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SPOTLIGHT

Furnishing the 21st Century Classroom

Traditional student desks and chairs are a relic of the 19th and 20th centuries. The 21st century classroom, with its 1-to-1 ratio of devices to students and emphasis on collaboration and communication, demands classroom furniture that is mobile and device-friendly.

By Leila Meyer

COVER STORY

Hack Club! Students Take Over STEM

High school students have started taking charge of their own computer science education. One of them, Zach Latta, an 18-year-old who was named to Forbes’ “30 Under 30” list for 2016, has helped to create a network of coding groups (“Hack Clubs”) that have spread to 16 states and seven countries so far. The purpose: to get kids coding regardless of background or prior technical knowledge.

By Greg Thompson
I’ve always had a distrust of standardized testing in particular and summative assessments in general, even before I knew they were called “summative assessments.” Standardized testing is too pat, too reductionist, too arbitrary. And it can be marginalizing.

Is the point of 13 years of public education to answer 50 out of 100 English and math questions correctly on a fill-in-the-bubble test — or the current electronic equivalent of fill-in-the-bubble tests? If so, we’re doing education wrong. But more likely, we’re doing assessment wrong.

“You get a 62. Next.”

That goes for classroom assessments as well. How does applying a label to a student in the form of a grade or score further the mission of educating that student?

“You get a C. Next.”

It’s a more complicated issue than that, of course. Even forgetting about regulations that force educators to score tests and assign grades to students, there can be good reasons for testing students’ knowledge as part of the educational process.

But there’s a growing movement within the education community that says we can and, in fact, should do away with testing, do away with grades altogether. They’re not only saying it. They’re doing it.

I had the opportunity to encounter some of these people in person at last month’s SXSWedu conference in Austin and hear from one of the movement’s leading proponents, Mark Barnes, a (now-former) educator teaching his students without grades — except for the compulsory grades that had to appear on the students’ transcripts. But those grades weren’t determined by averaging scores; they were determined by discussion with the students about what grades they thought they should receive.

The idea is that instead of grading or assigning a score or marking answers on a worksheet right or wrong, teachers assign projects to students and then hold discussions about the results with them.

Not: “You get a C. Next.”

Instead: “Here’s what I see. Now what do you think would have happened if you had done this instead?”

That’s not just nuance. It’s refusing to reduce a student to a score at an arbitrary point in time, but instead focusing on helping the student until he or she understands.

This was an eye-opener for me, one that seemed not only refreshing for a technology-driven movement, but truly focused on the core mission of education and not just on fulfilling some arbitrary sense of “accountability” that has, to date, accomplished little more than ever-expanding mandates for further testing.

I’m interested to see where this might lead. If you are too, you can read more about the movement at thejournal.com/gradeless or visit the TTOG group on Facebook and ask questions.

To continue the conversation, e-mail me at dnagel@1105media.com.
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FURNISHINGS CAN ENHANCE
THE 21ST CENTURY CLASSROOM
Furniture can make or break an educational space. Whether it’s wheels for mobility, plugs for devices or cushions for comfort, furnishings help create the environment best suited to an individual classroom’s needs. Here four educators discuss the furnishings they use to help motivate and engage their students. BY LEILA MEYER

4 WAYS FURNISHINGS CAN ENHANCE THE 21ST CENTURY CLASSROOM

TRADITIONAL STUDENT DESKS and chairs are a relic of the 19th and 20th centuries. The 21st century classroom, with its 1-to-1 ratio of devices to students and emphasis on collaboration and communication, demands classroom furniture that is mobile and device-friendly. Some schools have replaced their traditional classroom furniture with tables and chairs on wheels to facilitate flexibility and quick transitions between individual, small group and large group activities. Others have implemented soft seating such as sofas and easy chairs with computing surfaces built into the armrests to improve student comfort. And some are using furniture to create a professional, business-like environment as they prepare students for college and career.
Active Learning Center at Saluda Trail Middle School

Saluda Trail Middle School in Rock Hill, SC was a recipient of one of Steelcase Education’s 2015 Active Learning Center grants. The company transformed Julie Marshall’s language arts classroom to an active learning center complete with tables and chairs on wheels, an interactive whiteboard, student whiteboards and other upgrades. It was “designed to meet the needs of the 21st century learner, emphasizing critical thinking, communication, collaboration and creativity,” said Marshall. “By having things on wheels, by having all of the furniture on wheels, it allows for a very mobile, very fluid environment.”

Marshall uses project-based learning for all of her English language arts classes, with mandatory and student-selected projects. At the beginning of each class, Marshall and her students roll their chairs into a large group for a brief mini-lesson. Once the mini-lesson is over, Marshall says, “Ready to rock?” and her students say, “Ready to roll!” and then they roll out into their small groups, either in the classroom or the hallway. “Within two to three minutes they are exactly where they need to be, with who they need to be with, and working,” said Marshall. “You can’t break a regular traditional classroom down that fast.”

Since implementing the active learning center, Marshall has noticed a significant improvement in her students who struggle in school. “The new environment has changed their motivation because they now have control and ownership of what they are doing in class,” said Marshall. “No. 1, they control where they sit. No. 2, they control who they sit by or who they work with on a daily basis. No. 3, they can control what they are studying.”

According to Marshall, the students are very grateful for the new classroom environment and treat it with a sense of pride. “The gratitude for that classroom is transferring to their work,” she said. “The missing work has decreased.” The students also go out of their way to keep the new furniture clean, wiping down the desks, sweeping the floor so dirt doesn’t get into the wheels of the furniture. “I had to develop a schedule for them to clean because everybody wanted to clean the dry erase boards; everybody wanted to clean the desks. They dust. It’s precious. They want everything just perfect.”

Marshall said the new furnishings have also helped her low-achieving students because the environment is non-threatening and because students feel more motivated to take risks emotionally and academically. “A lot of low-achieving students are afraid to try something new in a classroom because all they’ve done all their life is get in trouble when they try to do something different,” she said. “We can’t fix things unless we fix motivation, and that’s what everybody is struggling with: how to get kids motivated. If you make that room exciting, inviting and non-traditional, it’s a place where they can just relax.”

Connects Learning Center

Some at-risk students from four area high schools in Cudahy, WI have the option of
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attending Connects Learning Center, a unique high school designed specifically to help these students succeed through a combination of an individualized blended learning curriculum and a comfortable environment. “These kids have proved that they do not learn or have not been successful in the traditional environment,” said Stacey Adamczyk, lead teacher at the school. “So really it’s about making an area that’s comfortable for them, an area that they want to come to.”

The school is located in a renovated church with three rooms. When you enter the school, the center room serves as a break room, and there’s a single classroom on either side, each of which can accommodate about 18 students. The school has a variety of hand-me-down couches, loveseats and recliners for students, a few high-top, bistro-style tables and a few traditional desks with big, comfy chairs. Over the last two to three years, the school has been purchasing OFM Interplay couches and chairs through School Specialty. The Interplay furniture has swivel desks built into the armrest. “We were thinking about creating an environment where kids wanted to be, so we were thinking about where are they going to be most comfortable, what’s going to make them want to come to school,” said Adamczyk. “And the kids feel as though it’s a privilege to be here in this type of environment. They know not all students get that opportunity.”

Adamczyk and her students start each day with the couches and chairs arranged in a big circle, and then students roll the furniture to other part of the room to start their school work. Most of the time students work independently using blended learning curriculum from Odysseyware, and then Adamczyk will get small groups of two to six students together for small groups lessons. “It’s really nice for them to be able to work independently at their own pace and receive the one-on-one attention as they need it rather than being expected to learn everything at the same rate at the same time and be at the same level,” said Adamczyk. When they’re doing their independent work, some of the kids roll a chair to a corner by themselves, while others form little groups, whatever makes them feel comfortable.

Attendance rates at the school range from 80 percent to 100 percent, which is impressive for a group of kids who have been non-attenders in the past, according to Adamczyk. She attributes that change in the students’ attitude towards school to the individualized, flexible, comfortable learning environment. Attendance rates at the school range from 80 percent to 100 percent, which is impressive for a group of kids who have been non-attenders in the past, according to Adamczyk. She attributes that change in the students’ attitude towards school to the individualized, flexible, comfortable learning environment.

THINC College & Career Academy

THINC College & Career Academy is a public charter school in LaGrange, GA that is focused on career readiness and uses a curriculum designed to meet the needs of local employers. Its students attend one of three regular high schools for half of the day and then for the other half of the day attend THINC, where they take classes in disciplines such as engineering or business administration.

In preparation for the school’s opening in August 2015, the school’s designers contacted a local office supply company in search of tables and chairs that could be rearranged easily to support student collaboration. Loy’s Office Supply recommended the EDU 2.0 line for Bretford Explore tables and Motiv seating at THINC College & Career Academy: “We did not want the students to walk in here and feel like they were in a traditional high school setting,” according to Chris Williams, principal of THINC. “We wanted them to feel that they were experiencing higher ed, business, and industry. So we knew that we needed a very collaborative environment.”
furniture from Bretford, including community docking stations and tables with video monitors.

“Our purpose in choosing the furniture was to help create a collaborative environment, and we wanted to promote communication between the students,” said Chris Williams, principal of THINC. “We did not want the students to walk in here and feel like they were in a traditional high school setting. We wanted them to feel that they were experiencing higher ed, business, and industry. So we knew that we needed a very collaborative environment.”

The school purchased variety of learning tables from Bretford’s Explore line and soft seating from the Motiv line. The Motiv seats are wired and include power and USB outlets so students can charge their devices while they work. “We’re a very device-friendly environment,” said Williams. “We’re not the typical high school that discourages the use of your personal devices. What we are about is teaching the student how to use those devices appropriately.”

THINC College & Career Academy strives to establish a culture of business and industry, of being grown up and professional, and, Williams said, the furnishings contribute to that culture. “It’s hard to play the role of an employee or an adult when you’re sitting in a student desk,” he said.

**Interactive Student Learning Center at Immaculata - La Salle High School**

Immaculata - La Salle High School in Miami has converted half of its classrooms to active learning spaces and plans to transform the other half by the 2018-2019 school year. It has also transformed its library into an Interactive Student Learning Center with four active learning spaces, a presentation area and two mediascape rooms.

The transformation was driven in part by the school’s 1-to-1 iPad initiative. “After six months it became very apparent that having the students sit in rows and engage in the device was not working,” said Federico Padovan, dean of innovation and technology at the school. “It was creating a very isolated experience, and it went against everything 21st century learning is about.”

At the same time, the school needed to expand its classroom space, but it’s located next to a historical landmark, so the school had to repurpose existing space rather than build an addition. The staff pared its collection of library books down to essentials that were not available electronically and was able to reduce its number of library stacks from 32 to one. A group of teachers then spent eight months deciding how to expand classroom space within the library in a way that multiple groups could use it simultaneously without impeding each other. “The goal was to create a truly flexible space that within five minutes could become something else,” said Padovan. The result was the Interactive

Leila Meyer is a technology writer based in British Columbia. She can be reached at leilameyer@gmail.com.
The Hunt for Data Privacy in the Classroom

Becoming an expert in student data privacy regulations is a job few teachers have the appetite for. Now there’s a better way to assess whether that new app will break school (and state and federal) rules before students start to use it.

IT USED TO BE that protecting children online was the job of the IT organization within a school district, which set up filters and blocks to stop inappropriate content from reaching students. Now, however, as teachers have embraced the use of digital devices in the classroom, much of the burden for guarding students from bad stuff online has fallen on them too. As they pick out apps for use in specific kinds of learning and teaching, they’re also making choices about how well they preserve student data privacy in the classroom — whether they know it or not. Many don’t know it. After all, how many teachers have time to immerse themselves into the ominous details of FERPA, CIPA, COPPA and SOPIPA?

Fortunately, a movement is afoot to simplify the process of selecting online programs and services that follow the rules related to student data privacy. All a teacher will need to do is check out the app on a site that offers a quick summary of the pros and cons in order to make an informed decision.

Evaluating District Apps in Houston

Teachers are “super busy” already, pointed out L. Beatriz Arnillas, the director of IT in education technology at Houston Independent School District. “They’re already overloaded, and we have to be very careful about taking their time.”

The time she was referring to is the addition of almost 12,000 teachers having to perform evaluations of data privacy practices for the apps they use. The seventh-largest public school district in the country, with about 215,000 students, runs a 1-to-1 program throughout its high schools and makes Apple iPads, iPods and laptop carts available to its elementary and middle schools in numbers greater “than they were two years ago.”

Although the district does “everything it can” to protect student privacy and data through contract agreements and data sharing agreements with vendors from which it purchases digital materials and software, Houston ISD acknowledges that “you’re not completely protected if you are not educating the end user,” noted Arnillas. “In fact, the most vulnerable part of your system is all the places where the users themselves willingly provide their data without knowing.”

Starting in 2014 the district began teaching staff “how not to leak anything.” That means, said Arnillas, “teaching our teachers what safe practices are [and] teaching our students what it means to be responsible and savvy digital citizens.”

To simplify matters, Houston ISD also began building a rubric by which it could rate the safety, privacy and security of the software it uses in the classroom. Each of seven areas — data security, the use of personal identifying information, privacy policy availability, data rights, COPPA compliance, social features and the presence of ads — is scored from a low of 1 point to a high of 5 points. Those ratings are used to create the “considerations for use” that show up within the listings of the most popular online programs in a district catalog.

“We don’t expect teachers to be data privacy experts,” said Arnillas. “When you roll over the little icon of the most commonly used apps in the district, you see a pop-up card with recommendations for data safety in the classroom. The pop-ups, which can be clicked to display in full size and clicked again for additional detail, show two or three bullets with advice: “Don’t log in using social media accounts because that would grant the program access to profile information and contacts”; “Do not under any circumstances have students under age 13 create their own accounts”; “Information is not encrypted in transmission”; and so on.

To amplify its work, the district reached out for feedback from Common Sense Education and the Future of Privacy Forum as well as other large districts in New York, Fairfax County, Chicago, Denver, Clark County and Nashville.

“They helped us. They taught us some things we didn’t know. We also contributed some to the conversation,” said Arnillas. “There’s greater wisdom and knowledge in larger numbers, and we’ve definitely benefited from the knowledge of our colleagues.”
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Now, what Houston and the other districts have learned is being turned into a set of resources that any district can benefit by.

**The Common Sense Approach**

In early March non-profit Common Sense Education launched a “privacy evaluation initiative” that builds on the work the organization has already done with Houston and those other large school districts. The initiative is built on a system that uses both automated processes and informed human beings to evaluate the privacy policies, legal terms and “basic infosec” practices of common education tech apps and the companies behind them.

The project has two primary goals, said Bill Fitzgerald, director of the initiative: to help teachers, schools and districts make informed choices based on their software’s terms of service and privacy policies; and to help ed tech vendors simplify and standardize their privacy policies according to both the terms and the spirit of various laws and regulations.

Evaluating those privacy policies is a five-step process, he said. First, the evaluators pull down the policy terms from a given site, “which obviously assumes they’re available via URL.” Next comes a “transparency evaluation,” a review in which the privacy policies are held up against a bunch of yes-or-no questions, such as, “Does a policy describe how data is handled in the case of a bankruptcy — yes or no?” Those questions map to specific data usage regulations or best practices.

From there, the policies are wrung through a qualitative evaluation. As Fitzgerald explained, “In a transparency evaluation, we determine what’s covered. In a qualitative evaluation; we determine what it means, what the implications are.” The reviewer is automatically presented with specific paragraphs from the policy that’s relevant to a given question, which simplifies the process of reading the terms.

From there, the responses are summarized into “four human concerns”:
- Legal compliance;
- Information security and data breach protocols;
- Collection and reuse of data for advertising or other kinds of data mining; and
- Digital “footprints” or citizenship, such as whether the app is monitored “for inappropriate content coming from students, potentially creepy adults or student oversharing.”

The entire evaluation is rolled up into a short summary, said Fitzgerald, “that highlights what an app is doing well and potential issues that people could think about as they’re using it.”

The outcome sounds an awful lot like the kind of summarized information that Houston ISD makes available in its software catalog. However, once Common Sense integrates those reviews into Graphite, its teacher-oriented site that reviews classroom apps and sites, the number of results could eventually be magnified nearly a hundred-fold.

And it won’t stop there. Because the technology is being built out in the form of an API, it could be added to others’ sites to give the summaries broader visibility.

Fitzgerald emphasized, however, that Common Sense, which has become famous on the media side for its apt age rankings of movies, games and more, won’t be “grading” any of the apps. “We are explicitly staying away from grading anything because we want people to make decisions about what works in their context,” he said. “With that said, there are some hard and fast flags [we’ll use]. For example, if we see an app that actually is a direct COPPA violation, we will say, ‘This violates COPPA.’ And we’ll contact the vendor directly and say, ‘Hey, you need to know that you’re in direct violation of COPPA here. You need to fix this. We’re not looking to catch anybody at anything. We’re looking to help people do this better.’

It also won’t be charging vendors to have their apps evaluated. “It’s difficult to be un-biased when the people who are paying for your service are also the ones that you’re evaluating,” he pointed out.

But all of that work is still in the future. The first component that will be released as part of the Privacy Evaluation initiative will be an “Information Security Primer,” freely available under a Creative Commons license and intended to help schools understand good practices in the area of student data usage and privacy. At the same time, Common Sense will be reaching out to build up its corps of school districts willing to help evaluate apps.

‘Use Everything We Have’

Currently, 40 districts are helping Common Sense with the planning for the initiative. And even as they’re participating, they’re also strengthening their own “muscles” in the area of student data privacy. But not everybody has the resources of a Houston ISD or a Fairfax County Public Schools to dedicate to this work.

And they don’t have to contribute, said Arnillas. Really, in order to get a grip on data privacy issues, all a district needs to do is use “everything we have. It’s free and it’s open. We will share it with them.” If a school is “too small and doesn’t have the staff to develop these things, they should just use what everybody else is doing. This is for the kids in the USA. We all want our districts to be successful.”

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**ABBREVIATIONS**

CIPA: Children’s Internet Protection Act, enacted by Congress in 2000 to protect children from access to “obscene or harmful content” over the Internet.

COPPA: Children’s Online Privacy Protection Act, which imposes requirements on operators of Web sites and online services directed at children under 13 years old regarding the kinds of personal information they can collect.

FERPA: Family Educational Rights and Privacy Act, a federal law that protects the privacy of student education records.

SOPIPA: Student Online Personal Information Protection Act, a California law that prohibits operators of Web sites and online services from “knowingly using, disclosing, compiling, or allowing” anybody to use the personal data of a minor for marketing or advertising.

**Student Privacy Pledge:** A commitment created by the Future of Privacy Forum and the Software & Information Industry Association for educational technology vendors to sign, in which they vow not to sell student information, target advertising or misuse data in other ways that has been collected in the course of educational activities.

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**Dian Schaffhauser** is a writer who covers technology and business for a number of publications. Contact her at dian@dischaffhauser.com.
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High school students have started taking charge of their own computer science education. One of them, Zach Latta, an 18-year-old who was named to Forbes’ “30 Under 30” list for 2016, has helped to create a network of coding groups (“Hack Clubs”) that have spread to 16 states and seven countries so far. The purpose: to get kids coding regardless of background or prior technical knowledge. BY GREG THOMPSON
WHILE THE FAMILIAR “maker movement” tends to focus on manipulating three-dimensional objects, the burgeoning “hack culture” is making its mark primarily in 2D. Also known as “coding,” the act of “hacking” is merely solving a problem through the use of any and all computer programming languages.
High schools in the technology-rich Silicon Valley have long nourished a variety of computer science courses, but coding is making its mark in the school club category. Instructors looking to encourage students to start coding clubs can point toward entities such as San Francisco-based Hack Club (hackclub.com), a nonprofit that helps high school students start coding clubs with pre-built curriculum, free of charge.

Zach Latta, founder and executive director of Hack Club, has grown Hack Club to 69 schools so far, and he is intent on continuing to grow that number. The success of Hack Club comes in part from its quick-start mentality that engages students from the first meeting.

“If you’re a new club member, by the time you leave the first meeting, you have your first Web site online,” explained Latta, an 18-year-old who was named one of Forbes’ 30 Under 30 (Education Category) in 2016. “By the second meeting, you’ve built a Web site that can call and text your phone. By the time you’ve left the third meeting, you’ve built your first game, and it’s online, and you can show your friends.”

**Getting Started**

A Hack Club starts like any robotics team or chess club, with most schools requiring a “teacher sponsor” to donate a classroom after school, generally twice a week for 90 minutes. “Once you have a physical space, all you need to do is recruit students,” said Latta. “Generally we see about 40 people at that first meeting.”

Hack Club has a sizable online presence, and students typically lead the way in on-campus club formation. Brent Smith, an AP Computer Science teacher at Los Altos High School (LAHS) in California hosts Hack Club in his room where computer equipment is already set up and ready to use. “Students started with simple things like HTML, then CSS,” he said. “Then they want to start working with JavaScript in the second half of the year. It has been a good progression.”

Classes devoted strictly to coding are few and far between at this point, but Smith said he sees students using what he calls the “conceptual aspects” of computer science (JavaScript and more) in club projects. “I could see how some kids would want to just get out and apply things,” said Smith, who also teaches mathematics. “They get interested when they can do stuff that they play with every day like the games or apps. We’ve been just starting to talk about a course where they can go and program. It does not exist right now.”

Over at Mountain View High School in the same district as LAHS, coding is instead given its own event. Dubbed the “Hour of Coding,” the occasion comes every October as part of the Northern California school’s STEM Week event.
Q&A

ZACH LATTA: BRINGING CODING TO THE MASSES
ONE SCHOOL AT A TIME

Eighteen-year-old Zach Latta, executive director of San Francisco-based Hack Club, is a 2015 recipient of the Thiel Fellowship and one of Forbes’ 30 Under 30 (Education Category) for 2016. He led the Engineering Team at Yo, and was a developer on Football Heroes.

THE Journal: How long have you been working on Hack Club?

Zach Latta: It has been about a year now. We’ve been really intent on growing, and this past year we’ve expanded into 69 schools.

THE Journal: How involved are students in starting Hack Clubs at their schools?

Latta: Hack Club is built almost entirely by students, for students. The clubs themselves are run by students, not teacher or Hack Club staff, and our club leaders are an integral part of building new curriculum from the moment we start on new content. We’ve even had many club leaders create entirely new content for the organization on their own.

THE Journal: What happens after a student applies?

Latta: We set up an interview, talk to the student a little bit about his or her experience, why he or she wants to start a Hack Club, and if it’s already started, what the existing club looks like. We’re looking for leadership ability and for people who take initiative. If we decide to move forward, the next steps are finding a teacher sponsor at the school and working with the club leader to plan for the first two meetings.

THE Journal: Do you look for new applicants, or do students find you?

Latta: Students find us. Everything is through applications with us. We will be at events [like hackathons], and we’ll say, “If you want to start a coding club or a Hack Club, go to our Web site, apply, and we’ll talk to you.”

We also have a large online presence, specifically in the high school and college community. There are a lot of Facebook groups that people talk in. I run a Facebook group for high school students that has about 6,000 high school students in it that are all really into programming. And we’ve been driving applications through there, and through the collegiate equivalent. The Facebook group I run has high school students from every single state, more than 100 countries, and over 1,000 high schools.

THE Journal: Is hacking, programming, coding all the same thing?

Latta: Within our community, hacking, programming, coding — all of these really mean the same thing. To us, all it means is creating. If you’re hacking on something, you’re creating something. If you’re coding something, you’re creating something. The thing is, you’re doing it all with code.

THE Journal: How technologically equipped are today’s high schools to start Hack Clubs?

Latta: In 2009, there was a survey done by the National Center for Education, and they found that 97 percent of teachers had one or more computers in their classroom every day, and 93 percent had Internet access. And I can only imagine that number has gone up in the past six or seven years.

To start a Hack Club, you need a classroom, computer, and internet access. Generally clubs take place at computer labs or in a regular classroom with school provided computers, like Chromebooks (though sometimes club members are expected to bring their own laptops). All of our tools run in the Web browser on any computer, so you don’t need to install anything special, and you can leave off where you want because it’s all on the internet.

THE Journal: Are there any major road blocks to creating a Hack Club?

Latta: When we do see hurdles, it’s generally getting the school administration on board.

“We work with the math department in setting aside one hour of class time to introduce students to what it is like to write computer code,” said Ly Nguyen, a 12-year teacher of computer science.

“The goal is to break any misconceptions and fears that students may have about computer science. Without this, many students may never experience what it is like to write their first computer program. We have trained our current computer science students to act as peer mentors. Through the ‘Hour of Coding’ experience, we hope to inspire students to pursue classes and careers in STEM-related fields.”

Only a Brain Needed

The terms coding, hacking and programming are interchangeable these days, but Zach Latta maintains that “hacking” is favored by Silicon Valley professionals currently working as coders/programmers. It’s one of the many reasons he uses “Hack Club” as the name for his venture that touches more and more lives with each passing month.

Matt Hesby, a teacher in the Summit Public Schools of California and Washington, is part of an “expeditions team” that teaches electives to students. Hesby rotates between three high schools and one middle school, teaching Intro to Computer Science. He has seen the Hack Club phenomena first hand, primarily as a way for students to apply what they are learning.

“Programming in general is a great idea for students,” said Hesby. “It helps them focus their other skills; it lets them build things and get excited about using the skills and knowledge they learn in other classes; and it’s something that will be part of their lives in the years to come.”

“Hack Club is great because it can be difficult as a teacher to create a class that fits the requirements of being a class, such as grading and assignments, but also is open enough to allow students to explore and learn and build at their own pace,” continued Hesby. “Hack Club is creating a space for students to explore and learn in a way that focuses on making and building, which can really draw in students who would otherwise be turned off by the...
intensiveness that programming classes normally require.

Bogdan Vitoc, a 17-year-old senior and leader of a Hack Club at Cherry Hill High School East, Cherry Hill, NJ, has long been attracted to the creative nature of coding, and he met with Latta and Hack Club co-founder Jonathan Leung during a trip to the Bay Area in February 2015. Latta and Leung stressed the lack of technological barriers and the sheer potential of the virtual landscape.

“All you need is a computer and some ingenuity to solve computer science problems and create tech businesses,” said Vitoc. “Hack Club is great at creating resources to get beginners excited about programming. Unlike lots of other online tutorials, Hack Club’s workshops are great at teaching beginners how to teach themselves, rather than blasting them with information. I’m on the curriculum design team with Jonathan Leung, Harrison Shoebridge and a few others. We strive to make the workshops very self-paced, and emphasize the importance of finding solutions on your own.”

The self-starter mantra is echoed by Cindy Zhang, a 16-year-old junior at San Mateo High School, San Mateo, CA, who said she likes coding because it offers the freedom to try what she wants and the satisfaction of getting her code to actually work. Zhang already knows R, C++, JavaScript and HTML/CSS but occasionally struggles to effectively put them all together. “And the minimum technology that you need to start coding,” she said, “is nothing but a laptop, a brain, and a desire to learn.”

“One of the coolest things is that the entire ‘virtual tool box’ for coding is almost completely free,” adds Latta, a recent winner of the Thiel Fellowship. “Anyone from a student with no money, to a professional at Facebook, has access to the same tools. Ultimately, hacking is about using all the tools at your disposal to build a solution to a problem.”

Greg Thompson is a freelance writer based in Fort Collins, CO.

Sometimes the word “hack” can be a little scary, and one school actually banned the word “hack” entirely. Other than that, starting a club is usually a pretty smooth process, and it’s much faster than starting a computer science class at a school.

THE Journal: What is your opinion of the mindset that banned the “hack” term?

Latta: It’s completely understandable. The media paints this picture of hacking being intrusive and breaking things on the Internet. That’s certainly a correct use of the term. The reason we like to use the word hacking, for both our name and inside of our clubs, is because this is a term that’s used in the software industry to mean building things with code. We want to show students what it’s actually like. It can be a little bit difficult at times to explain it, but generally after a quick explanation that we’re not using it in a malicious way, schools are on board with it.

THE Journal: What is the biggest misconception about starting a coding/Hack Club?

Latta: People think you need to learn the fundamental concepts of programming first and only then you can do real things such as building apps, games and Web sites. One of the most powerful things about coding is that you don’t need permission from anyone to do whatever you want. As long as you have Internet access, you have coding at your fingertips. It’s always frustrating when people think you need to learn the fundamentals to get going. In our clubs, the members are building real things from the very first meeting.

THE Journal: What type of student shows the most talent for coding?

Latta: One of the really unfortunate misconceptions is that certain people have this inherent ability to be better at coding. I firmly believe that anyone can learn to code, no matter what their background. We have one club leader that literally had never written any code before she started her club, and her club is now one of the most active in the entire country. It’s hard to say that a specific type of student makes the best coder. If you want to set out and be a successful coder, all it takes is dedication and willingness to keep going even if you fail and your program breaks.

THE Journal: What type of guidance does your organization offer?

Latta: First and foremost is the community. When you start a Hack Club, you’re not just starting a single chapter at your school; you’re going to be working with about 100 to 150 club leaders from 16 states and seven countries as of today. We just started one in Zimbabwe. You’re part of this community of people who are really creating what you want to see at your school. We find that when people run into problems, they’re not just left being stuck. They immediately have a supportive community of other students who have faced the same problems, and are there to help.

The second thing that we do is provide a curriculum that we build, to bring club members from little or no experience to a point where they are comfortable building things on their own.

THE Journal: What is fundamental goal of Hack Club?

Latta: Our goal is to bring the amazing culture exhibited at hackathons, where everyone is constantly building things, back to high schools and make it something that high school students can experience every single week, and not just once or twice a year. Right now, if you start a coding club, what it’s probably going to look like is you’re going to be able to get a room and advertise your first meeting. You’ll probably get 30 to 50 students to come to the first meeting, and you’ll be left with this problem, which is, okay, we have 30 to 50 people here, but very few if any have ever coded before. You may want to work on projects together, but not be sure how.

THE Journal: What are some of the main aspects of your curriculum?

Latta: We’ve designed an introductory curriculum that completely focuses on building things that we provide to all of our clubs. So if you’re a new club member, by the time you leave the first meeting, you have your first Web site online. By the time you leave the second meeting, you’ve built a Web site that can call and text your phone. By the time you’ve left the third meeting, you’ve built your first game, and it’s online, and you can show your friends and family. The same concepts that you use to build your first game, you can use to build things like Flappy Bird, or other apps that you use every single day on your phone. Those are the two main things — community and curriculum.
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Dacia Jones supports 30 K–5 schools and plans a virtual field trip for every grade, every month of the school year.
A virtual field trip is an opportunity for students to visit other places, talk to experts and participate in interactive learning activities without leaving the classroom. Dacia Jones, District Science Specialist at Durham Public Schools in Durham, NC, has been using virtual field trips in her classroom for 20 years. “My first year in the classroom, we took all of our kids to China by setting up our classroom as a plane, and when we got them out of the makeshift plane, they were in China, and we had passports,” she said.
These days, virtual field trips are more high tech, with students experiencing other places on the globe in three-dimensional virtual reality, exploring outer space or under the ocean and video chatting with experts in real time. A growing number of organizations are developing virtual field trips and supporting technology to make it easier for teachers to provide their students with these valuable learning experiences.

**Discovery Education**

Dacia Jones supports 30 K–5 schools, and she plans a virtual field trip for every grade, every month of the school year. Many of these trips she plans and organizes from scratch, but she also uses quite a few from Discovery Education and recommends them to teachers who are new to virtual field trips and want to try them out for the first time.

A few of Discovery Education’s virtual field trips include *Ford’s Theatre 150: Remembering the Lincoln Assassination; Auschwitz: The Past is Present Virtual Experience*; and *Read to Discover a World of Infinite Possibilities* with President Barack Obama. Discovery Education archives all of its live events, so classes can revisit the video or watch it after the live event.

Jones likes Discovery Education’s virtual field trips because they’re ready-to-use and include supporting resources for teachers. Some of Discovery’s programs include a companion collection of classroom activities designed “to enhance the learning experience and help prepare students for the virtual field trip,” according to information from Discovery.

Jones makes sure the teachers in her district receive those materials, so they can use them to provide their students with some background knowledge before the field trip. If students have the opportunity to submit questions beforehand or ask them live during the broadcast, teachers work with them to prepare questions, and after the field trip is over they do some follow-up activities. “So after you click pause or stop, the learning continues,” said Jones.

**Google Expeditions**

Google Expeditions are immersive three-dimensional virtual field trips that use Google Cardboard, low-cost headsets made out of cardboard and powered by a smartphone. Saint Francis High School in Mountain View, CA was a pilot site for Google Expeditions, and teachers at the school had the opportunity to develop the platform.

Hector Camacho, an economics teacher at Saint Francis High School, grappled with the idea of virtual field trips for his class. “Economics is so concepts-based, and a field trip isn’t something that you immediately think of for economics,” he said. “But when I thought about it, I realized, actually this could provide real-world context for the students.” He developed a Google Expedition to the major financial centers of the United States with a focus on the 2008 financial crisis.

The teachers collaborated with Google’s engineers to develop those first expeditions. When the test kit arrived, it contained a classroom set of Android devices and Google Cardboard headsets, and the teachers controlled the scenes through a tablet. “When I turned it on, it took the students to the first place that I had marked for this trip, and I heard these collective oohs and aahs because it’s like virtual reality,” said Camacho. “You actually feel as though you’re there, and when I told them to turn around, they were wondering why, but when you turn around you see that whole 360 degree view as if you were there. If you turn around, you see what’s behind you; if you look up, you see the sky; if you look down, you see the floor, and it’s like you’re taking a physical trip to another place.”

Camacho used the Google Expedition to tell the story about the crumbling of the economy by going site-by-site from the New York Stock Exchange, Lehman Brothers, Goldman Sachs, Merrill Lynch and A.I.G., so students could see how some of these massive institutions had been transformed. Camacho said the experience helped his students make that real-world connection between the concept of economics and the affect they have on the day-to-day lives of ordinary people. “That’s what I found so surprising, that just being in the physical place...
or virtually being in the place could be so impactful on their understanding of what this all means,” he said.

**NASA’s Eyes**

Steven Eno, an engineering and science teacher at El Segundo High School in California, had a similar experience using NASA’s Eyes computer simulations to supplement his high school physics class. NASA offers numerous virtual field trips, and Eno used *Eyes on the Solar System.* “It allows a student to navigate throughout our solar system in three dimensions using real-time satellite data,” said Eno.

He introduced his students to Newton’s law of universal gravitation and the forces involved in the orbits of moons around the planets and the planets around the sun. “It was a great way to give my students a feel for what’s going on,” said Eno. “It’s hard for students to really understand what’s going on with gravitation by just pulling out a book. For them to actually see what’s happening with these planets and moons and how their masses differ, how their orbits differ, it really gave them a chance to see it and interact with it.”

Eno gave his students some questions and let them use Eyes to investigate and make some observations about gravity on their own, and then he asked them to work with Eyes in groups and consider whether the solar system is stable, whether anything could cause it to become unstable and why gravity is happening in a circular motion. “Once I can get the students to see where there are some gaps in their understanding, that’s when I dive into my lecture and try and fill those gaps for them,” said Eno. “And so it’s one of those things that it allows them to think outside the box and think like a scientist and not necessarily get to an answer but have that experience of investigating.”

**Others**

In addition to Discovery Education, Google Expeditions and NASA’s Eyes, numerous other organizations offer virtual field trips of one sort or another, such as Skype in the Classroom, which lets students video chat with experts in various fields, and Scholastic, which offers video chats with authors.

Kim McLean, a grade four teacher at Glen Hills Middle School in Glendale, WI, has used numerous virtual field trips with her class, including one from Smithsonian Education called *WING-ing It: A Conversation about Flight.* The Smithsonian sent McLean some supporting materials to use with her class in preparation for the field trip, and then McLean’s class used the Internet to talk to experts from the National Air and Space Museum about concepts such as drag and lift and the Bernoulli Principle.

A couple of weeks later, McLean received confirmation of how much her students had learned from the experience when a local librarian used a balloon to demonstrate the Bernoulli Principle to all of the grade four classes. When the librarian asked the students if they knew what had happened with the balloon, every one of McLean’s students raised their hands and said it was Bernoulli Principle, something most of the other grade four students couldn’t do. “They got so much more out of it than just my telling them about it,” said McLean. “We saw it, we lived it, we did it, and then it stuck. I find that kind of teaching really exciting.”

**Do-It-Yourself**

Both McLean and Jones have developed some of their own virtual field trips by contacting experts and setting up online video interactions with students. Jones has so much experience developing her own virtual field trips that she has even developed an online resource to help teachers set up their own.

For teachers who are new to virtual field trips or who don’t have the time or inclination to develop their own, Jones recommends using pre-made ones like those from Discovery Education.

While virtual field trips are a great addition to classroom learning, Jones, Camacho, Eno and McLean all emphasize that they are most effective as a supplement to other learning experiences in the classroom rather than as a standalone. “Don’t take a virtual field trip for the sake of a virtual field trip; make sure it has purpose and meaning for the learning as a whole,” said McLean.

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4 Ways Schools are Overcoming Flipped Learning Equity Challenges

These workarounds are supporting the flipped learning movement off campus and even when digital equity is sparse or non-existent.

THE RACE IS ON TO improve digital equity off campus, but will it happen soon enough for teachers, schools and districts that are using flipped learning in the classroom? Maybe, but in the meantime some of them have found ways to work around the issue and successfully administer flipped learning in K–12.

Closing the ‘Homework Gap’

Growing in popularity among K–12 teachers, flipped learning includes the use of both pre-made online videos and those made by the teachers themselves. While often defined simplistically as “school work at home and home work at school,” flipped learning is an approach that allows teachers to implement a methodology (or various methodologies) in their classrooms, according to the Flipped Learning Network (FLN).

More specifically, FLN defines flipped learning as “a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.”

This pedagogical approach becomes more difficult to administer as students move away from their WiFi-enabled school campuses. According to CoSN’s 2015 Annual E-rate and Infrastructure Survey, three out of four school systems do not have any off-campus strategies for providing connectivity to students at home and after school. Also, 88 percent said affordability was the biggest barrier for families lacking Internet access at home.

Limited service is another barrier, with 42 percent of districts surveyed by CoSN pointing to lack of available broadband service as a problem. “Students who lack Internet access service outside of the traditional school day cannot maximize learning opportunities in a digital environment,” stated CoSN in the report, “the so-called ‘Homework Gap.’”

4 Ways to Overcome Digital Inequity

Here are four ways schools and flipped learning gurus are working around the homework gap and ensuring that digital inequity doesn’t get in the way of learning.

1) Use student-owned iPods or MP4 players. When Jon Bergmann, chief learning officer at FlippedClass.com, began experimenting with flipped learning 10 years ago, he quickly learned that 30 percent of his students lacked high-speed Internet access at home. To get around this challenge, Bermann started uploading videos to student-owned iPods and sending those devices home.

“I would hook them up to my computer and drag and drop my files onto them,” said Bergmann, who added he sees this as a viable solution for teachers who are struggling with the equity issue.

And because these devices come with a lot of memory and operate without Internet connectivity, students can use them while in transit, on the bus to a sports activity or in a home where broadband isn’t available.

“In some cases, even the students who had access at home used their iPods for their portability,” said Bergmann. Today, a 32 GB MP4 player (Price: $35 on Amazon) will do the trick — and for a lot less money than an iPad.

2) Give students time and a place to work.

Chris Geocaris, assistant principal at Warren Township High School in Gurnee, IL, said his district’s diverse student base, which ranges from those who are on free or reduced lunch programs to those who live in multimillion dollar homes, was brought to light during a recent Chromebook implementation. To help even out some of the digital equity issues that surfaced, the school extended its library hours; remodeled the space to include more tables, WiFi access points and collaborative workspaces; and asked teachers to give students ample time (at least 48 hours, in most cases) to get their flipped learning assignments done.

“We make it very easy for our students to get to the library 30 minutes before school starts and during lunch periods and during study halls,” said Geocaris.

3) Train students and teachers on efficient usage.

You can’t always influence a family’s willingness or ability to purchase high-speed Internet access for the home, but you can educate students on the fine points of working with the bandwidth that they do have, said Dan Blevins, instructional technology specialist for Killough Middle School/Alief Independent School District in Houston.

You can also train teachers on how to create content that can be accessed and viewed in a very efficient manner.

Blevins said this two-pronged strategy works particularly well at the middle school level, where students are gaining independence but still lack the maturity to responsibly manage bandwidth usage.

“We teach them the techniques, discipline and responsibility needed to operate under low-bandwidth conditions,” said Blevins. Where a high school senior might have enough experience using technology to be
able to knock out a quick video lesson in 15 minutes, for example, a seventh-grader could take an hour or more to do the same exercise. “To a middle school student, an hour is forever — particular if the Internet isn’t fast enough,” said Blevins, whose team trains teachers on how to look beyond just “creating wonderful lessons on video” and to keep efficiency in mind when developing content. “In some cases a teacher might feel great that she just created a 15-minute video without realizing how much time it’s going to take for a student to view it in a low-bandwidth environment,” said Blevins. “We help them work through these issues to come up with a plan that reaches a broader group of students, whether they have high-speed access or not.”

4) Put flipped learning materials in a central repository. Used by most Warren Township High School’s math teachers and some of its foreign language classes, flipped learning has become an important teaching tool for many of its instructors. But nothing eats up time and bandwidth faster than having to view, download and interact across different online platforms to find the information that you need. To ensure students have a central repository to work from for their flipped learning lessons, the school asks all teachers to use its Canvas learning management system (LMS).

“We started seeing accessibility issues with teachers posting videos in different locations and on different platforms,” Geocaris explained. “Students weren’t finding what they needed and couldn’t do their homework.”

Those challenges eased once all teachers began putting their videos on the LMS.

“In some cases a teacher might feel great that she just created a 15-minute video without realizing how much time it’s going to take for a student to view it in a low-bandwidth environment.”

— Dan Blevins, Killough Middle School.

Now, students log into the system to watch the videos, take quizzes and work on new modules as they are unlocked. “By creating this centralized point of access,” said Geocaris, “we’ve been able to streamline the process and help students more readily access their lessons.”

Bridget McCrea is a business and technology writer in Clearwater, FL. She can be reached at bridgetmc@earthlink.net.
PROJECT-BASED LEARNING

By Bridget McCrea

Hands On with STEM

Just because you’re using a computing device to do something doesn’t make it STEM-friendly. Here’s how to know if your classroom technology is speaking the right language.

ODD LIVESAY WAS amped. An eighth grader in fifth period had just broken the Robertsville Middle School record for building the sturdiest bridge he has ever tested. It was eight inches long, three inches by three inches square and made of one-eighth-inch balsa wood. The structure took her 23 days of classes to design and build using Autodesk Inventor. Up until this moment the record stood at 400 pounds, held by another girl who’s now a senior at Oak Ridge High School. But this student’s assembly remained intact on the Pitsco hydraulic tower tester for a solid 412 pounds. “When that thing went,” said Livesay, “it just exploded all over the room.”

So transpired another school day in one of Livesay’s STEM classes. His district, Oak Ridge Schools, is set in a small town in Tennessee where science, technology, education and math are a way of life. This is the same Oak Ridge that hosts the national laboratory for the United States Department of Energy — that same one in charge of extracting plutonium from uranium used in atomic weaponry during WWII. At one time, claimed Livesay, the town had more Ph.D.s than any other spot on the globe.

Now it has Project Lead the Way, a fee-based bundle of professional development, curriculum and assessments for delivering STEM education in the form of activities, projects and problems, sorted out by bands of grades: K–5, middle school and high school.

When the students walk into one of the seven courses that Livesay oversees as a STEM teacher, they quickly learn one thing: What they do will be hands-on. And that makes the difference between a STEM lesson plan and a traditional lesson plan: the real-life component. As an example, he said, “If you were teaching a lesson on how to figure square footage of a room, it’s just length times width. To make that a STEM lesson, you could have tape measures in the room and after doing stuff on paper, the kids would pick up a tape measure and measure the room and do the calculations. It’s student-centered learning instead of teacher-centered.”

That doing may be researching and building working models of maglev trains or designing and prototyping CubeSats for a project underway with a NASA contact.

While technology is definitely a component of STEM in the classroom, that isn’t defined solely by the use of computers, Livesay noted. It could consist of that tape measure; it could be a tower tester; it could be a dial caliper. “Technology has been around since the wheel. There’s a lot of old technology that’s still very useful.”

The Bonds between STEM and NGSS

And likewise, just because the technology is software, that doesn’t make it STEM-ready. As the manager for STEM education content at Common Sense Education, Danny Wagner is one of the people in charge of figuring out what of the tens of thousands of software programs and apps calling themselves educational really are. Those land on Graphite, a free platform from the nonprofit that rates software for classroom or student use and helps teachers sort through and find just the right program for a given lesson or unit.

When he’s considering whether an app really falls into the STEM category, he looks...
What will your students do next?

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for three things. First, does it challenge the boundaries? “We’re looking for products that recognize that there’s a STEM acronym for a reason. It’s because those subjects can all be interconnected in some way. It may also be looking at a new way that students learn.” Second, does it allow students to ask questions “like scientists or engineers or mathematicians or artists?” Third, is there a place “for students to construct or make meaning about genuine problems or issues?” Layered on top of those, he added, there’s some “subject connection too — very much an engineering/science/math piece.”

Wagner and his team recently launched a new feature in Graphite that will help educators identify the best STEM software that aligns with the Next Generation Science Standards. “STEM and NGSS pair well together,” he observed. “We’re looking at apps and Web sites that can be used with engineering practices — these practices about making models and analyzing information and engaging in arguments.”

The NGSS Explorer, as it’s called, lets the teacher plug in a grade, choose a topic and find the relevant “performance expectations.” An arrow next to each PE directs the user to suggested tools. Each tool list the grades it’s relevant for, the price, the platforms and gives a “Graphite rating,” designated by a specially trained team of reviewers as well as a “Teacher rating,” adjudged by Graphite users.

He and his team have identified 300 NGSS-flavored programs out of Graphite’s collection of 2,500 editorial reviews, with 70 more on tap for tagging this year. What they’ve discovered, however, is that anybody can slap an “NGSS” label on the package — and companies are doing so. “Those are things that we want educators to be wary of,” Wagner cautioned. “Are products designed with traditional standards in mind and now magically say that they’re NGSS-aligned?”

On the other hand, he added, certain “traditional” products that may not speak directly to the intent of NGSS “can still be a part of the puzzle.” Those include whiteboard tools, CAD programs or video editing creation tools.

Wagner’s advice for teachers trying to figure out whether something really fits the STEM mold is to pay attention to what surfaces in the scientific and engineering parts of the science standards: asking questions and defining problems, analyzing and interpreting data, constructing explanations and obtaining and communicating information. “These are all practices that students really should be doing in almost every subject,” he said.

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7 STEM TITLES TO GET YOU STARTED

Danny Wagner, the manager for STEM education content at Common Sense Education, suggested these seven apps and online programs to help your students follow scientific and engineering practices straight from the Next-Generation Science Standards.

**Mosa Mack Science** (grades 4-8), “Part of the NGSS is integrating engineering into teaching, which can be scary to some teachers,” Wagner noted. This program asks students to solve questions. Through solving those, they do inquiry and carry out investigations. From there, they’re given design constraints and a problem to engineer solutions for based on the science they’re doing in class. “That’s really important, that teachers aren’t just tacking on engineering activities randomly in their lessons, that the engineering activities are related to the science that’s going on.”

**ExploreLearning Gizmos** (grades 3-12). This program, said Wagner, “has simulations where students manipulate variables and analyze and interpret data they see as they’re changing those variables.”

**PBS Kids Design Squad Nation** (grades 3-8) and **Freecloud Design Monster Physics** (grades 6-8) both “really get the kids to define their problems and then iterate on those solutions, which is another part of the engineering process,” Wagner said.

**NOVA Labs** (grades 6-12) and **Tuva Labs** (grades 9-12). Wagner said that teachers need to use “as much real data as possible.” These two programs allow students to do just that, “which makes it more interesting [and] more engaging.”

**Curiosity Machine** (grades 2-12). As students are trying to design solutions, they have the ability to talk with an expert in the field. “We want them to be acting like mathematicians and scientists and engineers,” he pointed out.

**STUDENTS: IT’S ABOUT THE DOING**

Ask Livesay’s middle schools about STEM, and they don’t talk about technology; they talk about what they’re doing and how they best learn.

Veda, an eighth grader who had just finished painting her CO₂ dragster, explained that in a “normal” science or math class, “you just write the facts down.” In a STEM class, “instead of just writing them down, you apply them to a project to show what you know.”

And that approach suits her learning style, she added. “People are either audio learners, visual learners or physical learners. And I’m definitely a physical learner. I learn by applying myself and actually doing.”

Seventh grader Jackson insisted that the engineering processes he has been a part of are helping him in his other classes too. “We don’t just build things. We also give presentations and speak to people. We had visitors from South Carolina today, and I was presenting to them.” The process gets you more comfortable about being able to say what you feel and do what you think.”

Sam, a sixth grader, has found that how he’s learning in the STEM course has made it easier for him to understand “how you’d apply that in real life.” His strength, he has discovered, is “the problem-solving part.” “I’m a very hands-on learner,” he said. “It helps me that this class is just that. I’m getting a lot out of it.”
Seal of Privacy: Building a ‘Trusted Learning Environment’

If you take a peek into the classrooms of today, you will see a digital revolution in action. The growing use of technology is not only transforming learning — it is also extending and personalizing the student learning experience. While this e-learning shift holds the promise to accelerate student success, school system leaders are faced with increased responsibility. Chief among those challenges: managing student data and security — and doing so with limited time and resources.

School system leaders are faced with navigating this new digital age terrain at the same time they are working to maximize the potential of student data to personalize learning. In this new reality, school system leaders need guidance to safeguard the privacy of student data. And they need it today.

CoSN’s fourth-annual 2016 K–12 IT Leadership Survey underscored the increased focus school systems are placing on the privacy and security of student data. Nearly two-thirds of IT leaders in the report revealed that student data privacy and security is a greater concern than it was at this time last year. For many school IT leaders, it has jumped to the front burner of their priorities — a big change from 2014, when it ranked among the bottom priorities in school systems.

This heightened challenge comes as no surprise. There are a variety of external and internal factors that have elevated privacy concerns, ranging from highly reported data breaches to a significant amount of state and federal level policy activity. As technology becomes more an intractable part of our daily lives, the public is becoming increasingly aware of possible privacy threats that new technologies can bring.

Within educational walls, parents increasingly expect full transparency regarding not only what student data is being collected and how it is being used, but also what rules are in place to prevent adverse cyber incidents. Existing and emerging regulation at the federal and state levels, including the Family Educational Rights and Privacy Act (FERPA), the Children’s Online Privacy Protection Act (COPPA) and a variety of state laws and district norms provide some guidance. Even with these increasing mandates, schools still lack practical guidance on a broad range of challenges they face in protecting the privacy of student data.

“While there is an abundance of guidance on meeting privacy compliance requirements, CTOs need a practical framework to help address the many privacy challenges that are not addressed by laws,” said Bob Moore, the new chief technology officer for Dallas ISD.

For these reasons, CoSN, the professional association serving school system technology leaders, has developed the Trusted Learning Environment (TLE) Seal for all school systems, and only for school systems.

Collectively formed by national and local education leaders, including 28 school district technology leaders, the voluntary TLE Seal will be a mark of distinction for school systems, signaling to parents and communities that they have taken measurable steps to help protect the digital privacy of student data.

Building on the existing Student Data Principles, the TLE Seal is an all-encompassing national program focused on building transparency and trust. It is the only program to provide school system leaders with the guidance needed to take the meaningful steps to establish an environment of trust and secure student data. School systems that earn the Seal will demonstrate to everyone in and outside the educational community their adherence to effective privacy guidance.

“School systems that are going the extra mile when it comes to protecting student privacy need an objective way to demonstrate that, and parents want reassurance that student data are being protected,” commented Moore.

School system leaders have an opportunity to earn the trust of their communities. The benefits of 21st century, personalized learning depend on their leadership, and we urge all school systems to apply for the TLE Seal at: cosn.org/tle starting May 1, 2016.

Keith Krueger is CEO of the Consortium for School Networking (CoSN), a professional association for district technology leaders. More at cosn.org.
As superintendent of Pennsylvania’s Central York School District, Michael Snell is spearheading an effort to tailor the student experience through mass customized learning and an “ecosystem” that combines technology and in-person interaction while moving away from seat time as a measure of accomplishment. The district is 1-to-1 in grades 4-12 and gives students control over their learning with the help of online curriculum from Odysseyware.

**THE Journal: What sparked you to move in this direction?**

Michael Snell: A few years ago I read the book Inevitable: Mass Customized Learning by Chuck Schwahn and Bea McGarvey, then had our team read it as well. The MCL movement is focused on what is the ideal classroom given that everybody learns at a different rate, has different learning styles, and yet this industrial-based model we’ve found ourselves in for the last 100-plus years is anything but what we know about how kids learn.

**THE Journal: What did you decide was worth keeping from the traditional approach to education?**

Snell: The human element must never go away. Often when a district moves to incorporate more technology there is a reaction that we’re not going to need teachers in the future, and we categorically reject that notion. Mass-customized learning is about voice and choice. There are some kids who learn better through standard industrial-based delivery, if you will, and there are other kids who do better at projects. And wouldn’t it be great to give kids some choice in how they best learn, rather than just focusing on how one best teaches? Everybody in the world customizes for you; public education has to begin to customize as well.

**THE Journal: How are you using technology to drive the curriculum?**

Snell: We’re working very hard with LMSes and other technology that will enable a parent to determine at a moment’s notice exactly where their child is in this 13-year progression from kindergarten to 12th grade. If you think about a high school student working at his or her own pace, why should that learner sit in algebra for 90 days when you can do it in 45? And so we really believe that once you put this 13-year progression into a map with some sort of technological component, you can be transparent and move forward from a curriculum perspective. If parents can GPS their children through their cell phone at any given corner in America, they should know where their child is in this 13-year progression at any given moment.

**THE Journal: You refer to students as learners and teachers as facilitators?**

Snell: When we talk about a student, there is a sense of passively sitting in a nice, neat row, whereas learners are engaged and get up and move and use not only the classroom but our new, transformed library that enables them to communicate and collaborate.... The idea is that you’re not just a student during the day; you learn 24/7. And from the teachers’ perspective, it’s less about standing all day, lecturing, giving a worksheet [and] having the student cramming for a test on Friday before forgetting it and moving on. It’s about facilitating the process in which the learner has some voice and choices, some ownership, and does great work for real-world audiences.

**THE Journal: How has the nature of students’ work changed?**

Snell: We’re in a conversation regarding what are those things our learners should be working on. We have several student-run businesses at the high school so it’s going beyond putting a poster board together, but it’s also about real-world work.

**THE Journal: What evidence of success have you seen?**

Snell: I have been very careful to say that whether a kid has a device or whether we’re mass-customizing the learning environment, I am not so sure that it will translate into improvements in standardized test scores. We certainly want to do well in that area, but we’re preparing our students for the future and not necessarily for rounds of standardized tests. We are gathering data, surveying our learners and parents regarding their experience with school. And we can say without a doubt that when learners have some say in how they learn, that increases engagement and increases learning — and not just the kind of learning where you memorize for the test and move on.
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