

# Schools Pushed for Tech in Every Classroom. Now Parents Are Pushing Back.

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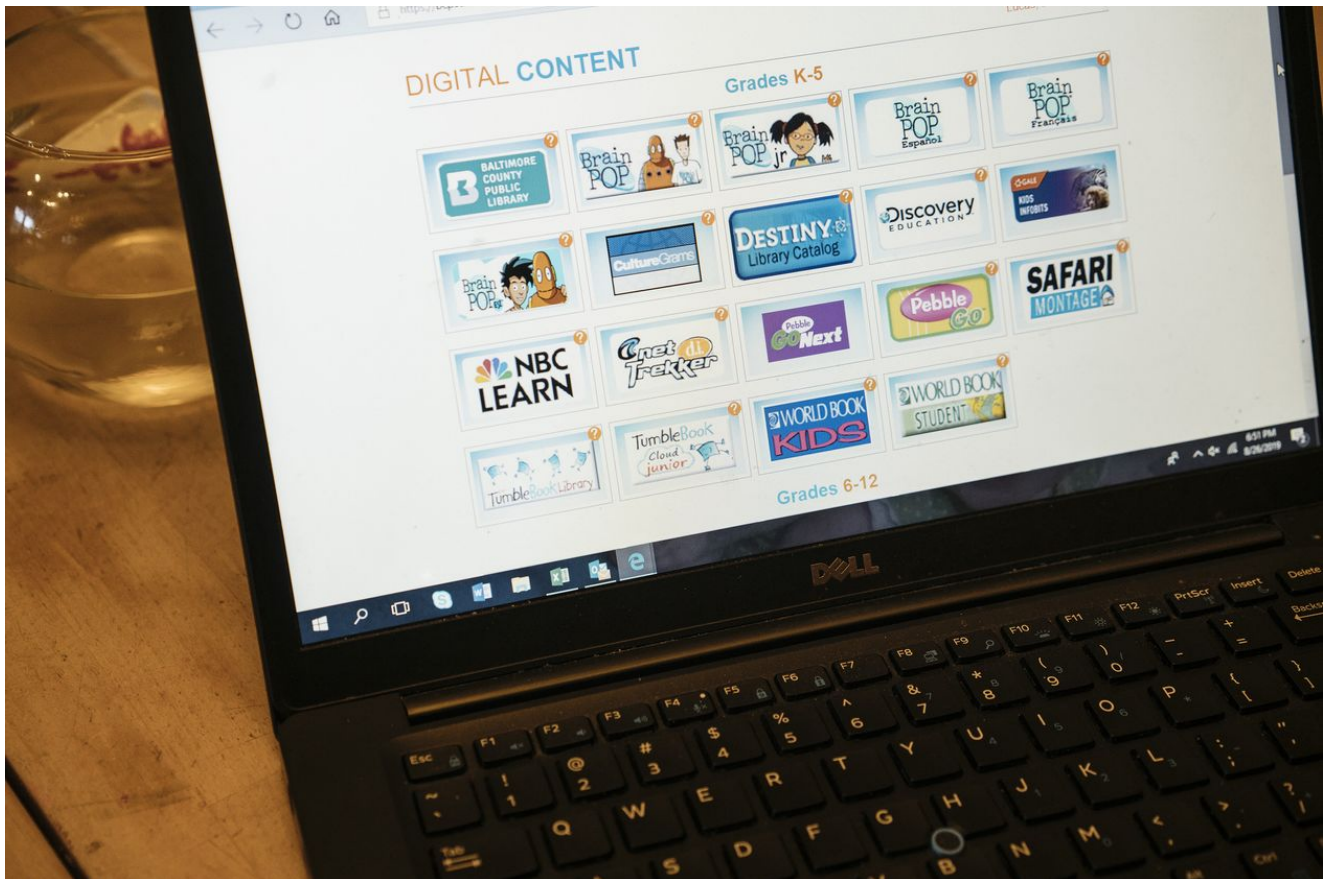
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When Baltimore County, Md., public schools began going digital five years ago, textbooks disappeared from classrooms and paper and pencils were no longer encouraged. All students from kindergarten to 12th grade would eventually get a laptop, helping the district reach the “one-to-one” ratio of one for each child that has become coveted around the country. Teaching apps and digital courses took the place of flashcards and notebooks.

Despite the investment, academic results have mostly slipped in the district of about 115,000 students.

Over the last decade, American schools embraced technology, spending millions of dollars on devices and apps, believing its disruptive power would help many children learn faster, stay in school and be more prepared for a competitive economy. Now many parents and teachers are starting to wonder if all the disruption was a good idea.



Baltimore County public schools began going digital five years ago, with students from kindergarten to 12th grade getting laptops. Photo: Greg Kahn for The Wall Street Journal

Technology has made it easier for students and teachers to communicate and collaborate. It engages many students and allows them to learn at their own pace. But early indications are that tech isn't a panacea for education. Researchers at Rand Corp. and elsewhere say there is no clear evidence showing which new tech-related education offerings or approaches work in schools.

The uncertainty is feeding alarm among some parents already worried about the amount of time their children spend attached to digital devices. Some believe technology is not doing much to help their kids learn, setting up a clash with tech advocates who say technology is the future of education.

Across the country—in Boston, Fort Wayne, Ind., and Austin, Texas—parents are demanding proof technology works as an educational tool, and insisting on limits. They're pushing schools to offer low- or screen-free classrooms, picketing board meetings to protest all the online classes and demanding more information about what data is collected on students.

In April, a report from the National Education Policy Center, a nonpartisan research group at the University of Colorado at Boulder, found the rapid adoption of the mostly proprietary technology in education to be rife with “questionable educational assumptions . . . self-

interested advocacy by the technology industry, serious threats to student privacy and a lack of research support.”

Proponents say schools must have technology. “We are moving into a time of exponential change,” says Keith Krueger, CEO of Consortium for School Networking, an association for school tech officers that also includes tech companies. “Schools are not at the leading edge of technology but technology is reaching a tipping point in the way learning happens.” He says, “Schools need to determine how to equip [students] to be smart digital citizens.”

Earlier this year, Cynthia Boyd, watched as her daughter, Jane, then a Baltimore County first-grader, poked at a keyboard on a family laptop in response to math problems on the screen, part of her public school’s math class. (She had a laptop assigned to her by the school, but first-graders don’t bring them home.) An interactive program delivered an image of a token on the screen when she completed an assignment. She could then trade in those tokens to play games.

To Dr. Boyd, a professor of medicine at Johns Hopkins, it looks more like a videogame than a math class. She isn’t sure if the lessons are sticking with Jane and worries about the hyper-stimulating screen time.

“I feel like my kids have been part of a huge massive experiment I have no control over,” says Dr. Boyd, who also has two sons aged 13 and 15. Liam, the younger son, began learning on screens three years ago and Graham, the older son, began learning on them four years ago.

There is a role for technology in school, she says, but it is a matter of how much and at what age. She has seen the benefits: Her younger son learned how to type, as well as the basics of computer programming and the logic involved. Tech allowed her oldest son to build a website for a history project and enabled him to learn how to use online original documents from the Library of Congress.

*How important do you think technology is in school?* Join the conversation below.

Baltimore County’s latest results on state standardized tests, released last week, were so disappointing they prompted a letter to parents from the district’s new school superintendent, Darryl Williams. In English language arts and math, “far too few of our students are meeting or exceeding expectations. ...We can and must do better,” he wrote.

About 37% of the county’s students in grades 3-8 were proficient in English language arts, compared with about 44% statewide. In math, about 27% of the students were proficient, compared with 33% statewide.



Dr. Williams wasn't available for comment. A school district spokesman said Dr. Williams and his academic team will be closely evaluating what role, if any, the laptop program has played in the district's performance.

Baltimore County said earlier this year it would scale back the ratio of laptops in first and second grades to one for every five students. A few miles away, in Montgomery County, a new curriculum this fall will return textbooks, paper and pencils to the classroom to supplement laptops.

In both cases, school officials say they were responding, in part, to parents and teachers. Baltimore County's early-learning teachers said they didn't need so many laptops. Parents wanted their children to "have a mixed media experience touching paper and reading books and down on the carpet without a device in their hands," said Ryan Imbriale, who heads the school district's department of innovative learning.



Teachers at an elementary school in Montgomery County, Md. Photo: Greg Kahn for The Wall Street Journal

In Montgomery County, which was due for a curriculum change, "we heard loud and clear from parents," said Dr. Maria Navarro, Chief Academic Officer. Among other things, "they are very concerned about the amount of screen time" in school.

Technology is a useful part of learning, Dr. Navarro says. It is especially effective when it

allows aspiring engineers and architects to build simulations in a high-school drafting class, for instance, or non-native English speakers to get an instant translation by touching a word in their reading assignment. "The question is what's the best use of this tool," she says, "and what's the right quality and quantity."

Montgomery County schools improved in nearly all categories in the results released last week, with average gains better than those seen statewide for students in grades 3 through 8.

Technology certainly helps solve some big problems. At a time when all 50 states report teacher shortages, instructors are being live-streamed into classrooms to remotely fill vacancies in about 180 school districts. In places such as Hot Springs, Va., Alphabet Inc. 's Google has wired school buses, turning them into rolling study halls for students with long commutes and sometimes patchy or nonexistent Wi-Fi at home. Google says the program, a pilot which is in 15 school districts in 13 states, will be funded at least through the end of this school year.

Tech-enabled "flipped learning" is growing rapidly, embraced by many educators as a more efficient use of time. It mainly calls for students to watch taped lectures online at night and apply the new knowledge the next day, eliminating using class time to teach full lessons, allowing students to get right to work. Flipped learning is expected to be a \$2.4 global billion business next year, compared with less than \$500 million in 2015, according to a recent study from technavio.com, a market research firm.



Google has wired school buses in some districts so students can use the internet on long commutes. Photo: Jason Lappa for The Wall Street Journal

The widespread prevalence of technology in American schools, often known for changing at a glacial pace, has been jarring for large numbers of parents, teachers and administrators—many of whom were big proponents just a few years ago.

The school devices are undermining parents' struggle to limit screen time. They say their children find ways at school to bypass their schools' internet filters and can find their way onto YouTube exposing them to X-rated and violent content. They can kill time in class by shopping online or playing games.

It was just eight years ago that President Obama signaled in his State of the Union Address that he envisioned U.S. students reading digital textbooks; soon after, his administration set a five-year goal. The call was hardly controversial; it was premised on the widespread belief that digital innovations would boost graduation rates, help close the persistent socio-economic achievement gap and keep American students from falling behind their peers in other countries.

The Trump administration's Education Secretary Betsy DeVos is a proponent, saying in a statement "When applied appropriately, technology in the classroom opens up a world of possibilities for students."

Device usage in schools is rising. A 2018 report by the Consortium for School Networking found 59% of high schools reported that all of their students had access to non-shared devices, compared with 53% the year prior. Middle schools reported 63% of all students had access from 56%. Elementary use was at 29% from 25%. In some cases, schools provide the devices and in others, students bring their own.

Alphabet Inc.'s Google has 60% of the school device market; Apple Inc. and Microsoft Corp. split the rest about equally, according to Futuresource Consulting, a market research and data analytics firm.

The digital push coincided with the rise in enthusiasm for personalized learning. Championed by advocates including the Bill and Melinda Gates Foundation, the tailored-to-the-child approach is designed to allow students to learn according to their needs and interests—at their own pace and often not in sync with classmates.

The flexibility is made possible by individually assigned laptops and tens of thousands of new digital learning programs.

“Technology is one tool—an extremely promising one if we use it well. But we have to be clear-eyed,” says Robert L. Hughes, who directs U.S. K-12 Education for the Gates foundation. He says there is still “wide variation” in performance—between classrooms, schools and districts using technology to personalize learning. “It is the very early days.”

Mr. Gates has indicated problems are to be expected in the early stages of educational software development. “The stand-alone textbook is becoming a thing of the past,” he wrote in the foundation’s annual letter in February. What happens next? “The same basic cycle you go through for all software: get lots of feedback on the existing products, collect data on what works and make them better,” he wrote.

A foundation spokesman said Mr. Gates wasn’t available to comment.

Silicon Valley’s biggest names, including Facebook Inc. Chief Executive Mark Zuckerberg, Netflix Inc. Chief Executive Reed Hastings and Steve Jobs ’s widow, Laurene Powell Jobs, have also invested in their own efforts to apply technology to improve education.

The individualized learning approach assumes that if given choices and goals, children will stay motivated to do their best. Some parents say that is asking a lot of many kids.

“Put screens in front of children and they aren’t thinking ‘I can’t wait to do research,’ they’re thinking, ‘Let’s play Candy Crush,’” says Melanie Hempe, a Charlotte, N.C., mother and author of a book for parents who want to limit computer use called “Screen Strong.”



Meaghan Edwards, an Austin-area mother, volunteered to read to her son's third-grade class last year. After 15 minutes, she says the teacher announced: "It's free time, you can pull out your iPads until lunch," she recalls. Ms. Edwards watched while her child played a math game on his school-issued iPad. This year, she's going to home-school her two sons to avoid the iPads.



Jane Lucas, with her mother, Cynthia Boyd, in Maryland. Photo: Greg Kahn for The Wall Street Journal

Maryland is one of the states grappling most aggressively with how to calibrate the role of technology in schools, this summer requiring officials to create a set of best practices for devices in the classroom. About half the guidelines address health issues like proper ergonomics and eye safety. Others remind teachers to promote student collaboration and reward good behavior with social and physical activity—not more screen time.

Many teachers support using technology broadly, but are concerned over whether it is being used too much or in the right way.

Diane Birdwell, a world history teacher in Dallas, said when she allowed students to use devices, they were not only distracted by pop-up alerts but didn't retain information or comprehend as well when reading it on paper.

"It has hampered their ability to think on their own," said Ms. Birdwell, a 58-year-old teacher



of 20 years. “They don’t know how to calculate basic math functions in their minds. They are being mentally crippled by these things.”

Florence Kao, a Montgomery County, Md., lawyer, says that since third grade, her two sons have been using Google Slides, part of Google’s office suite, for their projects. They are now PowerPoint design experts, she says, picking colors, fonts, background images and deciding whether to put each slide in a bubble or a frame. “The ratio of time they spend writing on each slide compared with embellishing it is probably 10% to 90%,” she says. She wonders how well they’re learning to write.



Lisa Menter, a first-grade teacher, prepares her classroom in Montgomery County, Md.  
Photo: Greg Kahn for The Wall Street Journal

Montgomery County schools have roughly 1,000 apps, digital curriculum offerings and other online tools that teachers have chosen to use. Until recently, there was no process in place to evaluate if they meet privacy requirements and are used only for educational purposes, among other things, according to the district. That number is about average nationwide, says Amelia Vance, director of the Education Privacy Project at the Future of Privacy Forum.

Some Montgomery County parents formed a Safe Tech Committee that now meets with the district’s chief tech officer, Pete Cevenini to report problem apps and share other concerns. He has set up a protocol for teachers and administrators to vet apps. As the start of the

school year approaches, 22% have been vetted.

A report from Rand Corp. in October cited a lack of rigorous evidence showing which new education practices and tools are effective, saying the offerings are “relatively immature, fragmented and of uneven quality.” In a peer-reviewed article, the research firm described strategies to guide teachers and administrators “in the absence of proven-effective models.”

Dr. Boyd, the Johns Hopkins professor, says all her children have been frustrated by digital courses. Liam didn’t have a textbook to accompany a science class. Eventually, Jane’s math program wouldn’t let her advance and win more tokens and games.



Jane Lucas, 7, sews with her mother, Cynthia Boyd, while her brothers, Graham, 15, and Liam, 13, far right, play a game. Photo: Greg Kahn for The Wall Street Journal

Graham was a year ahead in math when he was in sixth grade. But his math program couldn’t evaluate how well he was able to work out problems on scratch paper. An algorithmic program sent him back to fourth-grade for some skills to relearn material he had learned long before. Graham began “to think math was awful,” Dr. Boyd recalls.

Her sons have since switched to private schools where the curriculum is less technology intensive. She is glad Jane’s school district is re-evaluating and making changes.

At a gathering at a Panera in Rockville, Md., parents shared worries about how technology is impacting their children's abilities to learn. One mother said her four children "think it is just so humorous they would put a toy in the classroom," referring to the laptops. "Even a child knows that it is silly."

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