Lessons Learned From the Assessment Field Tests
How to Botch a Tech Rollout

A report on LAUSD’s launch of a new student information system offers essential lessons in what not to do.

THE SAME DISTRICT that brought you last year’s massive and massively flawed iPad launch is now mired in a MISIS crisis. For those who haven’t followed the extensive coverage in the Los Angeles Times, MISIS is the new student information system that the Los Angeles Unified School District rolled out this fall, with disastrous results that included students’ being issued incorrect GPAs and not getting the classes they needed to graduate.

Predictably, heads have rolled at the nation’s second-largest school district. The one-two punch of the iPads and MISIS helped knock Superintendent John Deasy out of his job, and CIO Ron Chandler resigned abruptly at the end of October.

But my point is certainly not to assign individual blame. I prefer to ask (and answer) the question, “What can other districts learn from this rocky rollout?”

According to a Times article, a consultant’s report details many flaws in the MISIS launch. For example, “no one was responsible for pulling together the various aspects of the complex project.” Also, “the help desk wasn’t ready.” Oh, and “L.A. Unified failed to test the new system adequately.” The software was adapted from “a similar program at the smaller Fresno Unified School District,” without proper attention to the change in scale. And though the rollout was plagued by software bugs, the consultants wrote, “when it came to the ‘Go/No Go’ decision, the leadership always said, ‘Go.’ ”

As it did with the iPad rollout, LAUSD is doing its best to learn from its mistakes and adjust on the fly. Other district leaders planning a major tech initiative can benefit from the MISIS crisis, too. Just read the previous paragraph and you’ll have a list of “5 Things Not to Do.”
Report: Teachers Are Better at Using Technology Than Digital Native Students
By Dian Schaffhauser

It’s time to give up the notion that “digital natives” are more tech-savvy than their teachers. According to a recent study of middle school science students and teachers, the teachers tended to have greater technology use.

According to lead investigator Shiang-Kwei Wang, an associate professor in instructional technology at the New York Institute of Technology, the purpose of the study was simply to investigate technology experiences inside and outside of school for both groups and to uncover barriers preventing them from using technology in school. The primary questions were threefold: Do school-age students fit the digital native profile? Do school-age students surpass their teachers in terms of technology use? What roles do teachers play in shaping students’ technology experiences inside the classroom?

The research involved surveying 24 middle school teachers from New York and Utah aged 23 to 56. Student participation came from 774 eighth-graders in Utah and 305 students in grades 6 to 8 in New York. The surveys were followed by classroom observations and teacher focus group interviews.

Science teachers specifically were chosen for their overall pioneering spirits. “They are usually the early adopters to integrate technology in labs and physical experiments, hands-on activities, field trips and data collection,” the report stated. “Compared with other subject area teachers, they are more likely to engage in technology-integrated practices.”

The report’s conclusion: “Today’s school-age learners are no more technology savvy than their teachers. The previous assumption used to profile students as digital natives did not apply to the students in this study. In fact, teachers’ technology use experiences surpassed students whether it [was] inside or outside of school.”

The researchers found that “students used technology outside of school for working on school projects, maintaining social networks and entertainment” — but mostly for playing games and listening to music.

Read the full article.
iPad Sales Drop as Tablets Continue to Make Gains

Back-to-school spending in the United States helped to maintain the double-digit growth of tablets worldwide, according to newly released preliminary data for the third quarter.

Market research firm IDC reported that 53.8 million tablets shipped around the world in the three-month period ended Sept. 30. That's an increase of 11.5 percent over the same period last year and a peak for 2014, up 11.2 percent from the previous quarter this year.

According to IDC, in the United States, growth outpaced the worldwide average, hitting 18.5 percent in 3Q 2014. That was fueled, in part, by back-to-school promotions.

Apple remained the No. 1 vendor, but its share dropped below one-fourth during the quarter. Apple's shipments were 12.3 million, down 12.8 percent from the same period last year (14.1 million units), and its market share fell from 29.2 percent in 3Q 2013 to 22.8 percent in 3Q 2014.

No. 2 Samsung, meanwhile, grew 5.6 percent year over year to 9.9 million units, but its market share fell one point to 18.3 percent.

“Apple, during its earnings call, noted that the iPad’s lifecycle is extending,” according to IDC. “Combined with consumer anticipation and the release of the latest iPhones, IDC saw a decline in overall iPad shipment volume in 3Q14. Although Apple has recently updated and expanded its iPad lineup to its widest offering ever, IDC still expects 2014 to be the year of the iPhone.” Read the full article.
Disadvantaged Students in Georgia District Get Free Home WiFi

Fayette County Schools in Georgia will provide its economically disadvantaged students with free wireless Internet service at home in an effort to close the district’s digital divide.

Fayette County has a bring-your-own-device policy, but some students can’t afford to buy their own devices. The district already works with Title I parent liaisons in its elementary and middle schools to identify qualifying families and loan them equipment. Now those families will also receive filtered mobile broadband service to ensure students can access educational resources from home.

“The pen and paper days are gone in school, but when kids needed paper and pencil, we provided the materials,” said Clarice Howard, Title I coordinator for Fayette County Schools. “Today all students need access to computing devices. Through Title I funds, our district provided devices for those who couldn’t afford them, and, with the need to extend the learning day, it’s our responsibility to level the playing field for these children by providing equipment for connectivity after school.”

The district has partnered with the wireless service provider Kajeet to give Title I students a Kajeet SmartSpot for accessing online textbooks, apps, e-mail, documents, sites and their teachers when they are outside of school. Read the full article.
Edublogs offers a safe platform for teachers and students to connect and share work online. Teachers create a classroom blog where they can post assignment calendars, lessons, discussions or info for parents. Read the full Graphite review.

Twiducate is a tool that teachers can use to communicate with students and fellow educators in a secure environment. Users can personalize their profiles, e-mail each other, post deadlines and share resource links. Read the full Graphite review.

Users of Celly can create groups or “cells,” and can choose to make them private or open. The cells themselves can have as many members as needed, and everyone inside a cell can curate topics, discuss those topics and run polls. Read the full Graphite review.

Hatchables are kits designed to bridge education technology and traditional classroom materials. The kits include manipulatives, compact lessons, detailed activity guides and online videos to guide teachers. Topics include letter recognition, initial sounds and sorting. Read the full article.

Service desk and IT asset-management solution Alloy Navigator Enterprise 7 can help IT teams with incident and problem management, asset management, change management, knowledge management and organization and content management. Read the full article.

Curriculum Associates’ Ready Writing for grades 2 through 5 is built to support the Common Core State Standards and provides educators with instructional materials as well as PD resources. The program is designed to work with any ELA curriculum. Read the full article.

AV & Presentation
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- Google’s Free LMS Classroom’ Goes Live
- Kurzweil 3000-firefly Literacy Software Adds Tools for Struggling Learners
- Filament Launches Game-Based Science Curriculum
Delsia Malone has headed W.E. Striplin — the school she attended as a child — since 2004. Under her leadership, the K-5, Title I school now boasts a computer lab, iPads in every classroom, MacBooks for every teacher and a 1-to-1 program for fifth-grade students.

**THE Journal**: You have said you like to model using technology for your teachers and students. How so?

**Delsia Malone**: Well, I’m rarely in my office during school hours. I’m out with the teachers and students, bringing along my iPad so I can stay connected. I tweet up a storm, I flip faculty meetings, I create things online, and I’ve set up our school wiki page and Edmodo group. I’m not perfect at technology, but when students and teachers see that it’s okay to try things and make mistakes, they feel the freedom to explore and be creative.

**THE Journal**: The district has a BYOD program. What is the rationale there?

**Malone**: Oh yeah. Cell phones are not banned. We’re tweeting throughout the day, posting things on Facebook and Instagram. A lot of principals get bent out of shape about the teachers with cell phones, but this is a 21st century world, and the phone is now a 21st century learning tool, so why ban it? You will very seldom go anywhere in our school and not see teachers and students with some form of technology in their hands. It’s become like the paper and pencil used to be. And when my teachers come to me with something new they want me to purchase and I can see how it’s going to help them with their instruction, count me in.

**THE Journal**: How did the flipped faculty meetings come about?

**Malone**: I never liked faculty meetings as a teacher, and as a principal I never liked wasting my teachers’ time just to say, “How was your day?” or “We need to make sure we’re turning off our lights and closing our doors and shutting down the computer at the end of the day.” Such a waste! Time with the staff should be about what we can do to help ourselves grow professionally, and help our students be more successful. So I started video recording messages to teachers, and I’d post them in a forum such as Edmodo or our wiki page and make it available on YouTube. It doesn’t have to be me. It could be someone else doing a training, but we post them and then everyone can participate asynchronously. The faculty meeting doesn’t have to be from 3 to 3:30 with everyone sitting in one room.

**THE Journal**: What’s the best aspect of technology for a school like yours?

**Malone**: Connections. When I was in school, the only learning that took place was right there with...
grade. In fact, I taught third grade in the very same classroom where I was a third-grade student.

**THE Journal: What was that experience like?**

Malone: It was surreal, because that’s the room where I got my first D in conduct for talking too much. My mom was not happy, but I was a talker!

**THE Journal: Maybe technology would have helped?**

Malone: Definitely. That’s probably why I was so bad — I had to find my own entertainment. Kids today have far more opportunities than I ever had. When you have all this technology, behavior problems are not a big issue, because these kids want to use it. And the first time you ban them from it because of their behavior is the last time you have a behavior problem.

“**This is a 21st century world, and the cell phone is now a 21st century learning tool, so why ban it?”**

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**THE Journal: You have a long history at this school.**

Malone: I do. I’ve been principal since 2004, and I was a teacher before that. My own kids went here, and I was here from first through fifth grade. In fact, I taught third grade in the very same classroom where I was a third-grade student.

When it comes to educational technology, one size doesn’t fit all. From the #1 Chromebook in the market* to the new Samsung Galaxy Tab® 4 Education with Google Play for Education to the best-in-class Samsung School solution, we provide more than just one-size-fits-all technology. We provide your school with products designed to inspire a better learning experience.
At the Alternative School for Math and Science (ASMS) in Corning, N.Y., the focus is on student-centered learning. With the start of the 2014-2015 school year, ASMS students and faculty are experiencing a new set of digital tools that are helping to enhance ASMS’s student-centric learning environment, thanks to the Samsung School digital learning solution. Samsung School is an interoperable technology package that includes Galaxy tablets for each student and teacher, interactive digital displays and wireless multifunction printers. Bringing this all together is the Samsung School software, which provides a learning management system for classroom resources and apps, as well as interactive management tools for facilitating dynamic teaching and learning.

ASMS, a coeducational day school serving more than 120 students in grades sixth through eighth, is the first U.S. independent school to deploy the complete Samsung School solution across all classes and grades.

“The new tools are helping to facilitate collaboration and individualized instruction across the curriculum,” says Linda Cole, ASMS’s Academic Head of School. “They give teachers and students an opportunity to organize and share their work both inside and outside the boundaries of the classroom.”

Since opening its doors in 2004, ASMS has had a 1:1 computer environment. But in the spring of 2014, the school was at a crossroads in terms of taking its technology program to the next level.

“I’m no longer glued to the front of the classroom,” says Mike Weachock, math and technology teacher at ASMS. “I can walk around the room and I can see what students are doing from my tablet anywhere in the room,” he says. “I think that’s very powerful.”

The most important thing to remember, according to Frock, is to keep the focus on student learning and how the technology can be used to advance student learning, rather than on the technology itself. “When you’re focused on students and learning,” Frock concludes, “you want to find the very best tools.”

Clearly, ASMS believes it has found that with Samsung School solution.
3 Tech Tools That Boost Early Literacy

These forward-thinking districts are using software and mobile devices to help close the achievement gap before it’s too late.

It’s not written in stone, but educators agree that third grade represents a milestone in the race to establish literacy. As the saying goes, students are “learning to read” through third grade, and “reading to learn” after that. Realistically, the foundations of literacy are built well before children even enter the classroom. According to Rick Miller, superintendent of the Santa Ana Unified School District (CA), “Literacy probably starts from the womb. From the time my kids and grandkids were born, they had print awareness and heard adults reading aloud, all of which develops literacy skills and demonstrates that literacy is often connected to families.” Early-grade teachers acknowledge that it’s not easy to bridge the gap between students who have been exposed to lots of reading and those who haven’t, but the good news is that technology can help.

Reading Before Kindergarten
Barbara G. Nemko, the superintendent of Napa County Schools, does her best to give kids a running start on literacy with the early learning platform Footsteps2Brilliance. The system, which can be used on computers, smartphones and tablets, includes libraries of interactive books that can “read themselves” to children in English or Spanish. “They teach the 1,000 most important Dolch words,” explained Nemko. “And they are animated and musical. When a preschool child taps the screen, something happens. A ball may bounce, shapes may whirl, or ants may crawl — and that’s accompanied by music.”

The appealing presentation motivates children to “hear the stories again and again,” Nemko said, “because they want to interact with them. As the words are being said aloud, they are highlighted in red so children can make the visual and sound correspondence.” Parents and students can toggle between English and
Spanish, which may also help parents for whom English is a second language. “Many parents [in Northern California’s Napa County] are not literate in English, so children are not read to,” said Nemko. “And being read to is one of the primary ways we get children to read. We’re trying to close the achievement gap before they get to kindergarten.”

Achieving “reading readiness” in preschool involves knowing vocabulary, understanding the basic structure of language and attaining oral comprehension. “Those are all precursors to reading, because when you teach children to read, you are teaching them to decode written words,” said Nemko. “But if you don’t know what the words mean, you’re not reading. It would be like if I put a book in German in front of you. You might be able to decode the words and say something out loud, but you wouldn’t know what they meant.”

Keeping It Fun in Transitional Kindergarten

Along with parental involvement and preschool, transitional kindergarten (TK) has been a big help in building reading readiness in a controlled environment. Martha McCoy teaches a new TK program at Calistoga Elementary School in the Calistoga Joint Unified School District in Napa Valley, CA. The program is designed primarily for transitional students with birthdays between Sept. 2 and Dec. 2. These younger students essentially have two years of kindergarten, and they benefit from a charitable project called NapaLearns, a philanthropic organization whose mission is to close the achievement gap in the Napa Valley by investing in technology.

McCoy explained, “NapaLearns is retired technology execs who are now in the wine industry, and who have a passion for education. They had been investing a lot into the high school level, but based on research on grade-based learning, they realized that the brain was most active, laying down those foundational synapses for developing language, between 3 and 5 years old.”

According to McCoy, the pilot TK program was initially a monthlong program using iPads in a preschool environment with parental involvement. “When I participated in the pilot program,” she said, “it took me just two days of watching how the kids interacted with the devices, the rich presentation around them, and what was possible with it, and I did a complete turnaround. It wasn’t about delivery of content; it was about what kind of learning experience the kids could have through those devices. They had this rich interaction with English language that could be customized to what they needed for their learning.”

Instead of passively watching a screen, students made use of the tablet’s dynamic, interactive interface. “I could not believe how tenacious students were,” enthused McCoy. “They would try and try again. They didn’t need to have anybody’s approval about what they were doing. They would just persevere. They were doing things I never thought that age group could possibly do. The touchscreen interface makes it so kids can do so much more than they can with just paper and pencil in terms of expressing themselves and exploring and practicing.”

Visitors to McCoy’s classroom see students using iPads to practice handwriting (with their fingers or with a stylus) and learning numbers and letters with auditory support. “Students will practice their letters many times if they can change the color or make it glow or turn it into a tiger tail,” said McCoy. “There are fun ways to keep those students practicing their letters and guide them, which is difficult to do as a teacher going around a classroom. These apps won’t let them make a mistake. They can’t go on if they’re not forming their letters correctly. That was a nice surprise that the handwriting was actually better.”

Using technology can also increase engagement in something as old-school as “story time.” Nemko pointed out that “many of our teachers will project...
the story onto a wall or the screen and read it with the kids the first time as a whole group.” It’s similar to any lesson in reading readiness, “it’s just that it’s digital,” said Nemko, “which makes it more interesting to kids. A book does not interact with you. You can hit that cow in the traditional book as much as you want, and it isn’t going to moo. But our cow is going to moo and maybe shake his head and stomp his feet, so it’s fun.”

Differentiating Instruction
“In a perfect world, third-graders are reading to learn,” said Robert Raney, a third-grade teacher at Centennial Elementary School in Loveland, CO. “However, even if students are fairly proficient at reading, they may still be struggling with comprehension — and comprehension is a critical step to literacy.”

Raney’s students use Raz-Kids interactive e-books, primarily on school computers, to improve reading comprehension. “The software allows them to progress at their own pace, and they can only move on to the next reading lesson if they pass a Raz-Kids quiz,” said Raney, a 20-year veteran in Colorado’s Thompson School District. “The stories can also be heard, which helps students who do better with auditory learning.”

Another early literacy booster that uses differentiated online instruction is Achieve3000, a system that Nemko said allows students to take current events and make them into a story. With Achieve3000, “every kid could be reading that story on his or her own level,” said Nemko. “So if I’m the teacher with a class of all different reading levels, I can introduce the topic and have a discussion. Children can read it in a way that is comprehensible to them because it’s on their reading level, and we can still answer all the questions together.”

Best Practices Make Perfect
While children seem to react almost instinctively to touchscreen interactivity, how receptive are teachers to these new technologies? “Some are ready to go and others say, ‘No way, you can’t make me,’ ” said Santa Ana’s Rick Miller with a chuckle. “Our approach was always voluntary. If teachers thought it fit their students, then great, use it. If it did not, then don’t.”

Miller’s pragmatic philosophy extends to the equipment end, where he maintains a device-agnostic approach to early literacy technology. “Other districts will say, ‘I’m Apple or PC,’ but we don’t want to get into that debate,” he said. “We can get all the functionality on lower-end devices. Oftentimes, Android devices will do everything you need. Our choice was the iPod touch, and that was about a $200 investment. Contr-
Schools and districts that took part in the PARCC and Smarter Balanced trial runs share their experiences to help you prepare for online testing this spring.

By Dian Schaffhauser

According to Chief Technology Officer Brandt Redd, the Smarter Balanced Assessment Consortium saw “significantly” fewer problems than it had expected during its spring 2014 field tests. “Things went more smoothly than our expectations,” said Redd. “We didn’t have any systemwide issues; issues that happened tended to be isolated.” That lack of major issues was in large part due to the efforts of educators all over the country who put in the time to make sure everything would work before nearly 5 million students showed up to take the field tests — whether for Smarter Balanced, PARCC or one of the alternative state online initiatives. The lessons that the field testers learned last spring can help you prepare so that your school or district’s experience with the real deal goes as smoothly as possible.
Prioritize Your Infrastructure

Even before Dennis Villano, director of technology integration for Burlington Public Schools (MA), had ever heard of PARCC, his district was investing in a broadband and wireless infrastructure that could eventually sustain a 1-to-1 program. “For us, it was about education,” he said. “It was about implementing technology into the environment.”

Lately, though, Villano has been hearing a lot of school tech directors “talk about the devices first.” That’s the wrong approach, he asserted. “You have to talk about the infrastructure first. Get that working, get that up to speed, spend the money where you need to there, and then talk about the devices.”

According to Jesús Aguirre, state superintendent of education, local education agencies within the District of Columbia each received a share of a $4 million allotment to help them get ready for the PARCC field testing and the live assessment. (Another round of funding was distributed in October.)

DC gave individual schools the choice of spending the money on new devices or on infrastructure since, as Aguirre noted, “Every school is different. They’re going to make the better decision about what they need.” To make the most informed decision possible, it can help for tech leaders and staff to turn their priorities into a shopping list that you can consult when funding becomes available.

Do a Dry Run

The biggest piece of technology advice that came out of the field testing, according to Redd, was the importance of doing a dry run. Redd offered this example: If you’re taking a room that’s normally used for other purposes and dedicating it to testing, you may find that once you’ve packed it with “30 computers and 30 people, the air conditioning isn’t adequate to keep it cool. It’s not the thing you’d think of right off the bat.” Another possible

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scenario: You find out too late there isn’t enough power to run all the systems.

Then there are the IT concerns, he noted, such as the access point that serves that room: “Does it have sufficient capacity for that many computers and bandwidth need? You might have enough Internet bandwidth coming into the school, but it may be that the access point that serves a particular sector of the school was expecting a dozen devices, and all of a sudden you have 30 or 40, and it’s not built for that much capacity.”

There’s no substitute, Redd stressed, “for setting up all your computers and getting the equivalent number of people in front of those computers, whether it’s students volunteering to stay after school to play around or a bunch of parents and teachers bringing up a practice test and trying it out and making sure everything works.”

Prepare Staff for New Priorities

As the largest district in the state, Burlington Public Schools acted as a proxy for other districts during the field testing. So even though its schools run 1-to-1 programs in grades 1 through 12, for the purposes of the PARCC assessments, it tested not only on iPad 2s, but also on Chromebooks, Windows PCs and iMacs.

The Student Information Office dedicated two months to getting everything ready for the test, including working with Villano to develop a schedule of testing sessions that they kicked back and forth for days on Google Docs. “I didn’t have much to do at all with standardized testing before,” Villano said. “Now we were totally dedicating our time to working on it.” Once the schedule was in place, the IT department dedicated a month and a half to preparing the devices, “something that normally they wouldn’t have to do,” said Villano.

Try a “SWAT” Approach

Oxford Middle School (AL) Principal Kyle McCartney said that there’s no such thing as over-planning when a school is undertaking a major initiative such as the transition to online testing. Beyond having a plan, he added, make sure you “have a lot of people to help you out — people who know what they’re doing onsite, who can help you avoid problems and prevent them from becoming bigger problems.”

Since his school was shifting to 1-to-1 at the same time it was preparing for the new assessments, the district provided a one-person SWAT team: Sherita Hayes, an instructional technology specialist at Oxford City Schools. Hayes, who has a computer science and math background, held weekly open-door sessions onsite for teachers and staff, helping them make the transition to new computers (PC to Mac), new instructional

DISTRICT DETAILS

**Burlington Public Schools** (MA)
- PARCC
- Six schools, 3,700 students
- Tested 2,200 students on iPad 2, Chromebooks, Windows PCs and iMacs
- Internet bandwidth: 550 Mbps

**Folsom Cordova Unified School District** (CA)
- Smarter Balanced
- 32 schools, 19,500 students
- Tested 10,728 students on Chromebooks, PCs and iPads
- Internet bandwidth: 1 Gbps

**Oxford Middle School** (AL)
- Common Core/state test
- Six schools, 4,040 students (658 students at the middle school)
- Tested 659 students on MacBooks
- Internet bandwidth: 600 Mbps

**Washington, DC Government Office of the State Superintendent of Education**
- Smarter Balanced
- 63 local education agencies, 64,425 students
- Tested 6,561 students on Chromebooks and other computers
- Internet bandwidth: Unspecified
features (blended learning) and new tools (such as Google Apps, LanSchool for classroom management and Apple TV). She also went from class to class, answering questions and helping teachers work with students in using their computers.

Over the course of a year, McCartney said, “She was able to help us get on our feet, and now we’re able to do it without her, because she did such a good job.” She has now moved on to helping the entire district shift to new ways of learning and assessment.

Aguirre reported that, following the field testing, DC sent a consulting team to visit every school and take a tech inventory. It soon became evident that schools needed other kinds of help. “Initially, it originated as an IT initiative, because we just wanted to make sure we knew what was out there on the technical side,” he recalled. “As soon as we started, we quickly learned that many of the questions the schools had were not just about IT but about how to roll this out. So we supplemented those teams with folks who knew much more about the instructional side and about PARCC itself.”

Next, the consulting team will compile its results and DC will use them, explained Aguirre, “to help guide how we roll out these funds, but also to give it back to these schools to say, ‘Here’s what we’re finding. The standard for us will be the minimum technology requirements that PARCC has. Here’s where you are, and here’s where we recommend you invest these funds we’re going to send to you.”’

Adjust on the Fly

No matter how well you plan, preparations are bound to be complicated by the unexpected. At Burlington, there were differences to deal with for each device. The iPad uses a Pearson TestNav app from Apple’s App Store, while Chromebooks use a different version from the Chrome Web Store. And the desktops needed to have a specific Java installation that runs in the background.

During the field testing, both the state department of education and Pearson held a daily briefing with district representatives to share problems and possible solutions. Burlington’s Villano tuned in as much as possible to stay apprised.

The district ran two rounds of testing, one in March and the other in early May. Both the iPad and Chrome apps were “clearly” tweaked for stabilization between the first round and the second round. The first iteration of the Chromebook app hit a roadblock due to firewall conflicts in the first round but in the second round, Villano said, “We saw some improvements in the way that Chromebooks functioned with the data being synced back to Pearson.”

At Oxford, multiple problems surfaced with software updates and computers going to sleep, based on set-
bers of multiple departments were enlisted to provide in-school support. Villano said, “If you had an issue and something wasn’t working, there was somebody in the building from IT, ed tech or the library that you could call on for help. We brought in as many team members as we possibly could.”

At Folsom Cordova Unified School District (CA), a much larger district, the IT organization wants to figure out how to give remote visibility of desktops to its team of technicians. The extra help will, according to public information officer Daniel Thigpen, “cut the time we’re doing troubleshooting.”

Try Out Various Scheduling Scenarios
If you’re not sure which approach to scheduling will be best, consider testing different schemes at different schools. (You may need to do this anyway, if you don’t have as many computers as you have students to be assessed.)

Get All Hands on Deck
Although teachers acted as proctors during Burlington’s field testing, settings primarily tweaked by the students, who had control of the computers as part of the school’s 1-to-1 program. McCartney said, “Apple wants to update. Google wants to update. Safari wants to update. Every time one of those events happened, a student would be booted out of the testing [because] it would think they were cheating.” The district responded by beefing up its image as the test went on.

McCartney explained, “The first image we sent out was exactly the way the state told us to set it up. But we had to make sure we went to a uniform image for every single kid for the testing window. We reimaged all of them so they all had the same settings when it came to screen savers and swipe pads and things like that. It took us two or three days to make sure we had that down just right.”

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For the live assessments at Burlington, where students all have their own iPads, the job of scheduling will be fairly straightforward and Villano anticipates no problems in getting testing done in the time provided. He’s not so sure that other districts will be as lucky, particularly if they have to cycle classes through a single computer lab.

During the field tests, Oxford’s schools spread their testing windows out so that no two schools were hitting the district network at the same time. Because online assessments tend to be shorter in duration than paper-based tests, this is easier than you might imagine. For example, said McCartney, if his middle school took the math assessment for two hours in the morning, the fifth- and sixth-grade elementary school would tackle it that afternoon.

At Folsom Cordova’s Cordova High School, 11th-graders simply tested in the class they’re all expected to take: government. That minimized disruption to the rest of the 11th-grade classes, explained Thigpen.

Redd suggested that, when sorting out the schedule, you should leave time toward the end of the testing window to give tests to students who may have missed them in the first go-around, whether due to illness, logistics or an Internet outage on the day of testing. “We’re going to keep our servers up and reliable, but that doesn’t mean somebody isn’t digging up the street with a backhoe and cutting the school off,” he said.

**Deal With Keyboards**

Both PARCC and Smarter Balanced have mandated the use of external keyboards for their tests, but some districts have discovered that they should probably be optional. Villano remarked, “The students in Burlington don’t use an external keyboard. They like the on-screen keyboard. The fact that PARCC required it was actually a bit of a challenge for the kids who weren’t used to having it.” During the field test, he said, “Many of our kids disconnected the external keyboard and stayed with the on-screen keyboard. We just wanted to make sure they were using it however it was most comfortable for them.”

That preference for the touchscreen also dominated at Folsom Cordova. “We certainly heard from teachers that the kids need some more experience with keyboarding, particularly on the smaller keyboards of the Chromebooks,” noted Thigpen. “Some of our younger students in particular are used to touchscreens. What we’re looking at is really trying to get students more exposure with the technology, making sure that work is done on Chromebooks more frequently. If typing is a major requirement in the assessment, [we want to make sure] we’re providing support to our classroom staff and teachers so they can make typing more routine classroom work; so it’s not just for the purposes of the assessments, but it’s really helping build that skill.”

Oxford’s McCartney found that a bigger problem was simply getting kids accustomed to using keyboards for writing instead of “doing it with paper and pencil and with ‘pretty writing.’ We’re still working through those things,” he said.

**Practice the Sample Tests**

At least for a while, students will need help finding their way around the online assessments. Sample tests provided by both PARCC and Smarter Balanced can give them the introduction they need. Folsom Cordova’s Thigpen said, “The performance tasks were certainly a new element, and that was probably the biggest change we saw from [California’s state] testing. Part of that was building understanding around which tools the student can use during the assessment, such as dragging and dropping and drawing lines.”

To help students get comfortable, Thigpen said, “We wanted all of our sites to have the time to make multiple practice tests before the field tests, but the reality was, we were working under an extremely truncated timeline. If a site or class did not have the time to do
multiple practice tests, we [saw] more questions about which tools to use. It was difficult to figure out what teachers could tell students to do. For instance, the teacher couldn’t tell them necessarily how to draw a line, but they could tell where in the test to click the link that explains to the students how to use that tool.”

DC’s Aguirre pushed “as many people [as possible] to participate in the field tests because we know the general hesitancy in moving from a paper-based test to a computer-based test.” The sample tests can play a similar role. “This is all about ironing out the kinks and highlighting all the challenges that we know are out there, so we could do it well in advance of the real test.”

Reach Out to the Community
At Folsom Cordova, Thigpen is responsible for communicating internally with teachers and support staff “about the tools that we have to support them and what exactly is changing.” He also handles communications with families. “We have a responsibility to help them understand how they can help their student succeed and how we are helping their student prepare.

What is the objective for the new assessments? What will it require of your child? How will it change classroom instruction? And what tools can we provide to help students succeed outside of the classroom?”

At a previous district where Thigpen worked, a communications team put together Web resources explaining the Common Core and the new assessments, including, he said, “videos, tutorials, sample tutorials, frequently asked question sections — really trying to get the word out and trying to build understanding.”

Although Smarter Balanced and PARCC have robust informational websites, the amount of content they make available can be overwhelming. To help highlight key points, DC is putting out weekly information in condensed forms to its local education agencies. Aguirre said, “We do PARCC FAQ sheets, so they can share with their communities. And we make it short and simple, so they can hand it to parents and community members.”

It’s Showtime!
None of the challenges that came up during field testing were “outside the realm of what you’d expect in such a large-scale shift in the testing environment,” said Thigpen, adding that the trial run “met its objective of being a learning experience…. Making sure we apply the lessons we learned during the field test will ensure a smooth transition into the real assessment this year.”

Once all the planning is done, the infrastructure is in place and the rehearsals take place, IT and instructional technology leaders can play another vital role: that of confidence builder. “The biggest thing for us was to show people that it wasn’t going to be that stressful,” Burlington’s Villano said. “Sometimes technology doesn’t work, and sometimes it can stress people out. For us it was [all about] making clear to people that this was going to be okay.”

Dian Schaffhauser is a senior contributing editor based in Nevada City, CA.
6 Ways to Engage Every Learner Using UDL
Universal Design for Learning can make your lessons more accessible and your lesson-planning more fun.

In any given classroom, there are invariably learners who simply don’t connect with what’s being taught. Lectures can be easy to tune out. A textbook can feel dense and boring to finish. Even a video can pose limitations for learners with sight or hearing difficulties. When these are the only options available, some learners are bound to fall behind without requesting special support, while others will surge ahead. Differentiation is one way to bridge this gap, and another is adapting the curriculum to suit all learners, instead of adjusting it to support the needs of each one.

That latter approach, called Universal Design for Learning (UDL), operates under a handful of broad principles that mainly concern themselves with the what, how and why of learning. According to the National Center on Universal Design for Learning, the principles and the guidelines scaffolded under them suggest providing a greater variety of options for how learners are taught information, how they express that they’ve grasped material and how they’re continuously engaged and motivated to learn more. While UDL has been around for decades, recently it’s been gaining traction with educators, schools, districts and entire states, like Maryland.

UDL principles and guidelines are not step-by-step instructions. Instead, they serve as more of a framework or philosophy that can guide educators in developing and executing the goal of making learning more accessible for all students, whether they have learning or physical disabilities or simply like to learn things visually. To offer educators some practical first steps, we asked universal design pros and innovative districts to share the ways that every classroom can incorporate UDL into its lessons.

Start Small
The transition to UDL should be gradual. Luis Perez, an accessibility advocate and author of the UDL-inspired book Mobile Learning for All, said, “You’re
The new school year has brought with it a new kind of stress: the shift to online assessments of students based on Common Core and other state learning standards. No matter whether your schools are running a 1-to-1 program, supports BYOD, using mobile carts with the latest Chromebooks and iPads, or still using outdated desktops that should have replaced years ago, as an IT leader it’s your responsibility to ensure that all students have a consistent, reliable and secure user experience on their computing devices.

Virtual desktops, which separate the computing environment the user works in from the physical device, has been slow to catch on in some K-12 data centers due to their complexity and cost. Setting up the server infrastructure and storage to support multiple users virtually requires a hefty capital investment that many districts can’t afford.

However, a new generation of virtual desktops eliminates that upfront investment, simplifies operation and allows schools to buy in at the level they can afford and support. “Desktop as a Service” or DaaS allows you to hand over the operations for running virtual desktops to a service provider.

A free report from THE Journal explains how DaaS:

- Provides a great user experience for every student in your schools;
- Upgrades security and control beyond what most districts can guarantee;
- Allows you to test out virtual desktops in specific locations or for specific use cases; and
- Delivers unexpected forms of cost savings.

This industry perspective will also share details about a new and unique DaaS educational offering from a virtualization leader that can supply you with virtual desktops in any form your district requires.
not going to apply every single [guideline] to every single lesson. It depends on which ones are relevant to your learning goals.”

Perez suggested, “Start with a single lesson or activity and then build success from that, and then start to look at other parts of your curriculum.” He also suggested taking a look at the UDL guidelines from the 30,000-foot-view before exploring specific checkpoints. “For each of those checkpoints, you can drill down not only into the research, but there are examples and links to tools for how you can apply them.”

Perez also recommends starting with the free online book *Universal Design for Learning: Theory and Practice*, which is available from CAST, the organization that maintains the UDL principles. “As you read the book, you’re going to feel out the UDL principles and model,” he said. “There’s lots of hyperlinks so that if you want to pursue a different topic you can go off on a different hyperlink in that direction. You can highlight, you can turn on text-to-speech. It gives you an idea of what UDL looks like in terms of instructional materials.”

**Engage Everybody**

Redefining a lesson for UDL doesn’t require the latest iPad app or tools designed with accessibility in mind. Instead, educators have brainstormed ways to incorporate music, video, clay modeling, trips outdoors or tossing a ball around class alongside the apps and software they might typically use. The intention is to stimulate every type of learner, regardless of the individual support they might require.

In some cases, teachers actually find this method easier than the just-in-time differentiation they were used to employing. Jeremy Weaber has spent 11 years teaching English and social studies to seventh-graders at Perryville Middle School in Maryland, which is part of Cecil County Public Schools, a district that began a big UDL push a few years ago. “A lot of what we did was working with differentiation and trying to differentiate things based on student needs once you know who your students are,” Weaber said. “Once I got into UDL, it’s more about planning ahead of time for any range of students. It’s a preplanning you could do at any point instead of waiting to find out who you have and then going to take care of their needs.”

**Use Technology, but Don’t Rely on It**

Perez said that UDL is first and foremost about pedagogy, but “technology gives you a richer palette of tools to choose from.” For example, if a student feels more comfortable hearing passages of text read aloud, he or she can turn on text-to-speech functions, which are built-in on most operating systems or available as freeware. Showing students how to invert screen colors, highlight or magnify text can also prove useful.

“I would begin with whatever device you have, go into the settings, and explore a little bit,” Perez said. “If you have a student who is struggling to understand the text and all of a sudden you make it just a little easier for a student to get through a reading assignment, then their engagement and their motivation might improve because they’re not dealing with that frustration anymore.”

Relying on technology too much, though, can defeat the purpose. Tina Greene, a kindergarten teacher turned UDL coordinator at Bartholomew Consolidated School Corp. (IN), a district that began using UDL more than a decade ago, cautioned, “Just like a worksheet can be a barrier and a print text can be a barrier, technology can be a barrier for some students as well. UDL is not about technology but it is about using technology in an intentional way.”

**Focus on the Whole Environment**

Since UDL encompasses so many facets of education, focusing exclusively on curriculum, on support-
ing teachers or on providing accessibility options is too narrow an approach. Instead, Greene suggested cultivating a holistic learning environment from the ground up. BCSC has established goals, methods for achieving those goals, materials and resources that can be utilized and assessments to help measure progress.

Students need accessibility in all those areas, and if it isn’t there, Greene said, “We don’t see a deficit in a student. We see a deficit in a curriculum or in a learning environment.”

For example, Rhonda Laswell, another UDL coordinator at BCSC who previously taught seventh grade at the district, said that to maximize opportunities for her students, she often required them to interact with any given lesson seven different times, in seven different ways. “So that would be text, some audio version, a video, an object lesson, a demo, a hands-on activity, a lab, an activity with a partner,” she said. “We’d do large group and small group activities. The information and the content was given to them in multiple ways and then they were able to interact with that information and make it their own.”

**Bring Students Onboard**

When schools implement UDL across the whole learning environment, students will notice and respond to the change, but they may not question much beyond that. Weaber said, “I think the kids see I’m doing things different than what they’re used to, but then I feel like when kids get used to something, it’s almost like a standard. I don’t know that they’ll say it’s much better because, to them, it’s still school.”

Explaining why and how their environment is shifting can help, but showing them is even better, Perez said. He cited an example from Kim Novak’s book *UDL Now* in which she suggests taking a lesson or ordinary classroom activity and doing it twice: once in a traditional format and again using UDL principles so that students experience the contrast. “I think students need to see the rationale of why we are doing this,” Perez said.

In addition to translating learning goals into language appropriate for students, this year BCSC is piloting a new rubric, called “Schoolwide Learning Outcomes,” which is based on UDL concepts and is designed as a tool for students’ self-improvement. “[Students] are now beginning to assess themselves on the process of learning,” Greene explained, adding that they can use the tool to assess where they may need extra support. “Not only that, but it’s a tool that teachers can use to monitor where their students are as well, so they can make adjustments in the learning environment.”

**Be Flexible**

Cecil County’s Weaber said that the UDL implementation process, with its emphasis on experimentation, creativity and full-class inclusion, reminds him of when he was student teaching. Nowadays he’s much less likely to lecture at the front of the classroom when he

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**FURTHER READING ON UDL**

Experts frequently cite the following books and resources as providing a solid grounding and significant insights into UDL principles and how to apply them in various environments.

**CAST**
- *Mobile Learning for All: Supporting Accessibility With the iPad* by Luis Perez
- *Teaching Every Student in the Digital Age: Universal Design for Learning* by David H. Rose and Anne Meyer
- *UDL Now!* by Katie Novak
- *UDL Theory and Practice* by Anne Meyer, David H. Rose and David Gordon
Jeremy Weaber’s approach to UDL starts with “preplanning instead of waiting to find out who you have and then going to take care of their needs.”

UDL, by its very nature, resists formulaic teaching and encourages new approaches to help educators overcome unexpected obstacles to accessible learning.

In fact, as Greene said, it’s more about iteration and improvement than meeting specific benchmarks. “When you talk about Universal Design for Learning as a framework, it’s not a checklist. You don’t ever arrive,” she said. “You are trying your best to evaluate the variability of your students and provide options for everyone. That is a dynamic process that’s ever-changing.”

Stephen Noonoo is a contributing editor based in Los Angeles.
Microsoft’s chief educational evangelist Cameron Evans has a vision for the future of Web search. General word queries that yield broad results would be replaced by searches using analytical technology to identify complex relationships and find content that is best suited to the individual seeking it. As Evans explained it, “What Microsoft is doing is really focusing on machine learning: fundamentally, about how you connect disparate pieces of data together to make it actionable.”

Evans’ vision also calls for integrating information about the user into the search itself — think of it as a student having a Web search account. This approach could yield results that are customized to the student’s established educational profile and performance level. In a search assignment, every student could potentially obtain somewhat different results, which would be targeted to their individual needs and abilities.

That type of search is still in the future, though. In the present, educators are tackling two big issues: 1) search results may not be appropriate to the reading or comprehension level of individual students; and 2) according to administrators, many teachers need lessons in how to search effectively.

Broadening Teachers’ Searches
Jennifer Judkins, an instructional technologist at Lynnfield High School (MA), believes that one of the most important skills she works on with faculty is effective Web search. “Web search is an integral piece of almost any project we are doing, particularly when doing writing related to some sort of research,” Judkins said. “A lot of people assume they know how to Web search because they can go to Google and type in some words. But the efficiency is not necessarily there.”

Despite the enormous volume of content available, typical Internet users don’t go past the first page of search results. Evans commented, “When you look at the amount of content that is being created — with documents and presentations, graphics, as well as video from flipped classrooms and even tutorials that teachers are creating for students — there is so much more to find.”

This is where Evans hopes that next-generation search tools will help educators sort through data and find new content in areas like social media and blogging. San Diego Unified School District teacher Julie Garcia provides two important perspectives on Web search. Garcia does double duty as a classroom math teacher and digital leader at her school. The 450-student campus has 1-to-1, and, she said, “Our staff, as well as our students, are very tech savvy.”
Garcia explained, “As an educator, I search for sample video lessons on teaching a concept, for real-world applications of mathematics problems and for teaching strategies. I create my own videos for a flipped classroom, so I often look for samples of other teaching strategies to support the strategies I might use in my classroom. When students search, I have them look for vocabulary, math applications to real-world situations and sometimes on different ways to solve a certain topic.”

Narrowing Students’ Searches

Jennifer Roberts, an English teacher at San Diego Unified, asserts that the most important element in Web search is the user’s approach, which is something that students can’t learn all at once. “When you teach students to search, it’s not a one-day lesson; it’s not a two-day lesson; it’s a yearlong process of refining kids’ search abilities,” Roberts said. She starts teaching to “use particular appropriate keywords. I teach my students to select their keywords carefully, to search for the words they want to find on the page they are looking for.”

Once students have a handle on how to find what they want, they have to learn how to vet search results: Are they accurate? Are they authoritative? Are they credible? Are they objective? And how can you determine any of the above? “I find that I need to teach my students how to assess value and credibility,” Roberts explained.

Lynnfield’s Judkins agreed. “There are a couple of things to tackle when we’re trying to teach kids how to search effectively: not only to choose the right words to get the results that are the most relevant to the topic, but also to help kids be able to evaluate websites for accuracy. That can be very difficult,” she said.

Tailoring Search for Education

As teachers and students improve their search skills, tech companies are refining their products for education. Judkins pointed out that Google enables students to search by reading level, although their choices are limited to “basic, intermediate and advanced.” she said. She also mentioned that search tools such as Sweet Search enable some degree of customization, but noted that “you don’t get many results, because it is a filtered search.”

In 2013, Microsoft launched Bing in the Classroom, which offers ad-free search as well as digital literacy lessons. K-12 users who sign in to Google can also search in an ad-free environment and, according to global communications spokesperson Shannon Newberry, “Materials on the Search Education website can help students of all levels become skilled searchers.” Resources there include live training sessions and demos. For those seeking more help, Newberry said, “We also have Googlers who travel and meet with schools and educators to provide training and support around search.” Google also provides SafeSearch, which allows network administrators to prevent adult content from appearing in search results. “No filter is 100 percent accurate, but SafeSearch should help you avoid most adult images and sites,” Newberry said, adding that educators who want to “learn more about how we keep students safe and their information safe when they use our products” can check out Tools Schools Can Trust.

That issue of trust is the greatest challenge to next-generation search tools and the people who will use them. Finding sources online is one thing, but trusting them is another. It remains to be seen how well future analytics technologies will do at separating the wheat from the chaff. As Evans put it, “Teaching students and educators critical skills on how to analyze content is very important because anybody can put anything on the Internet, but that doesn’t mean that it’s valid or that it’s true.”

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WEB FILTERING: HOW MUCH IS TOO MUCH?

As the Internet has become indispensable in education, every school has to answer the question: How do you balance the mission to provide students access to a range of information with the need to filter out inappropriate content? THE Journal asked Joe Piazza, network administrator for the Lynnfield Public Schools (MA), for his thoughts on how much filtering is appropriate and how teachers in this three-school district view the practice.

THE Journal: What sort of policies does Lynnfield have in place for filtering websites and Web search results?

Joe Piazza: The school’s policy for filtering content on the Internet is based upon the education guidelines and CIPA compliance, as well as policies established by the principals of each building. Anything that is deemed harmful, pornographic, illegal, violent, profanity ... content along those category lines is blocked. If a website is requested by a teacher to be unblocked, the IT department will analyze the site and if it is questionable, it will be forwarded to the building principal for further review and it will either be allowed through or remained blocked based on the findings.

THE Journal: Are teachers able to get around blocks to access resources when appropriate?

Piazza: Teachers are able to circumvent the blocks for resources if they make a request to unblock the site or sites by the IT department. If a teacher has a cell phone that is not attached to our wireless network, then they could use that device to pull up the information. That we have no control over, because they are not using our network services. We have had instances of uses of anonymizers and sites of that type that are developed to purposely circumvent any network security put in place by the workplace. The category of site is tagged to be blocked, but there are new resources emerging weekly and daily to circumvent network security measures put in place.

THE Journal: What sort of feedback do you receive from educators about filtering?

Piazza: Some teachers feel the filtering is excellent and some feel the filtering is too stringent or too open. It spans the spectrum of opinion. It really is all about what the person feels is right and just. Some feel that it is a duty to show the students the dangers on the Web and teach them how to deal with them; and there are others that feel they [students] need to be sheltered from them. It’s a really fine line because people can go almost anywhere — Starbucks, libraries, even their own home and most places with free wireless — and get unfiltered Internet content with a very simple search or even a legitimate search for research.

THE Journal: Do you believe educators are satisfied with the Web search tools they have?

Piazza: I do feel the educators are satisfied with the Web search tools at their disposal. There are plenty of educator-friendly sites that are emerging at a high rate. Doing Web searches now is not much different than doing research the old-fashioned way of card catalogs and microfiche and periodicals. The person still needs to further filter their findings once the information requested is presented to them. You need to look at the source of the material and the content within, and use your best judgment on its validity and relevance to the topic of search.
4 Ways Technology Can Make Your Music Lessons Sing

New tech tools give students control over their music and inspire them to create and innovate.

Integrating technology into the music classroom can be a real challenge. For one thing, students don’t have desks, so any device with a keyboard presents a logistical problem. Nevertheless, the potential payoff is big. By introducing virtual instruments and digital composition, teachers are empowering students to innovate in ways that were unimaginable 10 or 20 years ago, and are making their classes more engaging and interactive.

When Oltman Middle School in St. Paul Park, MN, introduced a 1-to-1 iPad program in the fall of 2013, director of choirs Christopher Russell was a step ahead of most teachers in other disciplines. He had already been using iPads in class for three years on a limited basis. “I already had the pedagogy figured out and I knew which apps I was going to use,” he said.

Using Tablets Instead of Paper Music
Russell believes that the No. 1 use for a tablet is as a substitute for paper music. Having the music in digital format has many benefits, including the fact that students no longer lose their music. “Talk to any music or band teacher, and they will tell you that is a huge issue,” he said.

With the music in digital format, students can access apps to annotate their scores. Russell can also send students audio recordings that they can play along with as they practice. His students can use a music-writing app such as Notion to make their own practice tracks and compose their own songs. “That is a complete redefinition of what you do with students,” he said. “It was inconceivable before they had these devices.”

Russell said he is also excited about a relatively new app called NotateMe, which allows him to write musical notation and convert it to digital notation. The app also allows you to take a picture of a score and convert it to digital music. This means that music teachers can now scan music without expensive software and scanning equipment, he said. “I have used the app with students to compose music and also to dictate what they hear,” he explained. “The free version allows a student to scan a single line.
That might allow band and orchestra students, who get music with one part, to scan their music and edit it, either to hear what it should sound like, or perhaps to create their own music based on their own part."

Although he knew what he wanted to do with students, Russell admitted that there have been challenges with the 1-to-1 iPad program. Last year, the biggest issue with sixth-graders was students getting distracted by playing games such as Minecraft. "There is no teacher that can always be as exciting as Minecraft," he said, "so at some point, kids are tempted to make bad decisions. The tools we have to deal with that are getting better. Apple has done a lot at the back end to fix those problems, and so have the mobile device management companies. Ours is Casper, and it allows you to lock students into a specific app."

**Helping Kids Compose**

Amy Burns, an elementary school music teacher at Far Hills Country Day School (NJ), said she started using technology because it could help young students do things they couldn’t do traditionally. Composing music with very young students can be difficult, even though it is among the New Jersey state music standards, she said. "But now with tools such as Noteflight, second- and third-graders can create wonderful melodic compositions and play them on their recorder," she said.

Besides helping with composition and creation, technology can also enhance performance. Burns has students use Orff instruments such as xylophones and glockenspiels, but she also downloads virtual instrument apps onto an iPad and plugs them into the sound system.

She doesn’t use an autoharp in class because of the challenges of keeping it tuned, she said, “but the virtual autoharp enhances our ensemble beautifully. Virtual instruments are wonderful for students who have difficulty mastering fine motor skills. They are participating in the classroom and feeling so successful," she said.

Burns also uses tech tools to help with assessment. She uses an app called iDoceo to capture student performances. "In my instrument class, I record them in iDoceo and they can see their three performance tests throughout the year and how much they’ve im-

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**5 TECH TOOLS FOR MUSIC TEACHERS**

Created by nonprofit music-media organization Listen for Life, Travels With Music is designed to introduce students to world cultures, using music as the gateway. The multimedia program explores the richness and diversity of 15 world cultures through the use of 300 video and audio segments.

Sibelius is a tool for learning and teaching music notation, composition and music theory. Educators can use its more than 1,700 built-in teaching resources and its classroom management features. Students can purchase a scaled-down Sibelius First to use at home.

Noteflight allows teachers and students to edit, display and play back music notation in a Web browser. The software is integrated with an online library of musical scores.

Aimed at 10- to 15-year-old students, O-Generator uses popular and world music to teach key music concepts. Students can learn and play along to original modern, Latin and African songs.

Music-making application Soundation4Education helps students create and record in school and at home — with full access to their work from any location. Students can manipulate existing audio loops or learn to record their own loops and then mix, add effects and build up tracks.
proved,” she said. “That redefines your classroom as you stop using paper and pencil for assessment.”

Rehearsing Via Social Media
Looking back over her 14-year teaching career, Lori Pirzer, director of bands and music teacher at Oak View Middle School in Newberry, FL, can see how much larger a role technology plays now. “When I started we didn’t have any technology or Internet access in the classroom at all. To check my e-mail I had to go to a media center on campus,” she said.

But seven years ago, Oak View became a technology magnet school and she started to get tools such as Smart Boards and software. “I am not sure I could teach without technology now,” she said.

Pirzer now uses her Epson BrightLink interactive projector in conjunction with Smart Notebook collaborative learning software and apps such as TonalEnergy Tuner, which lets users understand and improve every aspect of their sound. Pirzer projects an image from the projector onto the whiteboard, which allows students to use the tuner. They can see if they are sharp or flat, and if they are playing in time. She also uses a program called SmartMusic, which offers students feedback on their performance. They can see the correct and incorrect rhythms and pitches onscreen. “I used to say, ‘Put your finger on measure 3; I want you to circle it,’ ” she said. “This allows me the freedom to circle and noteate on the board things that are in their music.”

Pirzer also uses the Edmodo social media platform to communicate with her students and parents. She gave a recent example: “My symphonic band is taking a chair test. I just finished uploading it on Edmodo,” she said. “Each section has a different piece of music, so I went to a program called Finale and created a sound file by inputting the music. I create MP3 files and post them on Edmodo. Students use their smartphone, tablet or technology at home to listen and practice with the sound file.”

She also has a few young composers who write music using Noteflight and post their compositions on Edmodo for the other students to listen to.

Because she teaches in a technology magnet school, Pirzer finds that her students often innovate themselves. She had one student make his own pitch generator on a circuit board. “If you are going to teach at a technology magnet school, you have to be very open and adapt to it,” she commented. “To me, it speaks their language. You can use pen and paper or do old-school games, but when you put it in a video game setting, the kids have a lot of fun with it and learn really quickly.”

Reworking Published Arrangements
Dan Schultz, who teaches strings and general music at J.P. Case Middle School in Flemington, NJ, sees technology as a key tool in helping students become more creative. Many students go through a classical music education, he said, but they might never improvise or do composition at all. “They will just play notes off a page. It is not terribly creative,” he said.

In his general music class, held in a 30-station music technology lab, Schultz has new students use programs such as GarageBand or Soundon to work on percussion compositions. “We create rhythms that work together and grooves that work in different genres,” he said. “We record that into GarageBand and have them create loops.” He then adds a unit on melody, then one on harmony. Students put those together in a multitrack recording with one line of melody, one of harmony and several lines of rhythm. The students can record, edit, save and revisit, assess and improve it. “That ability to revisit the music over a few days is awesome,” Schultz said. “The process of revision is game-changing and easy.”

Traditionally, orchestra students learned skills on their instrument but played other people’s music. Schultz is having his students rework musical arrangements and try their hand at composition. “Last year we were play-
ing a published arrangement and the ending was terrible,” he recalled. “So we experimented with how to compose a different ending.” At a concert the students used the ending they wrote. They learn how to load the music into Noteflight and use a template to rewrite sections of a piece. Since then, some students have started doing arrangements on their own during lunch on their iPads, he said.

“In seventh grade, we put the building blocks in place in terms of working with the software; then in eighth grade we take the leash away and give them the freedom to try more imaginative things. The ownership level changes dramatically,” Schultz said. “They are interested in creating a piece, but they also want to have the skills to pull it off.”

Schultz realizes that many of his students will not become musicians or play music after high school. “But hopefully they will become more creative, because that can carry over to so many areas,” he said. “An engineer who doesn’t have creativity is going to be lacking something.”

The number of devices and apps for music is growing exponentially, and the array of choices can be overwhelming. Amy Burns from Far Hills said that some music teachers are given an iPad and are expected to use it as a teaching tool right away. “First you need to open it up and experiment just for you,” she said. She suggested looking at music apps and finding one that might substitute for and improve on something you’re already doing in class. Then once you get your feet wet, you can consider moving on to more sophisticated uses. “It can change the way you teach music,” she said, “but you have to be ready to do that.”

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