

THE FUTURE OF LEARNING IS HERE

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Digital natives grew up
with smartphones.
Now, they're finally getting
smart classrooms.

BY MATT ALDERTON

THE EAR-ASSAILING SOUND OF chalk on a chalkboard. The woody aroma of pencil-sharpener dust. The dog-eared pages of old textbooks. The blinding light of an overhead projector.

These are just a few of the classroom quirks that 21st-century students may never experience. Instead, they'll suffer

through slow download speeds, frozen screens and drained batteries — minor inconveniences that pale in comparison to the promise of digital learning: an experience that's infinitely more interactive, engaging and immersive than analog education.

It may seem light years in the future, »



Dallas Dance, superintendent of Baltimore County Public Schools in Maryland, observes students from Church Lane Elementary using digital resources provided by Discovery Education.

but the transition in many schools is already underway. In fact, spending on computer hardware was up last school year in nearly half (46 percent) of all U.S. school districts, according to market research firm MDR. Collectively, K-12 schools' information technology budgets soared to \$4.7 billion in 2015, reports another firm, IDC Government Insights.

"I would estimate that my classroom is about 95 percent digitally based," says Edward Steinhauser, who teaches at Woodrow Wilson Classical High School in Long Beach, Calif.

"Ed tech" is about much more than whiz-bang devices, agrees Sari Factor, CEO of Edgenuity, a Phoenix-based company that provides online curriculums to schools. "There has been a huge influx of hardware into schools, but you can't just put a bunch of laptops in the classroom and say, 'Go for it,'" she says. "Using technology in education takes work."

COOL CLASSROOMS

In 2010, Florida's Sarasota County Schools began transitioning to "classrooms of tomorrow" known as TechActive classrooms. According to the school district, it's so far transformed 224 middle-school classrooms, including all those for math and science and approximately half of those dedicated to language arts and

social studies

Instead of individual desks and blackboards, TechActive classrooms feature U-shaped workstations designed for small-group collaboration. At each is a touchscreen computer where students can gather to solve math problems or scrutinize data and images broadcast by wireless graphing calculators and digital microscopes.

"It's all about peer collaboration and communication," explains Joe Binswanger, director of information technology for Sarasota County schools.

"When you use technology for technology's sake, it ends up on the shelf pretty quickly. But when you use it to complement strong instruction, it becomes an intricate part of the day-to-day lesson."

TECHNOLOGICAL TRIUMPHS

When technology is coupled with instructional design, the benefits are numerous, according to former West Virginia Gov. Bob Wise, president of the nonprofit Alliance for Excellent Education, whose "Future Ready Schools" framework helps schools implement digital learning opportunities. In 2014, the organization sponsored an analysis of more than 70 recent studies on technology-supported learning and concluded that the right mix of technology and instruction in »

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classrooms can decrease behavioral problems as well as improve high school graduation and college acceptance rates.

Wise attributes the positive outcomes to personalized learning. In social studies, for instance, students studying Dr. Martin Luther King Jr. can click a link and watch a video of his “I Have a Dream” speech while reading about it.

“There’s a wide variety of multimedia that can bring courses to life with real-world examples that make things relevant for kids,” Factor says. “It keeps students engaged, and engagement is the key.”

SYSTEM ERRORS

Ed tech isn’t without flaws. Skeptics worry about the diminishment of teachers.

“There’s certainly a fear with technology that we won’t need teachers, but that couldn’t be further from the truth,” Factor says. “There’s some things a computer does really well, like gathering data and giving immediate feedback, but a computer can’t tell if a student got a bad score because he’s having a bad day, because he didn’t get enough sleep or because there’s a problem at home. ... It’s the blending of what teachers do well with what computers do well that’s really powerful.”

Then there’s the cost, which in some cases has created a “digital divide” between wealthy and disadvantaged school districts.

The Federal Communications Commission’s (FCC) E-rate program has helped by giving disadvantaged schools deep discounts — as much as 90 percent off — on high-speed Internet service.

“Last year, the FCC expanded the amount of E-rate’s funding (by \$1.5 billion to \$3.9 billion a year),” Wise says. “The result is that within five years, 99 percent

of all classrooms in this country will now have access to high-speed broadband.”

Another FCC program, Lifeline, targets the “homework gap.”

“A lot of kids don’t have Internet access at home; we’ve got to figure out how they can get it so they can continue learning at home,” Wise says. “Lifeline is a program targeted to low-income families, who (under new FCC rules) are eligible to apply for assistance to pay for Internet access at home.”

TEACHING THE FUTURE

Concerns are real. But so are the opportunities — not the least of which is improved digital literacy, according to Cliff Green, vice president of education and strategic partnerships at digital curriculum provider Learning.com and treasurer of the Partnership for 21st Century Learning (P21), a nonprofit dedicated to advancing digital learning in schools.

“Millennials spend 35 hours a week consuming digital content, but 58 percent of them have low technology skills,” says Green, citing a 2015 study of 16- to 34-year-olds by STEM-literacy organization Change the Equation. “We see kids as digital natives, so we assume — wrongly so — that they’re digitally literate. The truth is, they know how to swipe, but they don’t know how to type, and those are skills they need to be successful (in the workforce).”

History teacher Steinhauer agrees. Along with historical facts, he makes a point of teaching computing skills like finding and vetting credible online information sources.

“We live in the 21st century. If we continue to teach like it’s 1950, we’re not doing the job at schools that we’re supposed to be doing.” ●

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JOE BINSWANGER, DIRECTOR OF INFORMATION TECHNOLOGY FOR SARASOTA COUNTY (FLA.) SCHOOLS

Schoolroom tech tools

Three next-gen tools that promise to change education for the better:



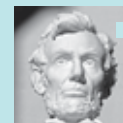
Google Expeditions

Students use smartphones and virtual reality viewers to explore 360-degree environments such as the bottom of the ocean or the surface of Mars. google.com/expeditions



Digital textbooks

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3-D explorations

The Smithsonian Institution’s Slx3D program offers digital 3-D models of some of its most important artifacts to be viewed online or downloaded and printed on a 3-D printer. 3d.si.edu

— Matt Alderton