classroom-based websites and blogs. A two-year assessment process whittled the choices down to one: Edsby. After a year of piloting and a year of rolling the system out to teachers in its high schools, the early and middle school teachers now have access to the new LMS.

**A Social Interface**

Of all the LMSes that Roaring Fork checked out, Schoology turned out to be the most intuitive, said Bohmfalk. “It’s set up the closest to a social network style of interface. While some people might not love that if they’re not social network users, it’s an interface that’s really familiar to all teachers and students immediately. You can just click around and figure things out.”

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**4 Features to Look for in a 21st Century LMS**

Two districts share their experiences of choosing a learning management system that does a lot more than help teachers post assignments.
CANVAS MAKES TEACHING EASIER. AND BETTER. AND MORE RELIABLE. AND MORE AGILE WAY MORE. AND MORE PEDAGOGICALLY FLEXIBLE AND MORE COLLABORATIVE. AND MORE INNOVATIVE ON THE PRAIRIE. AND MORE COMMUNITY-FRIENDLY AND SMARTER. AND SIGNIFICANTLY BETTER LOOKING AND MORE CUSTOMIZABLE. AND LESS TIME-SUCKING CHANGE. AND LESS DOWNTIME-Y. AND FITTER, MAKES EVERYTHING EASIER (AND THE OTHER AD
21ST CENTURY LEARNING

It’s not just the interface that gives that impression. Schoology also makes it easy for users “to find people and connect with people,” he added, just like Facebook.

Cuthbert used the Facebook comparison too, but in regards to Edsby. “I would equate it to a Facebook but in a protected area and that’s focused exclusively around the teaching and learning process,” he said.

Collaboration
An aspect of Edsby that is getting a lot of use at Evergreen is the ability for the educators to collaborate by forming “groups” across the school system. “Essentially, these have become like professional learning communities for us,” explained Cuthbert. Not only have teachers begun using the LMS to share resources for instructional purposes, he added, but committees within the school system have adopted it as well. “It gives us that common repository where we can archive important files. It’s really been a very powerful tool for us in that way.”

Bohmfalk expresses similar sentiments regarding Schoology. “I like their groups feature. Instead of just creating a course, if we have social studies teachers across the district collaborating to develop curriculum, most LMSes would require them to set up a course and invite people to it.” Schoology, on the other hand, allows the teacher to set up a group and choose whether it will be open member, membership by invitation only or membership by request. Bohmfalk envisions a day when those groups will percolate throughout the district, allowing people to “voluntarily join and then collaborate within that environment: have a discussion, share resources, create a rubric, create an assessment and then pull it from there into their course environment.”

Assessments and Analytics
An absolutely “critical” function for Roaring Fork is the ability to pull data out of the LMS to help guide instruction. “The reality is that most teachers and administrators don’t have the data at their fingertips to be able to make better instructional choices,” Bohmfalk asserted.

The goal for analytics is twofold: first, to be able to create assessments that “show us whether students are on the right track or in need of intervention and then deliver that;” and second, to identify classes where results are “amazing,” whose teachers could deliver professional development to share what’s working and what’s not.

While “all” LMSes tout their analytics nowadays, observed Bohmfalk, the default analytics, he said, “largely relate to how long students stayed on the page or for how long.”

While Schoology and the others are racing right now to develop strong assessment analytics tools, Roaring Fork has had a hard time finding that feature included with the other features it wants in an LMS. Bohmfalk acknowledges that the district could simply “get an assessment analytics platform,” but then it would lose out on the other function- alities of an all-around useful application.

Room for Digital Learning
At the district level in Roaring Fork, teacher teams are developing curriculum and assessments, and there’s no way for them to share those other than in a Google Drive folder, said Bohmfalk. There are two problems with that: First, it’s not a “student-facing kind of thing.” Teachers can’t share the curriculum with students that way. Second, “if you put everything in a folder ... it’s easy to forget it’s over there.”

The Colorado district isn’t alone in pursu- ing a solution to this need. As IMS Global Learning Consortium CEO Rob Abel wrote recently, “Leading districts are adopting K-12-oriented learning platforms to organize their digital content — an absolute necessity going forward. School districts have [hu n d r e d s] of grade- and subject-specific learning resources moving to digital.” Alas, he added, “There are no clear front-runners or market leaders yet in this new category.”

While Evergreen has settled into Edsby, Roaring Fork is still noodling over its choices. “We’re trying to figure out which of those best meets our needs without teachers feeling like, ‘Oh, gawd, it’s one more thing to learn, one more place to go,’” said Bohmfalk. While Schoology is the front-runner in the district, it may be that neither LMS currently in use makes the final cut.

That’s a possible outcome he’s resigned to. “We’re kind of looking for this one-stop shop kind of thing that’s also super intuitive. So it’s asking a lot of a platform.”

4 KEYS TO PICKING AN LMS

Evergreen School Division’s Paul Cuthbert pointed to Edsby’s willingness to work with his smallish school system on customizations that really helped seal the deal. “We’re not a large district, of course. We value the relationship we had with them,” he said. It helped that the company wanted to make inroads with other districts in the same province and that Evergreen was willing to become a “reference” customer.

Student information system integration was another factor that worked in Edsby’s favor. “Vendors will often say, ‘Oh, yeah, we’ll integrate with that product,’ but when it comes down to the actual integration, it’s a nightmare,” noted Cuthbert. In this case, the company could back up the promise with a “track record” of integrating with the specific SIS that Evergreen was using.

At Roaring Fork School District, Ben Bohmfalk took comfort in the fact that a lot of other districts in his state had already adopted Schoology after going through their own “rigorous selection process.” Not only did these districts serve as a reference check, but he’s hoping they’ll also turn into “one big user group” for collaboration and sharing of resources such as assessments and curriculum.

Schoology came in with “some really competitive” pricing compared to other LMS contenders, said Bohmfalk. But even better, as a member of the state’s eLearn Collaborative, which has negotiated consortium pricing, the district saw its quote cut nearly in half.

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Dian Schaffhauser is a senior contributing editor based in Nevada City, CA.
With active learning environments on the rise, new systems must support collaboration in the classroom and on the Web. **BY DENNIS PIERCE**

**IN SCHOOLS FROM** coast to coast, classroom learning environments are becoming more active and collaborative. Students are contributing to discussions and presentations, and the days of the “sage on the stage” are waning. This change is having a profound effect on the deployment of audiovisual technology in education.
According to Mike Tomei, an independent audiovisual consultant who designs and installs AV systems for classrooms, “Classroom AV technology plays a big part in facilitating active learning environments.” Makers of AV equipment have responded to districts’ needs by developing new products that support more active and collaborative learning. Here are three key trends that show how they’re doing it.

1) Projectors and displays are becoming increasingly interactive, with more touch points to support multiple users at once. Interactive projectors have shown steady growth since they first hit the market in 2009, said Linda Norton, vice president of PMA Research, a high-tech market research firm that specializes in the projector market. According to Norton, U.S. sales of interactive projectors jumped 36 percent last year, from 63,042 units sold in 2013 to 85,813 units sold in 2014. Although Norton’s firm doesn’t track sales by vertical market, it’s safe to assume that many of those sales were to K-12 schools — and she said there is no reason to believe this growth won’t continue in 2015.

New options for interactive projectors continue to emerge, with more devices supporting touch interactivity with a finger instead of a pen. In April, for instance, Mimio upgraded its projector line. The MimioProjector 280 series now includes a conventional, non-interactive model (the 280); a pen-based, interactive model (the 280I); and a touch-enabled model (the 280T). The 280I allows for teachers and students to simultaneously use up to 10 interactive pens, and the touch-based 280T supports up to 10 simultaneous touch points.

New options for interactive projectors continue to emerge, with more devices supporting touch interactivity with a finger instead of a pen. How might this be useful in the classroom? On MimioConnect, the company’s online community of educators, Claire Pavia, a first-grade teacher at Cross Lutheran School (IL), suggested projecting four incomplete equations on your board. Have four teams of two to three students each come to the front of the class, and assign each team an equation to solve. Then, compare and contrast the different strategies that students used to solve each problem, and ask the class to discuss the pros and cons of each method.

“This makes learning fun and game-like,” Pavia wrote. “It encourages the students to work together to solve the problem, just how problem-solving is in the real world. And it also brings the entire class into the learning process, so it isn’t one student up at the board.”

Interactive projectors are starting to replace interactive whiteboards in classrooms, said Tom Piche, a marketing executive at Epson America, which makes the BrightLink series of interactive projectors for education. With an interactive touch area ranging from 60 inches to 100 inches diagonally, these projectors give educators some flexibility in terms of classroom installation, he said.

Many of Piche’s customers now expect touch capability instead of pen-based interactivity, he noted. “With iPads, iPhones and tablets, people have gotten so used to swiping with their finger,” he explained. “That has become the expectation at the board as well.”

Interactive flat-panel displays also are catching on in education. During the Texas Computer Education Association conference earlier this year, BenQ demonstrated its new 70-inch RP702 high-definition interactive display, which offers 10-point multitouch technology and a...
LAMP-FREE PROJECTORS: A BRIGHT IDEA?

Projector lamps can be expensive, and it can be a hassle to replace them when they burn out. Properly disposing of mercury lamps isn’t easy, either. For these reasons, a small but growing number of organizations are opting for lamp-free models when buying projectors.

Lamp-free projectors, which use solid-state illumination (SSI) instead of traditional mercury lamps for their light source, include LED projectors, laser projectors and hybrid projectors that use a combination LED/laser light engine. Since Casio launched the first hybrid projectors in 2010, a number of other manufacturers have introduced SSI models as well.

When lamp-free projectors first came out, they were more expensive than similar models with traditional light sources, and the colors were slightly off, said Mike Tomei, an independent AV consultant to schools. “Now, we’re either at or really close to the point where these are comparable,” he said. “I think, in the next few years, most schools will be buying these.”

Sales of projectors with solid-state light sources instead of lamps are on the rise. PMA Research expects an 8 percent growth in sales of projectors with laser/LED hybrid light engines in the United States this year, said Vice President Linda Norton. She attributed this growth, in part, to falling prices. “In 2014, the average selling price of laser/LED hybrid projectors was $1,322, and we expect the average price to be $1,280 by the end of this year,” Norton said.

Earlier this year, Casio introduced a new hybrid projector that sells for about $700. The EcoLite XJ-V1 is powered by Casio’s fifth-generation LED/laser light source, with an estimated lifespan of 20,000 hours. It produces 2,700 lumens of brightness and offers XGA resolution (1,024 pixels by 768 pixels).

While PMA doesn’t have figures that are specific to education, its 2013 end-user survey showed that 54 percent of projector buyers in the corporate market found solid-state illumination to be “very important,” and 38 percent said SSI was an “absolute must” for their next projector purchase.

Norton cited the convenience and lower total cost of ownership of lamp-free projectors, as well as their “green factor,” as reasons for this support.

1) Built-in whiteboard apps allow annotating on the screen.

The Australian company Electroboard Solutions made its U.S. debut by demonstrating Prowise interactive flat panels for education, ranging in size from 55 inches to 84 inches diagonally.

Tomei noted that interactive projectors or whiteboards are cheaper than large flat-panel displays, but, there are some benefits that might make interactive flat panels worth the money. For instance, even when teachers are using an ultra-short-throw projector, there will still be shadows on the projected image when they are writing on the board or interacting with projected content, he said. Also, projectors can be bumped out of alignment, requiring a technician to realign and calibrate the image — and they require lamp changes when the lamp burns out. “You don’t run into either of those issues with flat-panel displays,” Tomei said.

2) New apps and devices allow multiple users to collaborate and share content wirelessly at the same time.

A number of new AV systems allow for wireless collaboration between teachers and students, enabling an ever-larger number of users to work together on projects and share presentations.

The ShareLink 200 Wireless Collaboration Gateway from Extron allows multiple people to present content from a laptop, smartphone or tablet on a shared display. The device enables up to four people to display their slides, documents, graphs, photos and other content at the same time, without needing a cable. It is compatible with Windows and OS X computers, as well as Apple and Android smartphones and tablets. It also includes a moderator mode so the teacher can control whose content is displayed.

Sharp’s Aquos Board line of interactive displays, available in sizes ranging...
from 60 inches to 80 inches diagonally, includes software called Touch Display Link that can communicate with iOS, Android or Windows 8 devices running the accompanying TD Link app. According to the company, up to 50 mobile devices can connect to an Aquos Board at once, and when the teacher writes on the display, this content appears simultaneously on students’ screens. By choosing an option called Host Control, students can add to the presentation from their own devices — and anything they write will show up on the Aquos Board. A growing number of AV manufacturers are integrating Miracast technology into their devices, enabling users of Windows or Android tablets to wirelessly mirror their screen to a display. For instance, many Panasonic projectors and interactive flat panels include Miracast, allowing users of laptops or tablets running Windows 8.1 or Android 4.2 or later to show content from their own device wirelessly. Through its Samsung School initiative, Samsung enables group collaboration between teachers and students using Samsung displays and Galaxy tablets for education. Teachers can share their screen with the class, monitor or control students’ screens, launch an app on all student devices or initiate a group activity. Students can contribute simultaneously on a shared screen as well. According to a case study, Doddridge County Schools in West Virginia saw increased student engagement after deploying Samsung School within its middle school classrooms last spring, and so the district decided to roll out a similar initiative in its high school this year. Another collaboration option is Promethean’s ClassFlow, free software that enables similar screen-sharing capabilities across multiple platforms. When the software detects a new device logged onto the network, it sends a code to that device, which, when activated, allows the student to join the digital lesson. For whole-class instruction, teachers can take their students through a lesson together through a projector or display. Switching to individual instruction, teachers can “push” a website, video, poll or other digital content to students’ devices. They also can control students’ screens or display a student’s screen to the whole class. Epson recently introduced its own free software, called Moderator, which enables teachers to control multiple presentations at once. Up to 50 students can connect to an Epson projector simultaneously from a laptop, iOS or Android device using Epson’s free iProjection app. With Moderator, which runs on Windows or OS X, the teacher can display up to four student screens at the same time. Teachers can see who is connected on a list displayed on their own computer screen. To show a student’s screen, a teacher simply drags that student’s user ID to the center of his or her screen. In controlling what the entire class
According to Mike Tomei, videoconferencing works well if you know what technology is on the other end of the call, but if you connect to many different sources, “then Web conferencing would be the better choice.”

These services, which allow users to participate in a video chat or conferencing session using any device with a Web browser, are more scalable and reliable than ad-hoc calls using a free system such as Google Hangouts — but schools don’t need high-end equipment to use them.

For instance, Pexip offers Pexip Infinity, a cloud-based platform for videoconferences. The service lets schools create “virtual meeting rooms” that students and instructors can join using any smartphone, tablet or other device with a camera and a Web browser. Pexip Infinity takes advantage of the new Web Real-Time Communication two-way videoconferencing capabilities built into the Google Chrome and Firefox browsers. It also uses a distributed architecture to optimize bandwidth. Only the person talking uses the full amount of bandwidth, while the others who are connected use just a small fraction. There is no limit to the number of users who can join a call or meeting, according to Pexip.

Users can choose from among formats including a “virtual auditorium” mode in which the current speaker is shown, along with smaller images of up to 21 other participants; and a “lecture mode” showing just the speaker.

Pexip Infinity is licensed based on the number of ports used per month, and a yearly enterprise option includes an unlimited number of ports.

Another Web conferencing service, Vidyo, offers its own cross-platform systems for hosting videoconferences, lectures or meetings on any device. The VidyoDesktop app brings videoconferencing to Windows, Mac and Linux computers, letting users connect from wherever they are. The VidyoWeb browser extension lets participants join conferences from within a Web browser on desktop or laptop computers. The VidyoMobile app brings videoconferencing to Apple and Android tablets and smartphones through a wireless broadband or WiFi connection.

Tomei concluded that traditional videoconferencing codecs work well, but you have to know what technology is used on the other end of the call. “If you know that and you need a reliable connection, this would be my recommendation,” he said. But if you connect to many different sources and don’t know what technology they will be using, “then Web conferencing would be the better choice.”
Turning Students Into Senators

Using special tablets in a simulated Senate chamber built in Boston, classes can learn not just the facts of government, but how it feels to negotiate and make big decisions.

Michael K. Milton teaches freshman and junior social studies at Burlington High School (MA). He also serves as a member of the Teacher Advisory Board of the Edward M. Kennedy Institute, which has combined tablets with a simulated Senate chamber to create Senate Immersion Modules (SIMs) designed to teach students how the legislature works. In this Q&A, he shares what students can learn from getting out of the classroom and into the Senate.

**THE Journal: What was your pedagogical goal in using the modules?**

**Milton:** There are some great lessons on the content of the SIMs that teachers can adapt and use prior to and after attending, but the purpose for the simulation is not to necessarily learn content, but rather to interpret, evaluate, argue and make decisions. For instance, while one of the SIMs is about the Compromise of 1850 and you do learn the major causes of it, in your Senate role you are presented with information and have to decide what values are most important to you and what are you willing to negotiate. That is the crux of the simulation.

**THE Journal: How does the process work?**

**Milton:** First, students enter a replica of the U.S. Senate. It is gorgeous. Photos do not do it justice. Then students take a seat in the chamber, where there is a tablet. Depending on the module (historic versus modern) on their tablets participants are either given a historical senator or take a “Senate Selfie.” (The “Senate Selfies” are quite fun to take.)

From there, the president pro tempore (our main guide) swears in the new senators and sets the stage of the debate. That is my favorite part. Students actually take the oath of office. After some framing of the topic at hand, the new senators are whisked away to different committees. Some committees build the bill while others decide whether (or not) to appoint various nominees for office. This demonstrates the varied work of the Senate. After some horse-trading on amendments to the bill, the Senate gathers again to listen to students debate particular parts of the bill. Finally, there’s a roll-call vote where each senator is called to stand and proudly declare yea or nay.

The devices that students use to help facilitate the experience are used in such a way that they do not overpower, but provide a launching point to discussion. Students use their tablets to uncover information that they will use in their efforts to discuss, debate and occasionally make deals with their Senate colleagues. From start to finish, the SIM lasts about two-and-a-half hours.

A neat part about this is that no two students will have the same experience. From their individual profiles, to their political parties, to their committees, the day will vary from student to student. This makes a debriefing eye-opening and can provide an interesting perspective into the varied work of the Senate.

**THE Journal: What was your students’ reaction to the modules?**

**Milton:** While my students have not participated yet, I’ve been able to see students from another high school go through the experience. The students initially took time getting into the roles, but soon became immersed in the game. Being forced to take a different perspective, they argued things they did not believe. One student remarked that they had no idea they would get so involved.

**THE Journal: What did the modules teach you and the students that you couldn’t have learned through books, articles and videos?**

**Milton:** Books, articles, videos and even firsthand accounts do not put students in the Senate chamber debating with one another. They do not make students senators grappling with decisions, balancing their own feelings with those of their state and political party. Often, students just hear of the causes and outcomes in history, but this gets students to grapple with why individuals might have acted the way that they did. Ultimately, with the Senate Immersion Module, students get to play with history.
New Projectors and More

**HITACHI HDBASET PROJECTORS**
Hitachi America has introduced its CP-WU8461 and CP-WU8451 LCD projectors, both of which offer HDBaseT Ultra HD video networking capability along with 60 percent improved contrast, WUXGA resolution and other enhancements. Designed for mid- and large-sized auditoriums, both models can deliver images in formats including Ultra HD/3D and 2K/4K video via the projectors’ Cat5e/6e input. The new projectors can receive video signals from distances of more than 300 feet via HDBaseT.

**BENQ SRGB PROJECTORS**
The BenQ P-Series Professional Projectors – PU9730 (pictured) and PU9530 – deliver 100 percent sRGB colors and 7,000 and 6,000 ANSI lumens, respectively. Suitable for auditoriums, both models feature WUXGA resolution; 360-degree rotation; motorized zoom, focus and lens shift; LAN control to support Creston RoomView, PJLink and AMX systems; and a range of connectivity options including HDBaseT. The projectors offer seven interchangeable lenses and color wheels.

**VIRTUAL REALITY GLASSES**
Dlodlo VR glasses weigh 4 ounces. By comparison, the Oculus Rift DK2 weighs about 15.5 ounces. The Dlodlo glasses offer 2K high-definition resolution with a 16:9 aspect ratio and a 120 Hz refresh rate. They support both 2D and 3D video, 4K video displays and a 110-degree field of view. The $699 glasses don’t require a PC or specific type of smartphone.

**TRIDENT CASE CHARGING CARTS**
Trident Case has introduced two new charging carts, one of which will charge up to 30 tablets at one time. The new carts are compatible with all Apple iPads, among other devices, and come with multiple built-in charge ports and pullout trays. The smaller of the two new models, the Electra Cube charging cart (pictured), can accommodate up to 10 tablets, five Chromebooks or 20 smartphones at a time.
After testing its new online science curriculum in more than 100 classrooms in three countries, 3P Learning is launching its new middle school science software program, IntoScience. IntoScience was created to provide students with an online learning program that will allow them to engage in real-time scientific experiments. It incorporates 3D environments, real-time gaming and structured activities. For teachers, there are lesson guides, assessment tools and reporting capabilities.

RICOH SHORT-THROW PROJECTORS
The PJ X4241N (pictured) and PJ WX4241N are new short-throw projection systems from Ricoh that will allow an instructor to stand in front of a screen without casting a shadow or being blinded by glare. Teachers can use an optional electronic pen to make images on the screen or drive the device that is projecting the image, essentially turning the projection system into a whiteboard. The projectors can display images of between 60 and 400 diagonal inches.

KRAMER CLOUD-BASED ROOM AUTOMATION
Pro AV vendor Kramer has launched K-Touch 3.0, a cloud-based platform for room control and automation via any Android or iOS device. The system allows integrators to configure control and automation for more than 100 room elements such as lights, screens, sound, HVAC, thermostats and any existing AV system, all controllable from any tablet or mobile touchscreen. Step-by-step wizards and preprogrammed drag-and-drop modules cover a wide variety of media programs and devices commonly used in control and automation environments.

ACER SHORT-THROW PROJECTOR
The new Acer S385WHne professional series projector boasts short-throw technology and 20W integrated audio — enough sound to fill an auditorium-sized room. Capable of projecting images of up to 100 inches (diagonally) from a distance of just 3.4 feet, the S385WHne offers 3,200 ANSI lumens of brightness, a 17,000:1 contrast ratio and native WXGA resolution. An optional Acer Smart Pen communicates with the projector directly via RF so that presenters can write on the projected image. The pen also functions as a remote control.
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INNOVATOR

DARRYL ADAMS, SUPERINTENDENT, COACHELLA VALLEY UNIFIED SCHOOL DISTRICT (CA)

BY DAN GORDON

Leading a district in which 80 percent of the children live in poverty and 70 percent are English language learners, Adams spearheaded a bond measure that funded a 1-to-1 iPad initiative for Coachella Valley Unified’s 20,000 students. The district then began putting WiFi routers on idle school buses in areas where families lacked high-speed Internet connectivity. Last November, President Obama recognized Adams’ efforts at a ConnectED to the Future meeting where educators were discussing the importance of technology in education.

THE Journal: One of the first things you did after becoming superintendent in 2011 was to start the 1-to-1 initiative. What was the impetus?

Darryl Adams: Our students weren’t graduating prepared for college and I thought, “This is educational malpractice. We’ve got to do something different.” We knew we had to change our whole system, that we had to utilize every tool available, and one of the most important tools is technology. Why weren’t we using that?

THE Journal: You put a bond on the November 2012 ballot and ended up getting it passed with 67 percent of the vote. How did you build support?

Adams: I almost felt like I was running for office myself! We knew it was expensive but we said, “Let’s go to the parents and ask whether it’s important enough for you to tax yourself so that your students will have it.” We did a pilot program with about 5,000 iPads to build interest and get the teachers, students and parents excited, then we put it on the ballot and the people said, “We’re not going to wait for the government or anyone else; we’re going to tax ourselves so our students have a better future.”

THE Journal: What were the challenges to implementing the program?

Adams: We had to train our teachers before the students got their devices. We had formed a group of about 120 who worked with the iPads and their students during the pilot phase, starting in January 2012, so we had time to make sure that our teachers were well versed in how to use the devices and that they would then help the other teachers see how important it was. Then we had to make sure we had the WiFi infrastructure to handle that many devices and that the connectivity was state-of-the-art, so we rebuilt the whole system from the funds that we got from the bond.

THE Journal: And then you realized you needed to do more than have the students connected at school?

Adams: It was a $42 million bond, and the initial $22 million went to buy the devices and rebuild the infrastructure. But what I was seeing was parents were bringing students in and parking at the school at night so they could connect, or parking at the district office on the weekends so that they could connect. We have a lot of trailer-home parks, and we knew that some students may not have connectivity there. About 30 to 40 percent were not connected. So we said, “Let’s put the router on the bus and park it in those non-connectivity areas when it’s not being used. At first we ran into a problem because the battery runs down — you can’t just leave the bus on — so we decided to put solar panels on the bus, and that’s worked out brilliantly.

THE Journal: Where does the WiFi bus initiative stand?

Adams: We’re just leaving the pilot phase. We have it on two buses now, but 100 buses will have routers when we finish in the next eight to 10 months. This isn’t a program designed to take money away from the big Internet service providers, it’s just to go into those communities that they’re not serving and do it ourselves — only for our students, because you have to go through our filter to get in. Now we are looking into becoming our own ISP. If there’s dark fiber through an area, why can’t the school district light that up and provide access to its students?

THE Journal: What difference has all this access made for students?

Adams: It’s just off-the-charts unbelievable how students are engaged now, not because they’re looking at a screen all day but because they’re able to communicate, collaborate, create, research, critically think and find answers. The world has been opened up to them, and they’re energized now like never before. I call it the digital magic in the classroom.

THE Journal: How did it feel when President Obama lauded your efforts?

Adams: It wasn’t just me. It was a recognition that even in this poor community, there was enough collaboration and cooperation to ensure that all students were connected. That was a great day for all of us.

MY TOP 3...

KEYS TO SYSTEMIC DIGITAL TRANSFORMATION

1) Vision: Why go digital? Why transform?

Without answering these questions first, one is hard pressed to convince others that this is the path to be taken.

2) Leadership: The digital conversion will not happen without strong and courageous leadership, from the board to the superintendent to site administration, along with teacher leaders and parent leaders.

3) Collaboration builds trust, and bringing more people under the tent empowers everyone, making the impossible possible.
Gauthier is completing her first year providing support for the school libraries and librarians of her district’s 87 schools. Previously, she was the library media specialist working with teachers and students at a middle school in Baton Rouge. Gauthier has also served as an educational technology consultant who developed and supported PD programs for the Louisiana Department of Education, and as a classroom math teacher. She was awarded the 2014 School Library Media Specialist Award from the Louisiana Association of School Librarians.

**THE Journal: How do you see the role of the school library in enhancing student learning?**

Susan Gauthier: We talk a lot about the importance of addressing digital literacy, and to me that’s the secret sauce: It’s bringing in today’s world for the student. So, for example, I’m working on bringing makerspaces into our middle and high school libraries and coding in the elementary libraries. We’re using LiveBinders to develop portfolios for our librarian compass rubric, and we’re piloting a fiction e-book project. Anyone can check in and check out a book, but it’s about going a step beyond and bringing a different venue to the students.

**THE Journal: What have you done with makerspaces?**

Gauthier: To me we’ve always had this tool; they just weren’t called makerspaces. They were book clubs, crafting clubs, enrichment clubs ... a makerspace to me is just labeling what they’re doing to inspire ideas. Many of our schools don’t have a lot of resources, so we’re going to create MOMs — Makerspaces on the Move — with crates that the librarians can check out, bring in and use as something like a pop-up makerspace, whether it’s for physical items or for great apps.

**THE Journal: How is this advancing student learning?**

Gauthier: You might say it sounds like play time, but I see this eventually evolving into a curriculum connection: having that librarian talking to the science teacher and saying, “You are covering forces in motion? What’s something I can do with these Hot Wheels cars and tracks to reinforce that lesson?”

You always hear teachers say that they’re so tied to the curriculum they can’t do the fun stuff; this brings that in.

**THE Journal: Given the resource constraints, what else are you doing to “go a step beyond”?**

Gauthier: One new collaboration that’s really exciting is called the Volumen project. The Louisiana State University Honors College created a card that gives access to the East Baton Rouge Parish Library’s resources online: its e-books, its music, its databases, everything. Now we’re distributing those cards to our students. Normally to be able to get to the online resources, your parents have to bring you to the library, sign papers, etc., and a lot of parents don’t do that.

These are cards that we check out through our school libraries. For the kids to be able to access resources like TumbleBooks and Mango and all of the databases from home and from school ... that’s pretty unusual.

**MY TOP 3...**

**DIGITAL MEDIA PROJECTS FOR THE SCHOOL LIBRARY**

1) Augmented reality e-book experiences can be created using Aurasma to layer video over the pages of an e-book with informational texts, bringing them alive and bringing excitement to an activity that isn’t always a student’s favorite. The e-book can be used to build an “aura” by making triggers of the pictures in the book on the computer screen.

2) ThingLink allows users to create and share images and videos linked on an image. Students can use this tool to develop an infographic with interactivity to support data from their research projects.

3) Interactive timeline creators such as TimeToast can be used to sequence events within a book or a story. These online timelines provide a visual aid during student presentations.
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