

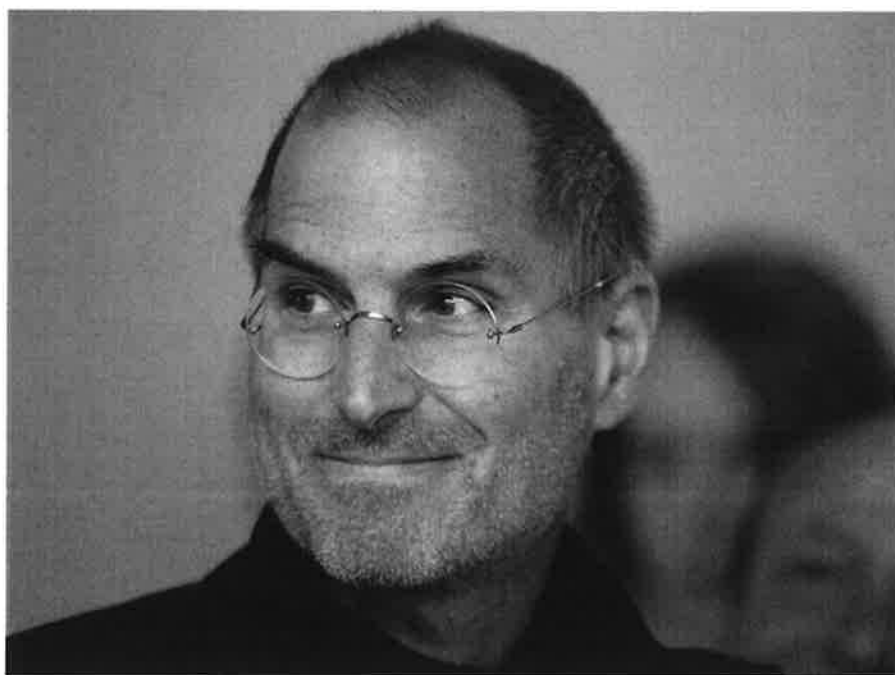
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Bill Gates and Steve Jobs raised their kids tech-free — and it should've been a red flag

Chris Weller Jan. 10, 2018, 3:27 PM



Seth Wenig / Reuters

- **Interviews with Bill Gates, Steve Jobs, and other tech elites consistently reveal that Silicon Valley parents are strict about technology use.**
- **A new book suggests the signs may have been clear years ago that smartphone use should be regulated.**

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Psychologists are quickly learning how dangerous smartphones can be for teenage brains.

Research has found that an eighth-grader's risk for depression jumps 27% when he or she frequently uses social media. Kids who use their phones for at least three hours a day are much more likely to be suicidal. And recent research has found the teen suicide rate in the US now eclipses the homicide rate, with smartphones as the driving force.

But the writing about smartphone risk may have been on the wall for roughly a decade, according to educators Joe Clement and Matt Miles, coauthors of the recent book "Screen Schooled: Two Veteran Teachers Expose How Technology Overuse is Making Our Kids Dumber."

It should be telling, Clement and Miles argue, that the two biggest tech figures in recent history — Bill Gates and Steve Jobs — seldom let their kids play with the very products they helped create.

"What is it these wealthy tech executives know about their own products that their consumers don't?" the authors wrote. The answer, according to a growing body of evidence, is the addictive power of digital technology.

'We limit how much technology our kids use at home'

In 2007, Gates, the former CEO of Microsoft, implemented a cap on screen time when his daughter started developing an unhealthy attachment to a video game. He also didn't let his kids get cell phones until they turned 14. (Today, the average age for a child getting their first phone is 10.)

Jobs, who was the CEO of Apple until his death in 2012, revealed in a 2011 New York Times interview that he prohibited his kids from using the newly-released iPad. "We limit how much technology our kids use at home," Jobs told reporter Nick Bilton.

In a recent interview on the online news channel Cheddar, iPod co-creator Tony Fadell speculated that if Steve Jobs were alive today, he'd want to address growing societal concerns about tech addiction. "He'd say, 'Hey we need to do something about it,'" Fadell said.

Bill Gates wouldn't allow his children to have cell phones until they turned 14, fearing the effects of too much screen time.

Shutterstock Rex for EEM

In "Screen Schooled," Clement and Miles make the case that wealthy Silicon Valley parents seem to grasp the addictive powers of smartphones,

tablets, and computers more than the general public does — despite the fact that these parents often make a living by creating and investing in that technology.

"It's interesting to think that in a modern public school, where kids are being required to use electronic devices like iPads," the authors wrote, "Steve Jobs's kids would be some of the only kids opted out."

Jobs' children have finished school, so it's impossible to know how the late Apple cofounder would have responded to education technology, or "edtech." But Clement and

Miles suggest that if Jobs' kids had attended the average US school today, they'd have used tech in the classroom far more than they did at home while growing up.

That's at the average school at least, according to the coauthors. A number of specialty Silicon Valley schools, such as the Waldorf School, are noticeably low-tech. They use chalkboards and No. 2 pencils. Instead of learning how to code, kids are taught the soft skills of cooperation and respect. At Brightworks School, kids learn creativity by building things and attending classes in treehouses.

Edtech won't be a 'cure all'

If there is any concession Gates has made on technology, it's in the benefits it offers students in certain educational settings. In the years since Gates implemented his household policy, the billionaire philanthropist has taken a keen interest in personalized education, an approach that uses electronic devices to help tailor lesson plans for each student.

In a recent blog post, Gates celebrated Summit Sierra, a Seattle-based school that takes students' personal goals — like getting into a specific college — and devises a path to get there. Teachers in personalized learning settings take on more of a coaching role, helping to nudge students back on track when they get stuck or distracted.

Technology in these cases is being used as specifically as possible — and in ways Gates recognizes as useful for a student's development, not as entertainment.

"Personalized learning won't be a cure-all," he wrote. But Gates said he's "hopeful that this approach could help many more young people make the most of their talents."

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The Digital Gap Between Rich and Poor Kids Is Not What We Expected

America's public schools are still promoting devices with screens — even offering digital-only preschools. The rich are banning screens from class altogether.

By Nellie Bowles

Oct. 26, 2018

The parents in Overland Park, Kan., were fed up. They wanted their children off screens, but they needed strength in numbers. First, because no one wants their kid to be the lone weird one without a phone. And second, because taking the phone away from a middle schooler is actually very, very tough.

“We start the meetings by saying, ‘This is hard, we’re in a new frontier, but who is going to help us?’” said Krista Boan, who is leading a Kansas City-based program called START, which stands for Stand Together And Rethink Technology. “We can’t call our moms about this one.”

For the last six months, at night in school libraries across Overland Park, a suburb of Kansas City, Mo., about 150 parents have been meeting to talk about one thing: how to get their children off screens.

It wasn't long ago that the worry was that rich students would have access to the internet earlier, gaining tech skills and creating a digital divide. Schools ask students to do homework online, while only about two-thirds of people in the U.S. have broadband internet service. But now, as Silicon Valley's parents increasingly panic over the impact screens have on their children and move toward screen-free lifestyles, worries over a new digital divide are rising. It could happen that the children of poorer and middle-class parents will be raised by screens, while the children of Silicon Valley's elite will be going back to wooden toys and the luxury of human interaction.

This is already playing out. Throwback play-based preschools are trending in affluent neighborhoods — but Utah has been rolling out a state-funded online-only preschool, now serving around 10,000 children. Organizers announced that the screen-based preschool effort would expand in 2019 with a federal grant to Wyoming, North Dakota, South Dakota, Idaho and Montana.

Lower-income teenagers spend an average of eight hours and seven minutes a day using screens for entertainment, while higher income peers spend five hours and 42 minutes, according to research by Common Sense Media, a nonprofit media watchdog. (This study counted each screen separately, so a child texting on a phone and watching TV for one hour counted as two hours of screens being used.) Two studies that look at race have found that white children are exposed to screens significantly less than African-American and Hispanic children.

And parents say there is a growing technological divide between public and private schools even in the same community. While the private Waldorf School of the Peninsula, popular with Silicon Valley executives, eschews most screens, the nearby public Hillview Middle School advertises its 1:1 iPad program.

The psychologist Richard Freed, who wrote a book about the dangers of screen-time for children and how to connect them back to real world experiences, divides his time between speaking before packed rooms in Silicon Valley and his clinical practice with low-income families in the far East Bay, where he is often the first one to tell parents that limiting screen-time might help with attention and behavior issues.

“I go from speaking to a group in Palo Alto who have read my book to Antioch, where I am the first person to mention any of these risks,” Dr. Freed said.

He worries especially about how the psychologists who work for these companies make the tools phenomenally addictive, as many are well-versed in the field of persuasive design (or how to influence human behavior through the screen). Examples: YouTube next video autoplays; the slot machine-like pleasure of refreshing Instagram for likes; Snapchat streaks.

“The digital divide was about access to technology, and now that everyone has access, the new digital divide is limiting access to technology,” said Chris Anderson, the former editor of Wired magazine.

Technology Is a Huge Social Experiment on Children

Some parents, pediatricians and teachers around the country are pushing back.

“These companies lied to the schools, and they’re lying to the parents,” said Natasha Burgert, a pediatrician in Kansas City. “We’re all getting duped.”

“Our kids, my kids included, we are subjecting them to one of the biggest social experiments we have seen in a long time,” she said. “What happens to my daughter if she can’t communicate over dinner — how is she going to find a spouse? How is she going to interview for a job?”

“I have families now that go teetotal,” Dr. Burgert said. “They’re like, ‘That’s it, we’re done.’”

One of those families are the Brownsbergers, who had long banned smartphones but recently also banned the internet-connected television.

“We took it down, we took the TV off the wall, and I canceled cable,” said Rachael Brownsberger, 34, the mother of 11- and 8-year old boys. “As crazy as that sounds!”

More on the new digital divide



A Dark Consensus About Screens and Kids Begins to Emerge in Silicon Valley

“I am convinced the devil lives in our phones.”

Oct. 26, 2018



Silicon Valley Nannies Are Phone Police for Kids

Child care contracts now demand that nannies hide phones, tablets, computers and TVs from their charges.

Oct. 26, 2018

She and her husband, who runs a decorative concrete company, keep their children away from cellphones but found that even a little exposure to screen time changed the boys' behavior. Her older son, who has A.D.H.D., would get angry when the screen had to be turned off, she said, which worried her.

His Christmas wish list was a Wii, a PlayStation, a Nintendo, a MacBook Pro and an iPhone.

“And I told him, ‘Kiddo, you’re not gonna get one of those things,’” Ms. Brownsberger said. “Yeah, I’m the mean mom.”

But one thing has made it easier: Others in what she described as a rural neighborhood outside Kansas City are doing the same thing.

“It takes a community to support this,” she said. “Like I was just talking to my neighbor last night — ‘Am I the worst mom ever?’”

Ms. Boan has three pilots running with about 40 parents in each, looking at best practices for getting kids off phones and screens. Overland Park’s Chamber of Commerce is supporting the work, and the city is working to incorporate elements of digital wellness into its new strategic vision.

“The city planner and the chamber of commerce said to us, ‘We’ve seen this impact our city,’” Ms. Boan said. “We all want our kids to be independent, self-regulated device users, but we have to equip them.”

The Privilege of Choices

In Silicon Valley, some feel anxious about the growing class divide they see around screen-time.

Kirstin Stecher and her husband, who works as an engineer at Facebook, are raising their kids almost completely screen-free.

“Is this coming from a place of information — like, we know a lot about these screens,” she said. “Or is it coming from a place of privilege, that we don’t need them as badly?”

“There’s a message out there that your child is going to be crippled and in a different dimension if they’re not on the screen,” said Pierre Laurent, a former Microsoft and Intel executive now on the board of trustees at Silicon Valley’s Waldorf School. “That message doesn’t play as well in this part of the world.”

“People in this region of the world understand that the real thing is everything that’s happening around big data, AI, and that is not something that you’re going to be particularly good at because you have a cellphone in fourth grade,” Mr. Laurent said.

As those working to build products become more wary, the business of getting screens in front of kids is booming. Apple and Google compete ferociously to get products into schools and target students at an early age, when brand loyalty begins to form.

Google published a case study of its work with the Hoover City, Ala., school district, saying technology equips students “with skills of the future.”

The company concluded that its own Chromebooks and Google tools changed lives: “The district leaders believe in preparing students for success by teaching them the skills, knowledge, and behaviors they need to become responsible citizens in the global community.”

Dr. Freed, though, argues these tools are too relied upon in schools for low-income children. And he sees the divide every day as he meets tech-addicted children of middle and low-income families.

“For a lot of kids in Antioch, those schools don’t have the resources for extracurricular activities, and their parents can’t afford nannies,” Dr. Freed said. He said the knowledge gap around tech’s danger is enormous.

Dr. Freed and 200 other psychologists petitioned the American Psychological Association in August to formally condemn the work psychologists are doing with persuasive design for tech platforms that are designed for children.

“Once it sinks its teeth into these kids, it’s really hard,” Dr. Freed said.

Nellie Bowles covers tech and internet culture. Follow her on Twitter: @nelliebowles

A Dark Consensus About Screens and Kids Begins to Emerge in Silicon Valley

“I am convinced the devil lives in our phones.”

By Nellie Bowles

Oct. 26, 2018

SAN FRANCISCO — The people who are closest to a thing are often the most wary of it. Technologists know how phones really work, and many have decided they don't want their own children anywhere near them.

A wariness that has been slowly brewing is turning into a regionwide consensus: The benefits of screens as a learning tool are overblown, and the risks for addiction and stunting development seem high. The debate in Silicon Valley now is about how much exposure to phones is O.K.

“Doing no screen time is almost easier than doing a little,” said Kristin Stecher, a former social computing researcher married to a Facebook engineer. “If my kids do get it at all, they just want it more.”

Ms. Stecher, 37, and her husband, Rushabh Doshi, researched screen time and came to a simple conclusion: they wanted almost none of it in their house. Their daughters, ages 5 and 3, have no screen time “budget,” no regular hours they are allowed to be on screens. The only time a screen can be used is during the travel portion of a long car ride (the four-hour drive to Tahoe counts) or during a plane trip.

Recently she has softened this approach. Every Friday evening the family watches one movie.

More about kids and screens



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Oct. 26, 2018



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There is a looming issue Ms. Stecher sees in the future: Her husband, who is 39, loves video games and thinks they can be educational and entertaining. She does not.

“We’ll cross that when we come to it,” said Ms. Stecher, who is due soon with a boy.

Some of the people who built video programs are now horrified by how many places a child can now watch a video.

Asked about limiting screen time for children, Hunter Walk, a venture capitalist who for years directed product for YouTube at Google, sent a photo of a potty training toilet with an iPad attached and wrote: “Hashtag ‘products we didn’t buy.’”



Kristin Stecher, a former social computing researcher married to a Facebook engineer in Menlo Park, Calif., said their daughters, ages 5 and 3, have no screen time “budget,” no regular hours they are allowed to be on screens. Peter Prato for The New York Times

Athena Chavarria, who worked as an executive assistant at Facebook and is now at Mark Zuckerberg’s philanthropic arm, the Chan Zuckerberg Initiative, said: “I am convinced the devil lives in our phones and is wreaking havoc on our children.”

Ms. Chavarria did not let her children have cellphones until high school, and even now bans phone use in the car and severely limits it at home.

She said she lives by the mantra that the last child in the class to get a phone wins. Her daughter did not get a phone until she started ninth grade.

“Other parents are like, ‘Aren’t you worried you don’t know where your kids are when you can’t find them?’” Ms. Chavarria said. “And I’m like, ‘No, I do not need to know where my kids are every second of the day.’”

For longtime tech leaders, watching how the tools they built affect their children has felt like a reckoning on their life and work.

Among those is Chris Anderson, the former editor of Wired and now the chief executive of

a robotics and drone company. He is also the founder of GeekDad.com.

“On the scale between candy and crack cocaine, it’s closer to crack cocaine,” Mr. Anderson said of screens.

Technologists building these products and writers observing the tech revolution were naïve, he said.

“We thought we could control it,” Mr. Anderson said. “And this is beyond our power to control. This is going straight to the pleasure centers of the developing brain. This is beyond our capacity as regular parents to understand.”

He has five children and 12 tech rules. They include: no phones until the summer before high school, no screens in bedrooms, network-level content blocking, no social media until age 13, no iPads at all and screen time schedules enforced by Google Wifi that he controls from his phone. Bad behavior? The child goes offline for 24 hours.

“I didn’t know what we were doing to their brains until I started to observe the symptoms and the consequences,” Mr. Anderson said.

“This is scar tissue talking. We’ve made every mistake in the book, and I think we got it wrong with some of my kids,” Mr. Anderson said. “We glimpsed into the chasm of addiction, and there were some lost years, which we feel bad about.”

His children attended private elementary school, where he saw the administration introduce iPads and smart whiteboards, only to “descend into chaos and then pull back from it all.”

This idea that Silicon Valley parents are wary about tech is not new. The godfathers of tech expressed these concerns years ago, and concern has been loudest from the top.

Tim Cook, the C.E.O. of Apple, said earlier this year that he would not let his nephew join social networks. Bill Gates banned cellphones until his children were teenagers, and Melinda Gates wrote that she wished they had waited even longer. Steve Jobs would not let his young children near iPads.

But in the last year, a fleet of high-profile Silicon Valley defectors have been sounding alarms in increasingly dire terms about what these gadgets do to the human brain. Suddenly rank-and-file Silicon Valley workers are obsessed. No-tech homes are cropping up across the region. Nannies are being asked to sign no-phone contracts.

Those who have exposed their children to screens try to talk them out of addiction by explaining how the tech works.

John Lilly, a Silicon Valley-based venture capitalist with Greylock Partners and the former C.E.O. of Mozilla, said he tries to help his 13-year-old son understand that he is being manipulated by those who built the technology.

“I try to tell him somebody wrote code to make you feel this way — I’m trying to help him understand how things are made, the values that are going into things and what people are doing to create that feeling,” Mr. Lilly said. “And he’s like, ‘I just want to spend my 20 bucks to get my Fortnite skins.’”

And there are those in tech who disagree that screens are dangerous. Jason Toff, 32, who ran the video platform Vine and now works for Google, lets his 3-year-old play on an iPad, which he believes is no better or worse than a book. This opinion is unpopular enough with his fellow tech workers that he feels there is now “a stigma.”

“One reaction I got just yesterday was, ‘Doesn’t it worry you that all the major tech execs are limiting screen time?’” Mr. Toff said. “And I was like, ‘Maybe it should, but I guess I’ve always been skeptical of norms.’ People are just scared of the unknown.”

“It’s contrarian,” Mr. Toff said. “But I feel like I’m speaking for a lot of parents that are afraid of speaking out loud for fear of judgment.”

He said he thinks back to his own childhood growing up watching a lot of TV. “I think I turned out O.K.,” Mr. Toff said.

Other Silicon Valley parents say there are ways to make some limited screen time slightly less toxic.

Renee DiResta, a security researcher on the board of the Center for Humane Tech, won’t allow passive screen time, but will allow short amounts of time on challenging games.

She wants her 2- and 4-year-old children to learn how to code young, so she embraces their awareness of gadgets. But she distinguishes between these types of screen use. Playing a building game is allowed, but watching a YouTube video is not, unless it is as a family.

And Frank Barbieri, a San Francisco-based executive at the start-up PebblePost that tracks online activity to send direct mail advertising, tries to limit his 5-year-old daughter’s screen time to Italian language content.

“We have friends who are screen abolitionists, and we have friends who are screen liberalists,” Mr. Barbieri said.

He had read studies on how learning a second language at a young age is good for the developing mind, so his daughter watches Italian-language movies and TV shows.

“For us, honestly, me and my wife were like, ‘Where would we like to visit?’” Mr. Barbieri said.

Nellie Bowles covers tech and internet culture. Follow her on Twitter: @nelliebowles

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TECHNOLOGY | GRADING THE DIGITAL SCHOOL

A Silicon Valley School That Doesn't Compute

By MATT RICHTEL | OCT. 22, 2011

LOS ALTOS, Calif. — The chief technology officer of eBay sends his children to a nine-classroom school here. So do employees of Silicon Valley giants like Google, Apple, Yahoo and Hewlett-Packard.

But the school's chief teaching tools are anything but high-tech: pens and paper, knitting needles and, occasionally, mud. Not a computer to be found. No screens at all. They are not allowed in the classroom, and the school even frowns on their use at home.

Schools nationwide have rushed to supply their classrooms with computers, and many policy makers say it is foolish to do otherwise. But the contrarian point of view can be found at the epicenter of the tech economy, where some parents and educators have a message: computers and schools don't mix.

This is the Waldorf School of the Peninsula, one of around 160 Waldorf schools in the country that subscribe to a teaching philosophy focused on physical activity and learning through creative, hands-on tasks. Those who endorse this approach say computers inhibit creative thinking, movement, human interaction and attention spans.

The Waldorf method is nearly a century old, but its foothold here among the

“I fundamentally reject the notion you need technology aids in grammar school,” said Alan Eagle, 50, whose daughter, Andie, is one of the 196 children at the Waldorf elementary school; his son William, 13, is at the nearby middle school. “The idea that an app on an iPad can better teach my kids to read or do arithmetic, that’s ridiculous.”

Mr. Eagle knows a bit about technology. He holds a computer science degree from Dartmouth and works in executive communications at Google, where he has written speeches for the chairman, Eric E. Schmidt. He uses an iPad and a smartphone. But he says his daughter, a fifth grader, “doesn’t know how to use Google,” and his son is just learning. (Starting in eighth grade, the school endorses the limited use of gadgets.)

Three-quarters of the students here have parents with a strong high-tech connection. Mr. Eagle, like other parents, sees no contradiction. Technology, he says, has its time and place: “If I worked at Miramax and made good, artsy, rated R movies, I wouldn’t want my kids to see them until they were 17.”

While other schools in the region brag about their wired classrooms, the Waldorf school embraces a simple, retro look — blackboards with colorful chalk, bookshelves with encyclopedias, wooden desks filled with workbooks and No. 2 pencils.

On a recent Tuesday, Andie Eagle and her fifth-grade classmates refreshed their knitting skills, crisscrossing wooden needles around balls of yarn, making fabric swatches. It’s an activity the school says helps develop problem-solving, patterning, math skills and coordination. The long-term goal: make socks.

Down the hall, a teacher drilled third-graders on multiplication by asking them to pretend to turn their bodies into lightning bolts. She asked them a math problem — four times five — and, in unison, they shouted “20” and zapped their fingers at the number on the blackboard. A roomful of human calculators.

In second grade, students standing in a circle learned language skills by

classes, the day can start with a recitation or verse about God that reflects a nondenominational emphasis on the divine.

Andie's teacher, Cathy Waheed, who is a former computer engineer, tries to make learning both irresistible and highly tactile. Last year she taught fractions by having the children cut up food — apples, quesadillas, cake — into quarters, halves and sixteenths.

“For three weeks, we ate our way through fractions,” she said. “When I made enough fractional pieces of cake to feed everyone, do you think I had their attention?”

Some education experts say that the push to equip classrooms with computers is unwarranted because studies do not clearly show that this leads to better test scores or other measurable gains.

Is learning through cake fractions and knitting any better? The Waldorf advocates make it tough to compare, partly because as private schools they administer no standardized tests in elementary grades. And they would be the first to admit that their early-grade students may not score well on such tests because, they say, they don't drill them on a standardized math and reading curriculum.

When asked for evidence of the schools' effectiveness, the Association of Waldorf Schools of North America points to research by an affiliated group showing that 94 percent of students graduating from Waldorf high schools in the United States between 1994 and 2004 attended college, with many heading to prestigious institutions like Oberlin, Berkeley and Vassar.

Of course, that figure may not be surprising, given that these are students from families that value education highly enough to seek out a selective private school, and usually have the means to pay for it. And it is difficult to separate the effects of the low-tech instructional methods from other factors. For example, parents of students at the Los Altos school say it attracts great teachers who go through extensive training in the Waldorf approach, creating a strong sense of mission that

Absent clear evidence, the debate comes down to subjectivity, parental choice and a difference of opinion over a single word: engagement. Advocates for equipping schools with technology say computers can hold students' attention and, in fact, that young people who have been weaned on electronic devices will not tune in without them.

Ann Flynn, director of education technology for the National School Boards Association, which represents school boards nationwide, said computers were essential. "If schools have access to the tools and can afford them, but are not using the tools, they are cheating our children," Ms. Flynn said.

Paul Thomas, a former teacher and an associate professor of education at Furman University, who has written 12 books about public educational methods, disagreed, saying that "a spare approach to technology in the classroom will always benefit learning."

"Teaching is a human experience," he said. "Technology is a distraction when we need literacy, numeracy and critical thinking."

And Waldorf parents argue that real engagement comes from great teachers with interesting lesson plans.

"Engagement is about human contact, the contact with the teacher, the contact with their peers," said Pierre Laurent, 50, who works at a high-tech start-up and formerly worked at Intel and Microsoft. He has three children in Waldorf schools, which so impressed the family that his wife, Monica, joined one as a teacher in 2006.

And where advocates for stocking classrooms with technology say children need computer time to compete in the modern world, Waldorf parents counter: what's the rush, given how easy it is to pick up those skills?

"It's supereasy. It's like learning to use toothpaste," Mr. Eagle said. "At Google and all these places, we make technology as brain-dead easy to use as possible. There's no reason why kids can't figure it out when they get older."

There are also plenty of high-tech parents at a Waldorf school in San Francisco and just north of it at the Greenwood School in Mill Valley, which doesn't have Waldorf accreditation but is inspired by its principles.

California has some 40 Waldorf schools, giving it a disproportionate share — perhaps because the movement is growing roots here, said Lucy Wurtz, who, along with her husband, Brad, helped found the Waldorf high school in Los Altos in 2007. Mr. Wurtz is chief executive of Power Assure, which helps computer data centers reduce their energy load.

The Waldorf experience does not come cheap: annual tuition at the Silicon Valley schools is \$17,750 for kindergarten through eighth grade and \$24,400 for high school, though Ms. Wurtz said financial assistance was available. She says the typical Waldorf parent, who has a range of elite private and public schools to choose from, tends to be liberal and highly educated, with strong views about education; they also have a knowledge that when they are ready to teach their children about technology they have ample access and expertise at home.

The students, meanwhile, say they don't pine for technology, nor have they gone completely cold turkey. Andie Eagle and her fifth-grade classmates say they occasionally watch movies. One girl, whose father works as an Apple engineer, says he sometimes asks her to test games he is debugging. One boy plays with flight-simulator programs on weekends.

The students say they can become frustrated when their parents and relatives get so wrapped up in phones and other devices. Aurad Kamkar, 11, said he recently went to visit cousins and found himself sitting around with five of them playing with their gadgets, not paying attention to him or each other. He started waving his arms at them: "I said: 'Hello guys, I'm here.'"

Finn Heilig, 10, whose father works at Google, says he liked learning with pen and paper — rather than on a computer — because he could monitor his progress over the years.

if you learn to write on paper, you can still write if water spills on the computer or the power goes out.”

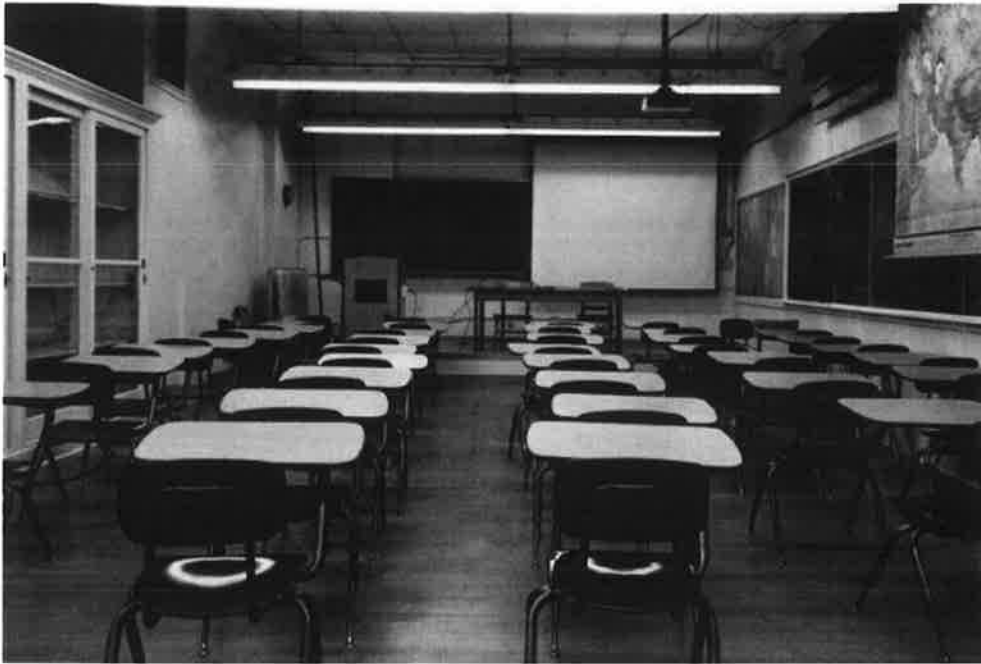
Grading the Digital School: Articles in this series are looking at the intersection of education, technology and business as schools embrace digital learning.

A version of this article appears in print on October 23, 2011, on Page A1 of the New York edition with the headline: A Silicon Valley School That Doesn't Compute.

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The Rich Get Smart, The Poor Get Technology The New Digital Divide in School Choice

By **Dr. Screen-Free Mom** - November 21, 2017



The "digital divide" was a term originally coined in the early 2000s to describe the "have" and "have-nots" of computers and mobile technology. There was great concern that low-income children would be left behind because of their lack of technology in the home.

In the United States, the middle-class predominantly white families who were able to afford computers (and later mobile technology) were able to allow their child to experience (and learn) much more through the internet accessed on these devices. A number of things addressed these fears, including the decreasing cost of computers. This helped bridge the digital divide, but it had quite the effect of the one-to-one programs we now see in so many school districts, including those in low-income areas. All children could have access to the internet. Digital Divide closed.

The problem is there is little evidence to support the idea that technology in schools improves learning outcomes.

The "New Digital Divide" which came next was all about stable, high-speed internet access. Children have computers, but are they able to reliably access all the wonderful things on the internet equally?

Recently, we have started to see a shift in the conversations about the digital divide in the U States. The *Screenagers* documentary highlights a concerning trend: when those shiny lapto head home, children's grades in reading and math go down. When high-speed internet acces provided to an area that previously did not have it, research shows the same thing: academi achievement declines. And, what's worse? Those declines are the worst for the low income fa we were supposedly worried about in the first place.

Despite the research, the doling out of laptops like candy on Halloween is not slowing. It's spreading. Originally, one-to-one policies originated in high schools. Middle school is becoming the norm with some schools instituting one-to-one in elementary. Finished your work? Unplug your laptop from its docking station and play an "educational" game. Why? Because one-to-one programs are big business.

A recent New York Times article highlighted how tech companies court school districts much like big pharma's relationship with prescribing doctors. The business of selling computers and associated software to well-meaning school districts is an industry expected to reach **\$21 billion in sales by the year 2020**.



So what's a Concerned Parent to do?

I recently participated in a panel discussion on technology and kids following a screening of *Screenagers* at a local school's education night. The panel then answered the moderator pre prepared questions about how to manage screen-use, but I felt like we were missing the ma were not interacting with the parents, hearing their concerns. As I walked out, my fear was confirmed. I heard parents complaining to the school staff that this was not the information I needed. They *know* and see the problem with tech infiltrating their children's every moment. overhead a parent complaining to administrators that they had always monitored screen-tim when the laptops were sent home, everything spiraled out of control. Homework is on the co and often online, and the parents' ability to monitor screen-time has been hijacked.

It Depends on Your Income Level

Increasingly, families with resources are electing private schools, particularly Montessori or v inspired options which minimize technology in comparison to skills like sustained attention, l through play, utilizing real materials and developing social skills. Montessori and Waldorf sch have distinct educational philosophies, but come with hefty price tags, often between ten an twenty thousand dollars per year in the United States.

News articles about tech-insiders like Steve Jobs and Bill Gates choosing low-tech lifestyles at home for their children proliferate the World Wide Web they helped to mainstream. Just the other week, *Entrepreneur.com* ran an article about the tech moguls' choices of schooling. *Business Week* followed suit and ran an article about the desire of those "in-the-know" to choose low-tech schooling for their own offspring. In that article, Sherry Turkle, a psychologist and research professor at MIT, said the trend of schools to use devices to create "personalized" lesson plans for children is "too much. Too much." She emphasizes that kids need to work together face-to-face.



Another subgroup of families are opting for home-schooling, with the rates of home-schooling in the United States rising dramatically. Research from 2007 indicated 1.5 million children were homeschooled in the United States. That's a steady increase from 1.1 million children in 2000, 850,000 children in 1999. The National Center for Policy Analysis says that number has grown to 2.5 million children today. That means home-schooling has nearly tripled in less than 20 years.

Parents are increasingly choosing to home school children for a variety of reasons, many of which have to do with dissatisfaction with traditional schooling which increasingly emphasizes regurgitation of learning, testing along with minimal time spent outdoors and in play-based and discovery-based learning activities.

The over-use of screens in traditional public schools is increasingly becoming part of the concern for parents who chose to home-school their children. Home-schooling has its celebrity endorser Will Smith and Jada Pinket-Smith homeschool their children. About the choice they say, "We want our kids to memorize. We want them to learn." Homeschooling may not force a parent

out \$20,000 per year upfront but certainly there are costs with the loss of income from a parent and supplies which may make it impossible for the majority of the population.

The Digital Divide in School Choice

These recent articles are missing a big piece of the puzzle. Yes, those "in-the-know" choose tech options for schooling. But, it's not because they are in-the-know. It's because they have *choice*. Many parents see negative effects of the screen push in their children's schooling and love to choose a low-tech educational option. But, they financially cannot afford to make that choice.

This is the new digital divide: high-income parents can opt out of the over-use of technology schools. Many parents, especially lower-income parents do not have the freedom. Instead, they have to swim upstream and regulate over-use in an educational world that is pushing it for younger children.

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Dr. Screen-Free Mom is a psychologist, writer, university professor and mom. She is raising her young kids (mostly) screen-free and committed to helping other parents make informed screen decisions. She works to summarize all the world's screen-time research and provide helpful alternative activities.

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Children are tech addicts - and schools are the pushers

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WHEN SILICON valley bosses send their children to screen-free schools, why do we believe the claims of the 'ed tech' industry?



'And not only is screen technology harmful to children per se, there's little evidence that it helps them to learn.' Photograph: Wavebreakmedia/Getty Images/iStockphoto

As a culture, we are finally waking up to the dark side of new technology. "The internet is broken", declares the current issue of *Wired*, the tech insiders' bible. Last month Rick Webb, an early digital investor, posted a blog titled "My internet mea culpa". "I was wrong," he wrote. "We all were." He called on the architects of the web to admit that new technology had brought more harm than good.

Yet while geeks, the public and politicians - including Theresa May - grow disenchanted, schools, and those responsible for the national curriculum, seem stuck in an earlier wide-eyed era. My instinct tells me that this innocence is perverse. As a friend memorably described it, when he gave his three-year-old his phone to play with, it was as if a worm had found its way into her head.

I flinch internally when my five-year-old tells me she plays computer games in what primary schools call "golden time" rather than enjoying some other more wholesome reward; and when my eight-year-old says that he's learned to send an email when I sent my first email aged 20, and email has since taken over my life and that of every other adult I know.

Our kids don't use computers at home. They watch a bit of television, but we don't own a tablet. Their school is by no means evangelical about technology, but I nonetheless feel like it is playing the role of pusher, and I'm watching my children get hooked. When they went suspiciously quiet the other day, I found them under the kitchen table trying to explore my phone. Unfortunately for them, it's a brick.

I'm wary of sounding sanctimonious, and corroding much-needed solidarity between busy parents with different views on screen use. But when I see an infant jabbing and swiping, I can't help experiencing what the writer James Bridle calls in a disturbing recent essay a "Luddite twinge"; and the research suggests I should trust it.

Earlier this month the children's commissioner for England warned that children starting secondary school were facing a social media "cliff edge" as they entered an online world of cyber-bullying and pornography. According to Public Health England, extended screen use correlates to emotional distress, anxiety and depression in children. The American College of Paediatricians associates it with sleep problems, obesity, increased aggression and low self-esteem.

And not only is screen technology harmful to children per se, there's little evidence that it helps them to learn. A 2015 OECD report found that the impact of computers on pupil performance was "mixed, at best", and in most cases computers were "hurting learning". The journal *Frontiers in Psychology* identifies "an absence of research supporting the enthusiastic claims that iPads will 'revolutionise education'". Researchers at Durham University found that

“technology-based interventions tend to produce just slightly lower levels of improvement” compared with other approaches. Even for the head of the e-Learning Foundation, proving technology improves results remains the “holy grail”.

Education technology is often justified on the grounds that it boosts disadvantaged children, yet research shows it widens rather than bridges socioeconomic divides. The One Laptop per Child programme, which distributed 25m low-cost computers with learning software to children in the developing world, failed to improve language or maths results.

Such evidence does not dent the faith of ed tech’s proselytisers. Children need to be prepared for the future, we are told. But companies don’t want children who learned PowerPoint aged 10, they want employees who know how to think from first principles. All those mind-numbing software programs will soon be obsolete anyway. Most coding classes only teach children to assemble pre-made building blocks. Silicon Valley executives restrict their own social media use and send their own kids to tech-free schools.

Technology does not evolve naturally; programs and devices are promoted by those with a commercial interest in selling them. Ed tech is projected to be worth £129bn by 2020. This week, the world’s biggest ed tech convention, Bett, is in London, “Creating a better future by transforming education”. Google, Microsoft and Facebook are flogging expensive kit to cash-strapped schools using buzzwords such as “engagement” and “interactivity”. The traditional teacher-pupil hierarchy must be “flipped”, they say, “empowering” pupils to direct their own learning.

In reality, children tap on tablets whose inner workings are as arcane and mystical to them as any authoritarian deity - and stare, blinds down, at the giant interactive whiteboard. Children may be temporarily gripped, but their attention spans will shrink in the long term.

Cyber-utopianism promises magic bullets for poverty and the crooked timber of humanity. But it’s old-school solutions that really work in the classroom: good teachers, plenty of fresh air and exercise, and hands-on exploration of the real, physical world. This is even what “digital natives” themselves actually want: a Canadian study of e-learning in universities revealed that students preferred “ordinary, real-life lessons” and “a smart person at the front of the room”.

I don’t want my kids fed into the sausage machine of standardised testing and the bureaucratic “information economy”. I don’t want them to become robotic competitors to the robots we are told are taking their future jobs. I can opt my children out of RE, but where technology is concerned, I feel bound by a blind determinism. Surely we have a choice, as humans, over the direction technology is taking us, and education is the perfect illustration of this capacity. Our children turn up as blank slates, and learn to design the future. It’s time for schools to join the backlash. It’s time to think again.

● Eliane Glaser is a writer, lecturer and author of *Get Real: How to See Through the Hype, Spin and Lies of Modern Life*

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Schools Might Want to Reconsider the Push for Devices in the Classroom ^[1]



It's been a rough week for electronic devices.

First there was the news that smartphones – with their continual news alerts and notifications – lead to increased inattentiveness and hyperactivity ^[2].

Then there was the report ^[3] that British teachers suspected parental phone usage as the reason behind the decline in the conversation ability of preschoolers.

Next came a study ^[4] out of Dartmouth which found that reading on digital devices seems to reduce abstract thinking.

To top it all off, MIT released a study about the use of electronic devices in classrooms at the United States Military Academy. The Telegraph explains ^[5]:

“Researchers ... compared the results from classrooms in which laptops and tablets were banned, classrooms where use was unrestricted, and those in which students could use tablets, but only if they were laid flat on the table.

The results ‘suggest that computer devices have a substantial negative effect on academic performance,’ said the MIT researchers. ‘Our estimates imply that **permitting computers or laptops in a classroom lowers overall exam grades by around one fifth.**’”

Researchers also found [6] that reduced grades because of electronic usage were especially problematic for males and for students with higher GPAs.

Let’s face it. We all love our devices and the many ways in which they bring us information. But does news like this suggest we need to be careful before we rush to fill our nation’s classrooms with iPads, computers, and other electronic gizmos in the attempt to boost test scores and learning?

Technology may be a useful learning tool in some venues, but treating it as an educational panacea is increasingly becoming less realistic and wise.

Image Credit: Kathy Cassidy bit.ly/tiowB8m

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FIRST PERSON

A Call for Fewer Screens in the Classroom



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By Amy Williams

March 21, 2017

A colleague of mine recently invented a new buzzword: "screen-free reading." It refers to the act of reading a book, article, or short story with words printed on paper. It is a guaranteed break away from the eye-fatiguing, familiar blue light on which students' eyes are glued at school and at home.

In a day and age in which professional educators are trying out new tech tools, and students are increasingly huddled around screens, a return to paper seems almost innovative—particularly since research comparing reading and writing on the computer vs. on paper **supports screen-free classroom time** to promote learning.

I am not arguing for an abandonment of technology. Plenty of research supports the use of screen reading when it's used to **differentiate instruction for students** effectively. Check the hashtag #edtech on Twitter and you'll also find a deluge of teachers and administrators praising Google add-ons and touting the benefits of apps that promise to engage students, promote collaboration, and transform formative assessment. In my own classroom, I pilot new tools like **Padlet** and **Socrative**, and I rely on mainstays like Google Docs and **Schoology**. I like that English-language learners benefit from dictionary look-up functions in e-readers, and I won't deny the convenience of apps that help students to annotate articles online.

But I also won't deny the power of paper to engage students and transform learning.

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A common argument for the use of technology in the classroom is that it **promotes collaboration**. When students write in groups using Google Docs, for instance, it's easy for them to build on ideas and divvy up work. It's also easy for me as a teacher to track their contributions and see their writing process. However, the interactive nature of technology platforms can also be illusory.

It's easy for students to remain in their own discrete spaces and to avoid the difficult nature of interacting with peers when a screen functions as a mediating force. When my 7th grade students sit side by side without a screen I notice that the dynamic is, well, different. They make eye contact with each other more. They negotiate physical space and make a series of small decisions like: Who will hold the pen? How will they orient themselves so that multiple people can write at the same time?

I think these small interactions might hold significance. A 2014 study published in the *Journal of Computers in Human Behavior* found that **screen time has a negative effect** on the ability of preteens to read facial cues. This study raises serious concerns about the long-term consequences of technology use on social skills development among school-age children. As our students spend more and more time in front of screens at home and in school, it is worth considering how classrooms can be a space for students to initiate spoken dialogue and to practice reading body language.

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One teacher says students should take ownership of tech tools in the classroom: "When Students Know More About Technology Than Their Teachers"

Increasing Focus

A 2016 study at Michigan State University found a **correlation between laptop usage in university classes and lower test scores**. Even students who were bright and motivated couldn't resist the temptation to peruse social media sites and read emails in class. In a K-12 setting, teachers often more closely monitor students' internet usage. However, it seems naive to assume that an engaging lesson paired with a clearly stated internet-usage policy is enough to prevent inappropriate multitasking.

The fact remains that an open Instagram window is infinitely more interesting than any lesson to a typical teenager—who may be a pro at getting around a school's firewalls, but not a pro at self-restraint. I agree that students need to learn **how to use the internet appropriately and to be critical readers of digital content**.

But does that mean that they need to read and interact online in every class, every day? It's worth considering the daily classroom experience of a typical student over the course of an entire day, week, and month to determine the appropriateness of internet usage in classes. Asking students to close their laptops is like closing a window that opens onto a noisy street.

Improving Student Learning

What this discussion boils down to is a concern about student learning and a skepticism regarding the idea that technology is always necessary or appropriate. New tech tools might promote engagement, but students might also enjoy colorful pens and giant pieces of chart paper as a change of pace in environments that are proudly, and rigidly, paperless. Virtual discussion boards might be crucial for drawing out introverted students; they might also give students permission to sit back and type canned responses.

In his 2003 book *The Flickering Mind*, author Todd Openheimer argued that education technology had **failed in its promise to transform education** and that it may paradoxically impede learning. Openheimer, a journalist who visited a range of schools and institutions in the United States to examine how technology was shaping education, found that educators often conflated sleek but content-thin presentations with evidence of deep learning.

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Educators also erroneously assumed that the use of tools like PowerPoint counted as relevant skill-building for the workplace. Oppenheimer suggests in the book that students are more likely to prosper if they develop "strong values and work habits," and master "the art of discussion."

Oppenheimer also expresses skepticism over claims that education technology always engages students. Tech tools simplify the work of compiling information and conducting research, but they also allow students to skip steps, which may cause them to miss out on crucial parts of the learning process.

Indeed, easier is not always better; rapt attention may not actually be evidence of engagement; and time that students spend scouring the internet might be better spent reading around course topics. Funds devoted to supporting technology could instead support the creation of drama and music programs.

When given the choice between an app that allows students to post on a virtual board or a stack of Post-It notes and a white board that allow students to stand up, I often choose the paper. A discussion board is often appropriate—but so is movement in the classroom. Technology could be used to accomplish the same task. However, it's difficult to pass up the opportunity to let students move paper around with their hands.

When determining the appropriateness of technology in the classroom, we need to focus on learning. What tool, we should ask ourselves, will promote critical thinking, interpersonal skills development, and problem-solving skills? We should embrace the tech age, but with caution.

Amy Williams currently teaches International Baccalaureate IB English courses for grades 7, 10, and 11 at the International School of Düsseldorf in Germany. She tweets at @MsWilliamsEng.

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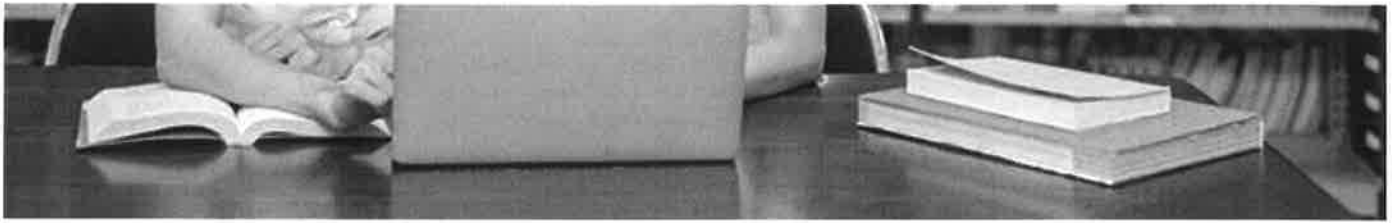
What do you think they'll actually use it for?

By Cindi May on July 11, 2017



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Credit: Getty Images

As recent high school graduates prepare for their migration to college in the fall, one item is sure to top most students' shopping wish lists: a laptop computer. Laptops are ubiquitous on university campuses, and are viewed by most students as absolute must-have items, right alongside laundry detergent, towels, and coffee pots.

Without question, personal laptops can enhance the college experience by facilitating engagement with online course material, providing access to sources for research, maximizing internship searches, and even improving communication with friends and parents. Many students also opt to bring their laptops to class so that they can take notes, view online lecture slides, and search the web for course-related material. This practice, it turns out, may be a mistake.

New research by scientists at Michigan State University suggests that laptops do not enhance classroom learning, and in fact students would be better off leaving their laptops in the dorm during class. Although computer use during class may create the illusion of enhanced engagement with course content, it more often reflects engagement with social media, YouTube videos, instant messaging, and other nonacademic content. This self-inflicted distraction comes at a cost, as students are spending up to one-third of valuable (and costly) class time zoned out, and the longer they are online the more their grades tend to suffer.



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To understand how students are using computers during class and the impact it has on learning, Susan Ravizza and colleagues took the unique approach of asking students to voluntarily login to a proxy server at the start of each class, with the understanding that their internet use (including the sites they visited) would be tracked. Participants were required to login for at least half of the 15 class periods, though they were not required to use the internet in any way once they logged in to the server. Researchers were able to track the internet use and academic performance of 84 students across the semester.

Ravizza and colleagues evaluated the time that students spent online, the specific sites they visited, and the number of different requests sent to the server each session. They also asked students to estimate their own time online during class and to judge how time online affected their learning. Finally, the researchers obtained measures of intelligence (here, ACT scores), final exam performance, and self-reported interest and motivation.

every 100-minute class period using the internet for nonacademic purposes, including social media, checking email, shopping, reading the news, chatting, watching videos, and playing games. This nonacademic use was negatively associated with final exam scores, such that students with higher use tended to score lower on the exam. Social media sites were the most-frequently visited sites during class, and importantly these sites, along with online video sites, proved to be the most disruptive with respect to academic outcomes.

In contrast with their heavy nonacademic internet use, students spent less than 5 minutes on average using the internet for class-related purposes (e.g., accessing the syllabus, reviewing course-related slides or supplemental materials, searching for content related to the lecture). Given the relatively small amount of time students spent on academic internet use, it is not surprising that academic internet use was unrelated to course performance. Thus students who brought their laptops to class to view online course-related materials did not actually spend much time doing so, and furthermore showed no benefit of having access to those materials in class.

Why do students spend so much class time online? The finding that surfing the web and diminished learning go hand in hand is fairly intuitive, so Ravizza and colleagues sought to understand why students chose to do it. One possibility is that although internet use is related to poor academic performance, it is a symptom rather than a cause, in the same way that low energy is a symptom of obesity and not a causal factor in heart disease. If students disengage with a lecture when they are disinterested or bored and instead check social media, then boredom and not internet use may be the source of lower exam scores. Indeed in other studies, Facebook and internet use increased when people were bored with an ongoing task, and students reported that

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In this case, however, boredom was not the answer – at least not entirely. Students who reported lower interest in the class did tend to have lower exam scores, but this relationship did not account for the relationship between internet use and exam performance. Similar findings held for motivation and intelligence. For example, students with high versus low ACT scores were equally likely to browse the web during class, and were similarly affected by that browsing on their final exams. Thus although interest, motivation, and intelligence all contributed to course performance, analyses showed that internet use negatively influenced exam performance over and above these factors.

Perhaps students are woefully unaware of their internet use. Other research shows that people perceive fun tasks as taking less time than dull tasks, and so it is possible that time spent enjoying social media or video sites is misperceived as short. In line with this idea are data from studies showing that students may underestimate their actual internet use. Surprisingly however, Ravizza and colleagues found that their

whether their internet use had a disruptive effect on their academic performance. Students who rated their internet use as having “no effect” on their learning tended to use the internet less and showed no relationship between internet use and exam performance; in contrast, those who rated their internet use as having a “disruptive effect” tended to use the internet more, had lower exam scores, and showed a negative relationship between internet use and exam performance.

It is possible that the internet use during class reflects habit or even an inability to inhibit the disruptive behavior. Use of social networking sites can be addictive for some, and the amount of time students spent online in this study suggests their attachment to technology was significant. In addition to the nearly 40 minutes students spent surfing the web, they also reported using their phones to text for an additional 27 minutes. It’s a wonder they learned anything at all!



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Regardless of the reason for internet use during class, it is clear that students are not experiencing the oft-touted benefits of laptop use in class. They spend minimal time accessing supplemental course material or surfing the web for content related to the ongoing lecture, and these activities do not appear to enhance course performance. Although students may use the internet to download slides and take notes, related research shows that taking notes by hand is more effective than doing so with a laptop. Thus, there seems to be little upside to laptop use in class, while there is clearly a downside. Students are distracting themselves for significant periods of class time by using laptops to surf social media sites, visit chat rooms, watch videos, and play games, and

classmates, as peers with a direct view of those laptops suffer academically. Perhaps it is time for students to consider going “old school,” and adding one more item to their shopping wish lists: a good old fashioned spiral notebook.

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Are you a scientist who specializes in neuroscience, cognitive science, or psychology? And have you read a recent peer-reviewed paper that you would like to write about? Please send suggestions to Mind Matters editor Gareth Cook. Gareth, a Pulitzer prize-winning journalist, is the series editor of Best American Infographics and can be reached at [garethideas AT gmail.com](mailto:garethideas@gmail.com) or Twitter [@garethideas](https://twitter.com/garethideas).

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Cindi May is a Professor of Psychology at the College of Charleston. She explores avenues for improving cognitive function in college students, older adults, and individuals with intellectual disabilities. She is also an advocate for inclusive opportunities for people with disabilities.

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Melinda Gates: I spent my career in technology. I wasn't prepared for its effect on my kids.

By Melinda Gates

August 24, 2017 at 7:00 AM

The Washington Post

“Phones and apps aren't good or bad by themselves, but ... they can exacerbate the difficulties of growing up.”

MELINDA GATES



When my youngest child was born in 2002, the flip phone was still the coolest piece of tech you could get. Now I'm told that all three of my children are part of what demographers are calling iGen.

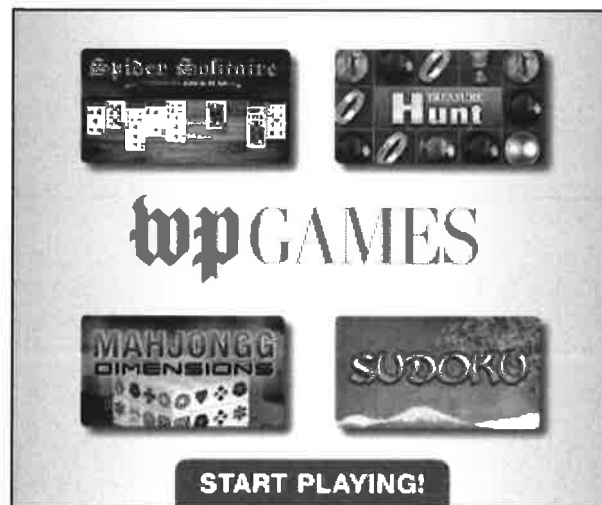
I spent my career at Microsoft trying to imagine what technology could do, and still I wasn't prepared for smartphones and social media. Like many parents with children my kids' age, I didn't understand how they would transform the way my kids grew up — and the way I wanted to parent. I'm still trying to catch up.

The pace of change is what amazes me the most. The challenges my younger daughter will be facing when she starts high school in the fall are light-years away from what my elder daughter, who's now in college, experienced in 2010. My younger daughter's friends live a lot of their lives through filters on Instagram and Snapchat, two apps that didn't even exist when my elder daughter was dipping a toe in social media.

Related: [Teens say they're addicted to technology. Here's how parents can help.]

But I am optimistic about what smartphones and social media can do for people. I am thrilled to see kids learning on smartphones, doctors using apps to diagnose diseases and marginalized groups such as gay and lesbian students finding support they never had before through social networks.

Still, as a mother who wants to make sure her children are safe and happy, I worry. And I think back to how I might have done things differently. Parents should decide for themselves what works for their family, but I probably would have waited longer before putting a computer in my children's pockets. Phones and apps aren't good or bad by themselves, but for adolescents who don't yet have the emotional tools to navigate life's complications and confusions, they can exacerbate the difficulties of growing up: learning how to be kind, coping with feelings of exclusion, taking advantage of freedom while exercising self-control. It's more important than ever to teach empathy from the very beginning, because our kids are going to need it.



For other parents trying to decide how to do their job in a way that feels right despite the bewildering array of changes brought on by smartphones and social media, I want to share some of the resources that have helped me and my friends. Hopefully, these tips can spark conversation and help parents become resources for each other.



French workers gain right to 'switch off'

A new French labour law gives employees the 'right to switch off' from email, smartphones and other electronic leashes to preserve off-hours and holiday time. (Reuters)

- **Learn about the issue:** This month, the Atlantic ran a long story called **“Have Smartphones Destroyed a Generation?”** The headline is a little dire, but then again, so is what’s reported in the article. It makes a strong case linking smartphones and social media to emotional distress. For example, eighth-graders who use social media more than 10 hours a week are 56 percent more likely to say they’re unhappy than peers who use it less. A lot of the same issues are raised in the documentary **Screenagers**, whose producers encourage community groups to host screenings. Many parents have told me they like the film because it provides plenty of practical tips.
[How to protect kids online: Apps and tactics used by experts and parents]
- **Unplug:** One of my favorite things you can do is plan a **“device-free dinner.”** It’s not complicated. It’s exactly what it says: an hour around a table without anything that has an on or off switch. **Common Sense Media** has provided great resources and is turning this simple concept into a movement. We don’t allow cellphones at the dinner table, and in my experience, they’re right when they promise “amazing conversation.”
- **Have Tough Conversations:** One of the things that’s likely to come up in conversation with your kids is the Netflix show “13 Reasons Why.” The hype may have subsided a little bit since the beginning of the summer, but it’s still a hot topic. Every parent has to decide for themselves whether they will let their children watch and, if so, under what conditions. **Here** and **here** are some excellent resources from the **Jed Foundation** to help you make these decisions and talk with your kids about the show, suicide, and what to do if they need help. And I always make sure to tell people about **Crisis Text Line**, an amazing crisis counseling service that provides free, 24/7 support and resources via text message.

- **Advocate for your kids:** With my oldest daughter in college and my son entering his last year of high school, I've started thinking about how smartphones and social media change the dynamics of college campuses. Many colleges simply don't have the resources available to cope with the mental health needs of their students. Read this [article](#) to find out more so that you can make sure your kids have the support they need.
- **Make a Plan:** Lastly, I highly encourage you to try out the American Academy of Pediatrics' [Family Media Plan](#). This site walks you step-by-step through a process of being intentional about how your family consumes media. The great thing is that it's not one size fits all. It helps you build a unique plan for your family.

The Internet is a wonderful thing. It gives kids the freedom to move around in a big world, to experiment, to connect with others. As a parent, though, I know that I am responsible for making sure that my kids are ready for all that freedom — and that they know how to keep themselves safe. Here's to staying on top of all the changes social media is bringing to our kids' lives, so that we can continue to guide and support them in this fast-changing world.

Melinda Gates is a businesswoman and philanthropist. She is co-chair of the [Bill & Melinda Gates Foundation](#). You can find her on Facebook [@Melinda Gates](#), Twitter [@melindagates](#) and Instagram [@melindafrenchgates](#).

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Screens are hooking kids on ‘digital heroin’

By Nicholas Kardras

Published: Aug 29, 2016 7:51 a.m. ET



Getty Images

The dangers of digital addiction

Susan* bought her 6-year-old son John an iPad when he was in first grade. “I thought ‘why not let him get a jump on things?’” she told me during a therapy session. John’s school had begun using the devices with younger and younger grades—and his technology teacher had raved about their educational benefits—so Susan wanted to do what was best for her sandy-haired boy who loved reading and playing baseball.

She started letting John play different educational games on his iPad. Eventually, he discovered Minecraft, which the technology teacher assured her was “just like electronic Lego.” Remembering how much fun she had as a child building and playing with the interlocking plastic blocks, Susan let her son Minecraft his afternoons away.

At first, Susan was quite pleased. John seemed engaged in creative play as he explored the cube-world of the game. She did notice that the game wasn’t quite like the Legos that she remembered—after all, she didn’t have to kill animals and find rare minerals to survive and get to the next level with her beloved old game. But John did seem to really like playing and the school even had a Minecraft club, so how bad could it be?

Still, Susan couldn’t deny she was seeing changes in John. He started getting more and more focused on his game and losing interest in baseball and reading while refusing to do his chores. Some mornings he would wake up and tell her that he could see the cube shapes in his dreams.

Although that concerned her, she thought her son might just be exhibiting an active imagination. As his behavior continued to deteriorate, she tried to take the game away but John threw temper tantrums. His outbursts were so severe that she gave in, still rationalizing to herself over and over again that “it’s educational.”

Then, one night, she realized that something was seriously wrong.

"I walked into his room to check on him. He was supposed to be sleeping—and I was just so frightened..."

She found him sitting up in his bed staring wide-eyed, his bloodshot eyes looking into the distance as his glowing iPad lay next to him. He seemed to be in a trance. Beside herself with panic, Susan had to shake the boy repeatedly to snap him out of it. Distraught, she could not understand how her once-healthy and happy little boy had become so addicted to the game that he wound up in a catatonic stupor.

There's a reason that the most tech-cautious parents are tech designers and engineers. Steve Jobs was a notoriously low-tech parent. Silicon Valley tech executives and engineers enroll their kids in no-tech Waldorf Schools. Google founders Sergey Brin and Larry Page went to no-tech Montessori Schools, as did Amazon creator Jeff Bezos and Wikipedia founder Jimmy Wales.

Many parents intuitively understand that ubiquitous glowing screens are having a negative effect on kids. We see the aggressive temper tantrums when the devices are taken away and the wandering attention spans when children are not perpetually stimulated by their hyper-arousing devices. Worse, we see children that become bored, apathetic, uninteresting and uninterested when not plugged in.

But it's even worse than we think.

We now know that those iPads, smart phones and Xboxes are a form of digital drug. Recent brain imaging research is showing that they affect the brain's frontal cortex—which controls executive functioning, including impulse control—in exactly the same way that cocaine does. Technology is so hyper-arousing that it raises dopamine levels—the feel-good neurotransmitter most involved in the addiction dynamic—as much as sex.

This addictive effect is why Dr. Peter Whybrow, Director of Neuroscience at UCLA calls screens "electronic cocaine" and Chinese researchers call them "digital heroin." In fact, Dr. Andrew Doan, the Head of Addiction Research for the Pentagon and the U.S. Navy—who has been researching video game addiction—calls video games and screen technologies "digital pharmakeia" (Greek for drug).

That's right—your kid's brain on Minecraft looks like a brain on drugs. No wonder we have a hard time peeling kids from their screens and find our little ones agitated when their screen time is interrupted. In addition, hundreds of clinical studies show that screens increase depression, anxiety, and aggression and can even lead to psychotic-like features where the video gamer loses touch with reality.

In my clinical work with over a 1,000 teens over the past 15 years, I have found the old axiom of "an ounce of prevention is worth a pound of cure" to be especially true when it comes to tech addiction. Once a kid has crossed the line into true tech addiction, treatment can be very difficult. Indeed, I have found it easier to treat heroin and crystal meth addicts than lost-in-the-matrix video gamers or Facebook-dependent social media addicts.

According to a 2013 Policy Statement by the American Academy of Pediatrics, 8- to 10 year-olds spend 8 hours a day with various digital media while teenagers spend 11 hours in front of screens. One in three kids are using tablets or smartphones before they can talk. Meanwhile, the handbook of "Internet Addiction" by Dr. Kimberly Young states that 18 percent of college-age internet users in the U.S. suffer from tech addiction.

Read: [This simple, but surprising, thing will improve your kid's grades](#)

Once a person crosses over the line into full-blown addiction — drug, digital or otherwise — they need to detox before any other kind of therapy can have any chance of being effective. With tech, that means a full digital detox—no computers, no smartphones, no tablets. The extreme digital detox even eliminates television. The prescribed amount of time is four to six weeks; that's the amount of time that is usually required for a hyper-aroused nervous system to reset itself. But that's no easy task in our current tech-filled society where screens are ubiquitous. A person can live without drugs or alcohol; with tech addiction, digital temptations are everywhere.

So how do we keep our children from crossing this line? It's not easy.

The key is to prevent your 4, 5 or 8-year-old from getting hooked on screens to begin with. That means Lego instead of Minecraft; books instead of iPads; nature and sports instead of TV. If you have to, demand that your child's school not give them a tablet or Chromebook until they are at least 10 years old (others recommend 12).

Have honest discussions with your child about why you are limiting their screen access. Eat dinner with your children without any electronic devices at the table—just as Steve Jobs used to have tech-free dinners with his kids. Don't fall victim to "Distracted Parent Syndrome"—as we know from Social Learning Theory, "monkey see, monkey do."

When I speak to my 9-year-old twin boys, I have honest conversations with them about why we don't want them having tablets or playing video games. I explain to them that some kids like playing with their devices so much, that they have a hard time stopping or controlling how much they play. I've helped them to understand that if they get caught up with screens and Minecraft like some of their friends have, that other parts of their lives may suffer: they may not want to play baseball as much; not read books as often; be less interested in science and nature projects; become more disconnected from their real-world friends. Amazingly, they don't need much convincing as they've seen first-hand the changes that some of their little friends have undergone as a result of their excessive screen time.

Developmental psychologists understand that children's healthy development involves social interaction, creative imaginative play and an engagement with the real, natural world. Unfortunately, the immersive and addictive world of screens dampens and stunts those developmental processes.

We also know that kids are more prone to addictive escape if they feel alone, alienated, purposeless and bored. Thus the solution is often to help kids to connect to meaningful real life experiences and flesh and blood relationships. The engaged child tethered to creative activities and connected to his or her family is less likely to escape into the digital fantasy world. Yet even if a child has the best and most loving support, he or she could fall into the Matrix once they engage with hypnotic screens and experience their addicting effect. After all, about one in 10 people are predisposed towards addictive tendencies.

In the end, my client Susan removed John's tablet, but recovery was an uphill battle with many bumps and setbacks along the way.

Four years later, after much support and reinforcement, John is doing much better today. He has learned to use a desktop computer in a healthier way, and has gotten some sense of balance back in his life: he's playing on a baseball team and has several close friends in his middle school. But his mother is still vigilant and remains a positive and proactive force with his tech usage because, as with any addiction, relapse can sneak up in moments of weakness. Making sure that he has healthy outlets, no computer in his bedroom and a nightly tech-free dinner at the dinner table are all part of the solution.

*Patients' names have been changed.

— Dr. Nicholas Kardaras is Executive Director of The Dunes East Hampton, one of the country's top rehabs and a former clinical professor at Stony Brook Medicine. His book "Glow Kids: How Screen Addiction is Hijacking Our Kids—and How to Break the Trance" (St. Martin's) is out now.

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LIVING

Kids turn violent as parents battle ‘digital heroin’ addiction

By Dr. Nicholas Kardaras

December 17, 2016 | 7:59pm

On August 28, The Post published a piece by Dr. Nicholas Kardaras, “The Frightening Effects of Digital Heroin,” that was based on his book “Glow Kids.” In it, he argued that young children exposed to too much screen time are at risk of developing an addiction “harder to kick than drugs.” The response was overwhelming, generating more than 3.3 million views on The Post’s website and hundreds of letters from anxious parents. Now Dr. Kardaras writes about this parental revolt against digital heroin and reminds readers of the worst effects of the obsession.

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Experienced sailors, Barbara McVeigh and her husband exposed their children to the natural beauty near their home in Marin County, Calif. — boating, camping and adventuring in the great outdoors. None of this stopped her 9-year-old son from falling down the digital rabbit hole.

His first exposure to screens occurred in first grade at a highly regarded public school — named one of California’s “Distinguished Schools” — when he was encouraged to play edu-games after class. His



contact with screens only increased during play dates where the majority of his friends played violent games on huge monitors in their suburban homes.

The results for Barbara's son were horrific: Her sweet boy, who had a "big spirit" and loved animals, now only wanted to play inside on a device.

"He would refuse to do anything unless I would let him play his game," she said. Barbara, who had discarded her TV 25 years ago, made the mistake of using the game as a bargaining tool.

Her son became increasingly explosive if she didn't acquiesce. And then he got physical. It started with a push here, then a punch there. Frightened, she tried to take the device away. And that's when it happened: "He beat the s—t out of me," she told me.

When she tried to take his computer away, he attacked her "with a dazed look on his face — his eyes were not his." She called the police. Shocked, they asked if the 9-year-old was on drugs.

He was — only his drugs weren't pharmaceutical, they were digital.

In August, I wrote a piece about "digital heroin" for the New York Post, and the response was explosive. More than 3 million readers devoured and shared the piece — though not everyone agreed on its message. Some readers felt that the notion of comparing screens and video games to heroin was a huge exaggeration.

I understand that initial response, but the research says otherwise. Over 200 peer-reviewed studies correlate excessive screen usage with a whole host of clinical disorders, including addiction. Recent brain-imaging research confirms that glowing screens affect the brain's frontal cortex — which controls executive functioning, including impulse control — in exactly the same way that drugs like cocaine and heroin do. Thanks to research from the US military, we also know that screens and video games can literally affect the brain like digital morphine.

In a series of clinical experiments, a video game called "Snow World" served as an effective pain killer for burned military combat victims, who would normally be given large doses of morphine during their painful daily wound care. While the burn patient played the seemingly innocuous virtual reality game "Snow World" — where the player attempts to throw snowballs at cartoon penguins as they bounce around to Paul Simon music — they felt no pain.

I interviewed Lt. Sam Brown, one of the pilot participants in this research who had been injured by an IED in Afghanistan and who had sustained life-threatening third-degree burns over 30 percent of his body. When I asked him about his experience using a video game for pain management, he said: "I was a little bit skeptical. But honestly, I was willing to try anything." When asked what it felt like compared to his morphine treatments, he said, "I was for sure feeling less pain than I was with the morphine."



Barbara McVeigh
Handout



Getty Images

Sure enough, brain imaging research confirmed that burn patients who played “Snow World” experienced less pain in the parts of their brain associated with processing pain than those treated with actual morphine.

The Navy’s head of addiction research, Cmdr. Dr. Andrew Doan, calls screens “digital pharmakeia” (Greek for pharmaceuticals), a term he coined to explain the neurobiological effects produced by video technologies.

‘I feel like there is a war going on against our children. And it’s come so fast that we’re not even questioning it.’

While this is a wonderful advance in pain-management medicine, it begs the question: Just what effect is this digital drug — a narcotic more powerful than morphine — having on the brains and nervous systems of 7-year-olds addicted to their glowing screens?

If screens are indeed digital drugs, then schools have become drug dealers. Under misguided notions that they are “educational,” the entire classroom landscape has been transformed over the past 10 years into a digital playground that includes Chromebooks, iPads, Smart Boards, tablets, smartphones, learning apps and a never-ending variety of “edu-games.”

These so-called “edu-games” are digital Trojan horses — chock-full of the potential for clinical disorders. We’ve already seen ADHD rates explode by over 50 percent the past 10 years as a whole generation of screen-raised kids succumb to the malaise-inducing glow. Using hyper-stimulating digital content to “engage” otherwise distracted students creates a vicious and addictive ADHD cycle: The more a child is stimulated, the more that child needs to keep getting stimulated in order to hold their attention.

Research also indicates that retention rates are lower on screens than on paper and that schools without electronics report higher test scores. And then there’s Finland. A standard bearer of international excellence in education, Finland rejected screens in the classroom. According to Krista Kiuru, their minister of education and science, Finnish students didn’t need laptops and iPads to get to the top of the international education rankings and aren’t interested in using them to stay there.

Yet in the US, there is a national effort to give kids screens at younger and younger ages as parents worry that their little ones may somehow be “left behind” in the education technology arms race — the data be damned.

But not all parents are drinking the screens-are-wonderful Kool-Aid — some are fighting back.

Cindy Eckard, a Maryland mother of two, is launching a grassroots campaign to create legislation to limit screen time in schools and is testifying in front of a state Senate subcommittee hearing this month.

“I was shocked to learn that the Maryland State Department of Education had no medically sound health guidelines in place before they put so many of our children in front of a computer every day . . . The schools keep encouraging more screen time in the classroom without any regard for our children’s well-being,” Eckard told me. “Our children are owed a safe classroom environment, and right now

Dr. Nicholas Kardaras
Luz Rojas Carderas

they’re not getting one.”

Some parents are opting out of public schools for less technology-dependent schools. Many Silicon Valley engineers and executives, for example, put their kids in non-tech Waldorf schools.

SEE ALSO

Others, like longtime educator and consultant Debra Lambrecht, have decided to create new tech-free school models. Debra has created the Caulbridge School, a distinctly “Finnish-style” school that is intended to serve as a template for future schools throughout the country.

“The argument for technology in the earlier grades is often rooted in the fear of children falling behind. It is true that most children will use technology in their jobs and everyday life. It is also true that most children will learn to drive a car,” Lambrecht said. “Certainly we would not give a 7-year-old child the car keys to give them a jump-start to be a more skillful driver. In the same way, we want to ensure children can effectively use technology as a tool and will bring all of their best thinking, creativity and innovation to bear.”

The case against screens
in schools

A Long Island mother recently contacted me because her 5-year-old son in kindergarten was going to be forced by the school to use an iPad. When she complained and threatened to pull her son out of school, her school district threatened to call child protective services. I spoke to her school’s superintendent, and he agreed to let her son opt out of using an iPad. But all the other kindergartners still need to use iPads for standardized-testing purposes. That Long Island mother has already reached out to her local legislators.



Why you need to stop giving your kids 'digital heroin'

That seems to be the key. Parents need to educate themselves, find their voices and speak up. If enough parents organize, push for legislation and put pressure on their schools to limit screen time in school — as well as to delay the grade levels that screens are introduced into the classroom — then we might have a chance to slow down this digital epidemic.

Indeed, even the respected AAP (American Academy of Pediatrics) has just this month modified their screen recommendations suggesting more tech-cautious guidelines: Children younger than 18 months, no digital media; ages 2 to 5, no more than one hour daily, to be “co-viewed” with parents.

But many, myself included, think these recommendations still don’t go far enough. Because of what we know about screens as “digital heroin,” I believe that kids below the age of 10 should have no interaction with interactive screens (iPads, smartphones, Xbox). There should be warning labels on such interactive screens that read: “Excessive Screen Usage by Children May Lead to Clinical Disorders.”

Meanwhile, back in Marin County, Barbara pulled her son out of his suburban tech-filled public school and enrolled him in a more rural, less tech-oriented school. So far, she's seen huge improvements in his behavior.

She just found out last week that all fourth-graders in her son's new school will begin learning the increasingly popular skill of "coding" to design video games. Even in this rural hamlet school, kids were allowed to play violent video games indoors rather than having to go outside to play during recess.

She is now hoping to get political about this issue and to reach out to legislators to end the digital madness in elementary schools. "I am prepared to go to war with our public education over technology use. This is wrong," Barbara said with the determined voice of a mother fighting for her child's life.

"I feel like there is a war going on against our children," Barbara said. "And it's come so fast that we're not even questioning it."

Dr. Nicholas Kardaras is executive director of The Dunes East Hampton, one of the country's top rehabs. His book "Glow Kids: How Screen Addiction Is Hijacking Our Kids — and How to Break the Trance" (St. Martin's Press) is out now.

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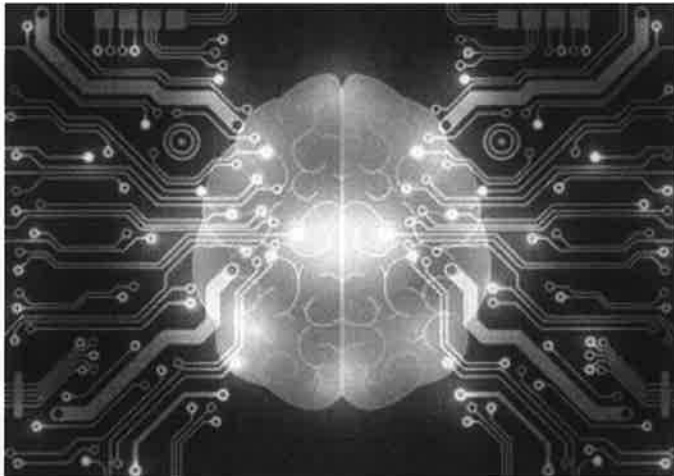


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Autism and Screen Time: Special Brains, Special Risks

Children with autism are vulnerable to the negative effects of screen time.

Posted Dec 31, 2016

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Source: kran77/fotolia

Children with [autism](#) spectrum disorders (ASD) are uniquely vulnerable to various brain-related impacts of screen time. These electronic “side effects” include hyperarousal and dysregulation—what I call [Electronic Screen Syndrome](#)—as well as [technology addiction](#), to video games, internet, smartphones, social media, and so on.

Why? Because a brain with autism has inherent characteristics that screen time exacerbates. In truth, these impacts in occur in all of us, but children with autism will be both more prone to experiencing negative effects *and* less able to recover from them; their brains are more sensitive and less resilient.

As a framework for [understanding](#) these vulnerabilities, it’s helpful to know that screen time—particularly the interactive kind—acts like a [stimulant](#), not unlike [caffeine](#), [amphetamines](#), or [cocaine](#). Also know that children with autism are often sensitive to stimulants of all kinds, whether pharmaceutical or electronic. For example, children with autism and attention issues often can’t tolerate prescribed stimulants, a standard treatment for ADD/ADHD. Stimulants tend to make children with autism irritable, weepy, over-focused, more [obsessive-compulsive](#), and unable to [sleep](#). Stimulants can also exacerbate tics, self-injurious behaviors, aggression, and sensory issues.

Meanwhile, in families dealing with autism, there exist additional social and emotional factors that contribute to technology overuse. First, families are often dealing with highly disruptive behaviors that are quieted—at least in the short term—by handing the child a device. Second, [parents](#) are told that “playing video games is ‘normal.’ It’s something your son can do with other kids.” Third, parents are encouraged to introduce technology early and often—especially if “he’s good at computers.” Fourth, in-home and school behavior therapists often use video games or other apps as reinforcers: “It’s the only thing that works with her!” And lastly, parents and clinicians are routinely encouraged to try unproven screen-based software claiming to reduce autistic behaviors or to improve social, communication or reading skills.

Needless to say, [education](#) in this arena is sorely needed.

2. Children with autism are prone to **arousal regulation issues**, manifesting in an exaggerated stress response, emotional dysregulation, or a tendency to be over or under-stimulated[3]; screen time increases acute and chronic stress, induces hyperarousal, causes emotional dysregulation, and produces overstimulation. [4]
3. Autism is associated with **inflammation of the nervous system** [5] and screen time may increase inflammation by a variety of mechanisms including increased stress hormones, suppressed melatonin, and non-restorative sleep. [6] Light-at-night from screens also suppresses REM sleep, a phase during which the brain “cleans house.” [7]
4. The autistic brain tends to be **underconnected**—less integrated and more compartmentalized [8]—and screen time hinders whole-brain integration and healthy development of the frontal lobe.[9] In fact, in tech addiction brain scan studies reveal reduced connectivity (via reduced white matter) and atrophy of gray matter in the frontal lobe. [10]
5. Children with autism have **social and communication deficits**, such as impaired eye contact, difficulty reading facial expressions and body language, low empathy, and impaired communication [11]; screen time hinders development of these exact same skills—even in children and teens who don’t have autism. [12] Screen time appears to directly compete with social rewards, including eye contact—a factor essential for brain development. [13] Lastly, screen viewing and even background TV has been shown to delay language acquisition. [14]
6. Children with autism are **prone to anxiety** [15]—including obsessive-compulsive traits, social anxiety—and screen time is associated with increased risk for OCD and social anxiety [16] while contributing to high arousal and poor coping skills. [17] Additionally, anxiety in autism has been linked to abnormalities in serotonin synthesis and amygdala activity [18] and both serotonin regulation and amygdala changes have been implicated in screen time. [19]
7. Children with autism frequently have **sensory and motor integration** issues [20] as well as tics; screen time has been linked to sensori-motor delays and worsening of sensory processing [21], and can precipitate or worsen vocal and motor tics due to dopamine release.
8. Individuals with autism are typically **highly attracted to screen-based technology** and are not only at increased risk for developing video game and other technology addictions, but are more likely to exhibit symptoms with smaller amounts of exposure. [22] Male teens and young adults with ASD are also at high risk for porn addiction, due to a combination of social deficits, isolation, and excessive computer time, and may develop romantic delusions or obsessions fueled by being accustomed to immediate gratification and a lack of practicing in the real world. At the same time, dopamine released by screen interaction reinforces these obsessive “loops.”
9. Children with autism tend to have a **fragile attention system**, poor executive functioning, and “reduced bandwidth” when processing information [23]; screen time likewise fractures attention, depletes mental reserves, and impairs executive functioning. [24]
10. Children with autism may be more **sensitive to EMFs** (electromagnetic fields) emitted from wireless communications (e.g. WiFi and cell phone frequencies) as well as from the electronic devices themselves. [25] At the cellular, molecular, and atomic level, the pathology seen in autism mirrors the effects demonstrated in research on the biological impacts of EMFs. Heightened sensitivity to EMFs may be due to (and may worsen) immune abnormalities and problems with barrier integrity in the gut and/or the brain.
11. Children with autism are at higher risk for psychiatric disorders of all kinds, including mood and anxiety disorders,

young people with ASD who engage in early screen time may experience neurodevelopmental delays, social interaction, and loss of reality-testing. More often than not, however, these scary symptoms resolve or greatly diminish once devices are removed and don't require antipsychotic medication.

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In addition to the above, screen time replaces the very things we know to be critical to brain development: bonding, movement, eye contact, face-to-face verbal interactions, loving touch, exercise, free play, and exposure to nature and the outdoors. Reduced exposure to these factors negatively impact brain integration, IQ, and resilience in all children.

In my own experience in working with children and adults with autism, screen time can precipitate regression (loss of language or of social or adaptive living skills), exacerbate repetitive behaviors, further restrict interests, and trigger aggressive and self-injurious behaviors. I've even seen regression occur when a communication device is introduced, often when the parents are told to encourage "play" on the device so the child can "get used to it." The proliferation of the iPad and smartphones has produced more problems and setbacks in my practice than any other single factor.

As stressful and devastating as these experiences can be, so can methodical elimination of screens be exciting and inspiring. Being screen-free can enhance eye contact and language, increase flexibility in thinking and behavior, expand interests, improve emotional regulation and ability to stay on task, induce more restorative sleep, and reduce anxiety and meltdowns.

Because the idea of eliminating screens can seem overwhelming, I typically recommend parents do a four week "electronic fast" as an experiment so they can get a taste of what the intervention can do. Families track two to three problematic areas to provide objective evidence, and are encouraged to document behaviors (such as screen time tantrums and how the child plays). Even a few short weeks can produce improvements that can be significant enough for the family to decide to continue with screen elimination, in which case the benefits will continue to build on one another.

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preliminary data in some cases even reverses the autism process. (Case studies illustrating these phenomena will be the subject of a future post.)

When parents really grasp the science of what happens in the brain when children interact with screen devices—and understand how these things specifically impact autism—they are much better able to restrict screens appropriately and are less swayed by social pressures. They “see” how screen time translates into certain symptoms in their child, they prioritize brain-health over being tech-savvy, and appreciate that every minute spent on a screen is a tradeoff.

For more help implementing a screen fast, see [Reset Your Child's Brain: A Four-Week Plan to End Meltdowns, Raise Grades, and Boost Social Skills by Reversing the Effects of Screen-Time](#).

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The Pen Is Mightier Than the Keyboard

Advantages of Longhand Over Laptop Note Taking

Pam A. Mueller, Daniel M. Oppenheimer,

First Published April 23, 2014 | Research Article

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SAGE Recommends

A correction has been published

Abstract

Taking notes on laptops rather than in longhand is increasingly common. Many researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing. In three studies, we found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. We show that whereas taking more notes can be beneficial, laptop note takers' tendency to transcribe lectures verbatim rather than processing information and reframing it in their own words is detrimental to learning.

Keywords

academic achievement, cognitive processes, memory, educational psychology, open data, open materials



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Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time

Jean M. Twenge, Thomas E. Joiner, Megan L. Rogers, more...

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Abstract

In two nationally representative surveys of U.S. adolescents in grades 8 through 12 ($N = 506,820$) and national statistics on suicide deaths for those ages 13 to 18, adolescents' depressive symptoms, suicide-related outcomes, and suicide rates increased between 2010 and 2015, especially among females. Adolescents who spent more time on new media (including social media and electronic devices such as smartphones) were more likely to report mental health issues, and adolescents who spent more time on nonscreen activities (in-person social interaction, sports/exercise, homework, print media, and attending religious services) were less likely. Since 2010, iGen adolescents have spent more time on new media screen activities and less time on nonscreen activities, which may account for the increases in depression and suicide. In contrast, cyclical economic factors such as unemployment and the Dow Jones Index were not linked to depressive symptoms or suicide rates when matched by year.

Keywords

depression, sociocultural factors, suicide prevention, interpersonal interaction, mass media



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More Screen Time For Teens Linked To ADHD Symptoms

by **Rhithu Chatterjee** NPR July 18, 2018 5:04 a.m.

Most teens today own a smartphone and go online every day, and about a quarter of them use the internet “almost constantly,” according to a 2015 report



(https://images3.opb.org/c_limit%2Cg_center%2Ch_480%2Cq_90%2Cw_620/097632a323776doe3af26554945fc4)

Getty Images, Peter Dazeley

(<http://www.pewinternet.org/2015/04/09/teens-social-media-technology-2015/>) by the Pew Research Center.

Now a study published Tuesday

(<https://jamanetwork.com/journals/jama/article-abstract/2687861>) in JAMA suggests that such frequent use of digital media by adolescents might increase their odds of developing symptoms of attention deficit hyperactivity disorder (ADHD).

“It’s one of the first studies to look at modern digital media and ADHD risk,” says psychologist Adam Leventhal (https://ipr.usc.edu/faculty.php?faculty_id=36), an associate professor of preventive medicine at the University of Southern California and an author of the study.

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When considered with previous research showing that greater social media use is associated with depression (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4853817/>) in teens, the new study suggests that “excessive digital media use doesn’t seem to be great for [their] mental health,” he adds.

Previous research (<https://www.ncbi.nlm.nih.gov/pubmed/24999762>) has shown that watching television or playing video games on a computer put teenagers at a slightly higher risk of developing ADHD behaviors. But less is known about the impact of computers, tablets and smartphones.

Because these tools have evolved very rapidly, there’s been little research into the impact of these new technologies on us, says Jenny Radesky, a pediatrician at the University of Michigan, who wrote an editorial about the new study for JAMA (<https://jamanetwork.com/journals/jama/fullarticle/2687840>).

Each new platform reaches millions of people worldwide in a matter of days or weeks, she says. “Angry birds reached 50 million users within 35 days. Pokemon Go reached the same number in 19 days.”

Research into their effects hasn’t been able to keep pace with the technological evolution, she adds.

“So it’s nice to finally to have some evidence on longer term impact that [these technologies are] having on children,” says Radesky. “I think it shows that something is going on, that there is an association, even if small, between these type[s] of media use habits throughout the day with emerging inattention, trouble with focusing, resisting distraction, controlling your impulses.”

The study followed 2,587 10th graders in schools in Los Angeles county over two years. The teens showed no symptoms of ADHD at the beginning of the study. By the end, teens with more frequent digital media use were more likely to have symptoms of ADHD.

The researchers assessed the students using a standardized questionnaire (<https://add.org/wp-content/uploads/2015/03/adhd-questionnaire-ASRS111.pdf>) for ADHD symptoms, including nine symptoms each for inattention and hyperactivity. Students with six or more symptoms in either category were counted as having symptoms of the disorder, based on criteria in the Diagnostic and Statistical Manual Of Mental Disorders (<https://www.cdc.gov/ncbddd/adhd/diagnosis.html>).

During the two years of the study, the researchers surveyed the teens every six months and asked them about the frequency of their participation in 14 different kinds of online activities such as texting, sharing on social media and streaming videos or music.

The students reported how many of the 14 activities they did and how often (0, 1-2 times a week, 1-2 times a day, or many times a day). If they did any activity many times, it counted as “high frequency use.”

About half of the students said they check social media sites and text many times every day.

“These results show that teens are really attached to their [digital] technologies, throughout the day,” says Radesky, who wasn’t involved in the new study. “It really captured the pervasive design that so many of these mobile technologies have taken on.”

By and large, students who frequently used six or more activities had a higher likelihood of developing ADHD symptoms.

For instance, among the 51 students who frequently did all 14 online activities, 10.5 percent showed ADHD symptoms over the course of the study. And of the 114 teens who frequently did seven digital activities, 9.5 showed symptoms. In contrast, only 4.6 percent of the 495 kids who didn’t do any of the activities frequently had new ADHD symptoms over the two-year period.

In other words, teens who were high frequency users of seven or 14 digital media platforms were more than twice as likely to develop ADHD symptoms than teens who did not use any media platform at a high frequency rate, notes Leventhal.

He and his colleagues statistically controlled for other potential confounding factors like family income level, race/ethnicity and pre-existing mental health conditions.

Leventhal is quick to caution that his study does not prove that being plugged into their devices caused ADHD among teens. “We don’t know that,” he says.

Showing ADHD symptoms is not the same as ADHD diagnosis, which is a multi-step process that involves a clinician in addition to the questionnaire. The study did not diagnose any of the kids with ADHD.

The study doesn’t prove causation — it finds an association. Still, because the study involved students who did not show symptoms in the beginning, the results give some cause for concern, Leventhal says. “To have 10-ish percent [of the high frequency media users] have the occurrence of new symptoms is fairly high,” he says.

Starting the study with kids who did not have ADHD at baseline was “a smart choice,” notes Radesky. “It helps reduce the chicken and egg situation.”

One of the strengths of the study is that it included a large number of teens from a diverse backgrounds, because “sociodemographic diversity has been a limitation of prior studies on digital media,” she writes in the JAMA editorial.

While the study doesn't show that all children are at risk of developing problems with attention and hyperactivity, "there is probably a sub-sample of kids who are more vulnerable," notes Radesky.

For example, the study found that children with mental health problems were more likely to develop these symptoms.

"That's important because those are the kids who are doing their emotional expression online," says Radesky. "They might be getting into more drama online, getting into more cyber bullying. And that can definitely be dysregulating and affect your ability to focus on things."

However, the study did have some limitations, she notes.

"There are other things changing over time that might explain the results you're seeing," she says. "In this case, they did not collect data on teenagers' sleep. They didn't have information on what the family dynamics were like at home, you know how involved were the parents? ... How much media is being used at home by the parents?"

Previous studies have shown that social media use is associated with disturbed sleep (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4857587/>), which could itself affect children's ability to focus in school and that might manifest in ADHD-like symptoms.

Similarly, "the more parents are on their phone, the more teens are likely to be as well," adds Radesky.

Radesky, who co-wrote the American Academy of Pediatrics' media use guidelines (<http://pediatrics.aappublications.org/content/138/5/e20162592>), says that she recommends parents and their children pause and reflect on how they use media, so children can understand the benefits and pitfalls of their online habits.

"I'd really like teenagers to develop a sense of tech savviness ... so they don't all feel this pressure to be online constantly in order to feel social relevance or acceptance," she says.

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More News

I gave my students iPads — then wished I could take them back

By Launa Hall

December 2, 2015

I placed an iPad into the outstretched hands of each of my third-grade students, and a reverent, tech-induced hush descended on our classroom. We were circled together on our gathering rug, just finished with a conversation about “digital citizenship” and “online safety” and “our school district bought us these iPads to help us learn, so we are using them for learning purposes.” They’d nodded vigorously, thrilled by the thought of their very own iPads to take home every night and bring to school every day. Some of them had never touched a tablet before, and I watched them cradle the sleek devices in their arms. They flashed their gap-toothed grins — not at each other but at their shining screens.

That was the first of many moments when I wished I could send the iPads back.

Some adult ears might welcome a room of hushed 8-year-olds, but teachers of young children know that the chatter in a typical elementary classroom is what makes it a good place to learn. Yes, it’s sometimes too loud. These young humans are not great conversationalists. They are often hurting someone’s feelings or getting hurt, misunderstanding or overreacting or completely missing the point. They need time to learn communication skills — how to hold your own and how to get along with others. They need to talk and listen and talk some more at school, both with peers and with adults who can model conversation skills.

The iPads subtly undermined that important work. My lively little kids stopped talking and adopted the bent-neck, plugged-in posture of tap, tap, swipe.

My colleagues and I had tried to anticipate all sorts of issues before the new tablet initiative rolled into our third-grade classrooms last year. What happens if the children lose them? Break them? Forget their passwords? How will we clean the screens? Charge them all at once? Which lessons lend themselves well to iPads, and which ones don’t? We had meetings, made plans and did our best to embrace the new — both because we had a sense of the potential and because asking questions about the efficacy of one-to-one classrooms (with a computing device for each child), or wondering aloud whether more tech for little kids was supported by research, was not only unwelcome, it was illogical. The money was spent (more than \$100,000 for each grade), and the iPads were happening.

Our planning helped, but there was so much we didn’t anticipate: alarms going off randomly throughout the day, bandwidth issues that slowed our lessons to a crawl, username issues followed by password issues followed by hundreds of selfies. All these things sucked instructional time. This at a school serving many students new to English or otherwise behind in their communication skills. They couldn’t afford to lose a single minute of learning. So I wrote lessons two ways: one in case enough iPads were working and one if too many weren’t. I tried to harness the benefits and overcome the avalanche of distracting minutiae the devices brought.

Veteran teachers of tablet-friendly classrooms will tell you that these were simply rollout problems. They may mention how tablets can help teachers tailor lessons to each child, or how they can provide an instant snapshot into whether a child understood a concept. They talk about apps that connect classmates to one another and to students across the globe, that foster creativity and a sense of newness that makes over a stale classroom.

Those early-adopter teachers are right: Tablets are portals to a million possibilities. Even with my rookie stumbles, my students did wonderful things. They made faux commercials that aired on our school's morning news; they recorded themselves explaining math problems; they produced movies about explorers, complete with soundtracks. I recorded mini-lessons for my students to watch at home, so we could "flip our classroom" and discuss the information in small groups the next day. And I knew we were just getting started.

But did the benefits offset what was lost?

Sherry Turkle, the author of "Reclaiming Conversation: The Power of Talk in a Digital Age," writes about how we are sacrificing connections, one quick check of our screens at a time. Her research finds that college students, with their ubiquitous phones, "are having a hard time with the give-and-take of face-to-face conversation." Eight-year-olds with iPads have the same struggles, minus any filters or perspective people might gain as they age. At the same time I was trying to encourage my students to appreciate the subtleties of human interaction, the iPads I gave them threatened to overwhelm their understanding.

Turkle writes that just the presence of a phone, even one turned off or flipped over on the table between speakers, gets in the way of conversations — we only bother with discussions we don't mind interrupting. Switch the setting to a classroom, and we may only engage in learning that we don't mind interrupting. It can be hard for kids to sustain their attention in a small group discussion when their own personal portal beckons from the back of the room.

One of my saddest days in my digital classroom was when the children rushed in from the lunchroom one rainy recess and dashed for their iPads. Wait, I implored, we play with Legos on rainy days! I dumped out the huge container of Legos that were pure magic just a couple of weeks ago, that prompted so much collaboration and conversation, but the delight was gone. My students looked at me with disdain. Some crossed their arms and pouted. We aren't kids who just play anymore, their crossed arms implied. We're iPad users. We're tech-savvy. Later, when I allowed their devices to hum to glowing life, conversation shut down altogether.

I knew that the lure of the screen would continue at home each night. Many of the students had screens at home already, but this one was different: It was their very own, it was portable, and it carried the stamp of approval of teacher, school and district. Do the adults in their homes still feel the authority to tell them to put that screen away and go outside and play?

Districts all over the country are buying into one-to-one tablet initiatives, and for younger and younger students. These screens have been rebranded “digital learning devices,” carrying the promise of education success for millions of our communities’ education dollars. Yet there is some evidence that tablets can be detrimental to learning.

A study released in September by the Organization for Economic Cooperation and Development looked at school tech initiatives in more than three dozen countries (although not the United States) and found that while students who use computers moderately show modest gains over those who rarely do, heavy technology use has a negative impact. “Students who use computers very frequently at school do a lot worse in most learning outcomes, even after accounting for social background and student demographics,” the report concluded.

We have also known for years — at least since the 2012 report “Facing the Screen Dilemma” from the Campaign for a Commercial-Free Childhood — that screen time for younger children in particular comes with a huge opportunity cost, depriving them of hands-on learning, time outdoors and “face-to-face interactions with caring adults.” Digital-savvy parents in Silicon Valley made news way back in 2011 for enrolling their children in steadfastly screen-free schools. They knew that their kids would be swiping and clicking soon enough, but there are only a limited number of childhood years when it’s not only really fun to build with Legos, it’s also really good for you.

Some proponents of one-to-one initiatives portray “analog classrooms” as gray spaces where bored teachers hand worksheets to uninspired kids — and tablets are the energizing cure. The One-to-One Institute, a nonprofit that helps school districts go digital, says on its Web site: “Research is clear that to ensure student success, education must move from a teacher-centric to a learner-centric approach. One-to-one programs create the opportunity for authentic personalization of teaching and learning for each student.”

But jumping from the “sage on the stage” teaching model to a screen for each kid skips over critical territory in between, where children learn from, and build their social skills with, one another. Classrooms run by worksheets won’t be magically transformed with tablets, and classrooms where teachers skillfully engage their students don’t need screens — and the extra baggage they introduce — to get great results.

Teachers striving to preserve precious space for conversation are not lazy, or afraid of change, or obstructionist. They believe that if our dining tables should be protected for in-depth discussion and focused attention, so, too, should our classrooms. They know that their young students live in the digital age, but the way children learn has not evolved so very fast. Kids still have to use their five senses, and, most of all, they have to talk to each other.

My students already had so many challenges and so much ground to cover. We put tablets in their hands and made their loads that much heavier.

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Launa Hall

Launa Hall lives in Northern Virginia and is working on a book of essays about teaching.



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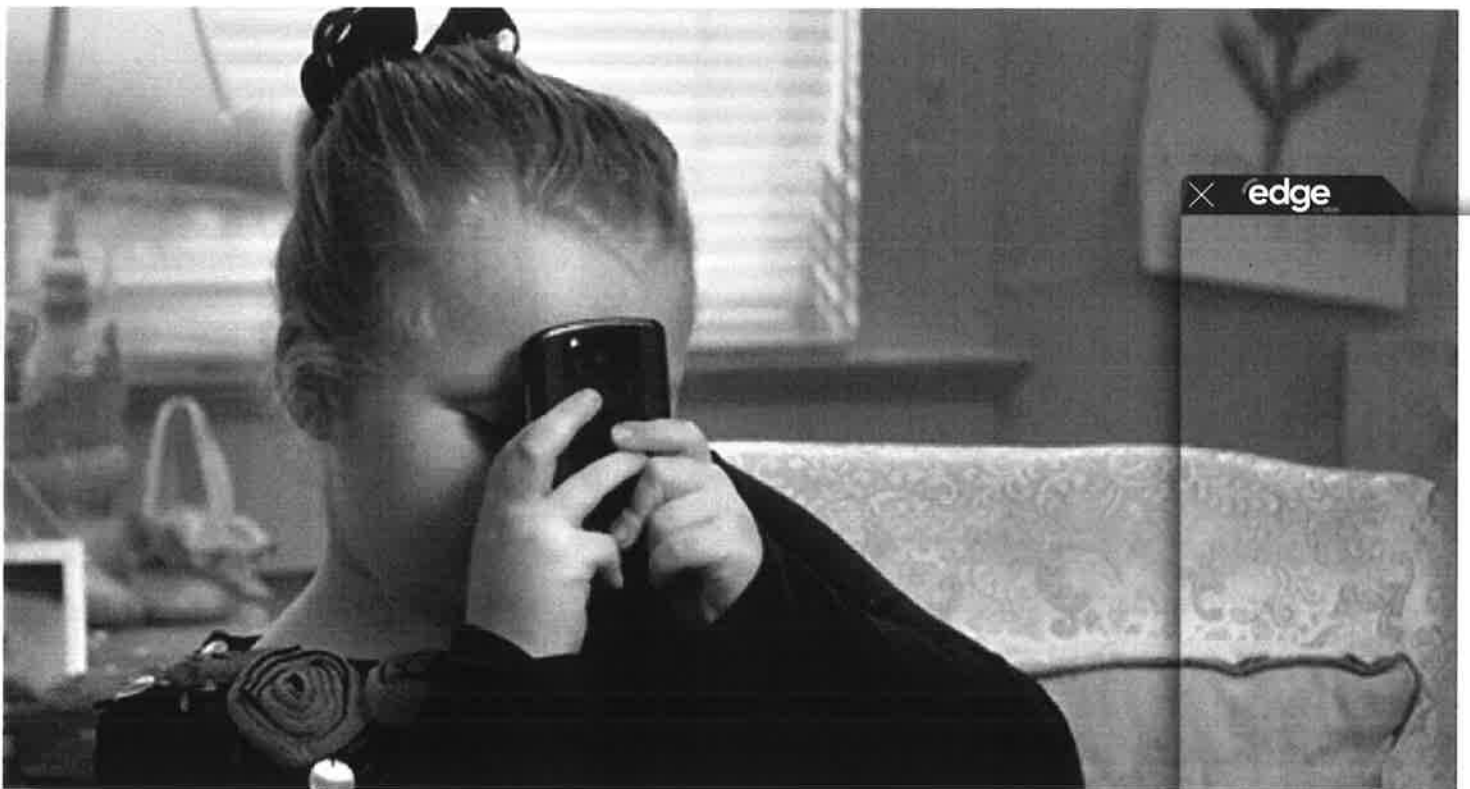


Psychologist Warns Early Use of Social Media Leads to Poor Decision-Making Skills



BY SUSAN L.M. GOLDBERG SEPTEMBER 21, 2016

4 COMMENTS



Psychologists want parents to think twice before handing over their smartphones to their toddlers. Behavior that amazes parents, for example when your little one figures out how to swipe a finger across the screen to make magic happen, can have a massively detrimental impact on a child's decision-making abilities later in life.

Cyberpsychologist Mary Aitken writes:

A 2015 consumer report shows that most American children get their first mobile phone when they are six years old. This shocks me. This is before what in psychology we call the age of reason, when a child enters a new state of logic and begins to understand the surrounding world — learning the difference between right and wrong, good and bad, justice and injustice. Now, with a phone in hand, these children

are being catapulted into cyberspace before they are psychologically capable of making sense of it. We can't even make sense of it yet.

We do know, though, that technology has changed childhood in innumerable ways. Cyberspace is where they are learning to read, doing their schoolwork, dressing up avatars, watching cartoons and meeting friends both fictional and real. A large US study of eight to 12-year-olds in 2014 found that a quarter reported using Facebook, even though you are meant to be 13 or older to be eligible to activate an account.

The psychologists and teachers behind the report concluded that the results were troubling: "Engaging in these online social interactions prior to necessary cognitive and emotional development that occurs throughout middle childhood could lead to negative encounters or poor decision-making."



In other words, while your child may be able to physically handle a phone and have the motor skills to interact with a smart device, they don't have the thinking skills or emotional development to fully process what they are encountering. This would seem like common sense to most parents, or so you'd think until you encountered the startling fact that 92% of children under the age of 2 have a social media presence created by their parents. They also have the communication delays and comprehension problems to go along with it.

Psychologists who study the impact of cyber usage on children have an uphill battle ahead of them when it comes to warning against the dangers screen media poses to healthy mental development. Most parents are willing to concede to the fact that children who sit too long in front of screens will be physically unhealthy. But when it comes to mental health, parents are at the receiving end of some seriously mixed messages.

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Pop culture now revolves around smart watches, Bluetooth devices and phones in-hand at all times. But, really, are you going to let Kim Kardashian set the trend for your child's psychological development? What's scarier is the fact that educators advocate for the use of various forms of screen media in the classroom as young as kindergarten and even preschool levels. Technology and toy manufacturers play off the education vibe, luring parents into buying apps and devices that promise to teach their children everything from the alphabet to coding lingo. It would seem as if not exposing your child to smart technology is the equivalent of going against the trend.

No wonder Steve Jobs was into it.

<https://pjmedia.com/parenting/2016/09/21/psychologist-warn-early-use-of-social-media-leads-to-poor-decision-making-skills/>

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Laptops are common in lecture halls worldwide. Students hear a lecture at the Johann Wolfgang Goethe-University on Oct. 13, 2014, in Frankfurt am Main, Germany.

Thomas Lohnes/Getty Images

As laptops become smaller and more ubiquitous, and with the advent of tablets, the idea of taking notes by hand just seems old-fashioned to many students today. Typing your notes is faster — which comes in handy when there's a lot of information to take down. But it turns out there are still advantages to doing things the old-fashioned way.

For one thing, research shows that laptops and tablets have a tendency to be distracting — it's so easy to click over to Facebook in that dull lecture. And a study has shown that the fact that you *have* to be slower when you take notes by hand is what makes it more useful in the long run.

In the study published in *Psychological Science*, Pam A. Mueller of Princeton University and Daniel M. Oppenheimer of the University of California, Los Angeles sought to test how note-taking by hand or by computer affects learning.

"When people type their notes, they have this tendency to try to take verbatim notes and write down as much of the lecture as they can," Mueller tells NPR's Rachel Martin. "The students who were taking longhand notes in our studies were forced to be more selective — because you can't write as fast as you can type. And that extra processing of the material that they were doing benefited them."

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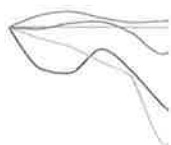
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Mueller and Oppenheimer cited that note-taking can be categorized two ways: generative and nongenerative. Generative note-taking pertains to "summarizing, paraphrasing, concept mapping," while nongenerative note-taking involves copying something verbatim.

And there are two hypotheses to why note-taking is beneficial in the first place. The first idea is called the encoding hypothesis, which says that when a person is taking notes, "the processing that occurs" will improve "learning and retention." The second,

called the external-storage hypothesis, is that you learn by being able to look back at your notes, or even the notes of other people.

Because people can type faster than they write, using a laptop will make people more likely to try to transcribe everything they're hearing. So on the one hand, Mueller and Oppenheimer were faced with the question of whether the benefits of being able to look at your more complete, transcribed notes on a laptop outweigh the drawbacks of not processing that information. On the other hand, when writing longhand, you process the information better but have less to look back at.



BUSINESS

Don't Write Off Paper Just Yet



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In A Digital Chapter, Paper Notebooks Are As Relevant As Ever

For their first study, they took university students (the standard guinea pig of psychology) and showed them TED talks about various topics. Afterward, they found that the students who used laptops typed significantly more words than those who took notes by hand. When testing how well the students remembered information, the researchers found a key point of divergence in the type of question. For questions that asked students to simply remember facts, like dates, both groups did equally well. But for "conceptual-application" questions, such as, "How do Japan and Sweden differ in their approaches to equality within their societies?" the laptop users did "significantly worse."

The same thing happened in the second study, even when they specifically told students using laptops to try to avoid writing things down verbatim. "Even when we told people they shouldn't be taking these verbatim notes, they were not able to overcome that instinct," Mueller says. The more words the students copied verbatim, the worse they performed on recall tests.

And to test the external-storage hypothesis, for the third study they gave students the opportunity to review their notes in between the lecture and test. The thinking is, if students have time to study their notes from their laptops, the fact that they typed more extensive notes than their longhand-writing peers could possibly help them perform better.

But the students taking notes by hand still performed better. "This is suggestive evidence that longhand notes may have superior external storage as well as superior encoding functions," Mueller and Oppenheimer write.

Do studies like these mean wise college students will start migrating back to notebooks?

"I think it is a hard sell to get people to go back to pen and paper," Mueller says. "But they are developing lots of technologies now like Livescribe and various stylus and tablet technologies that are getting better and better. And I think that will be sort of an easier sell to college students and people of that generation."

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EDUCATION DISRUPTED

How Silicon Valley Plans to Conquer the Classroom

By Natasha Singer and Danielle Ivory

Nov. 3, 2017

BALTIMORE COUNTY, Md. — They call it the “Church Lane Hug.”

That is how educators at Church Lane Elementary Technology, a public school here, describe the protective two-armed way they teach students to carry their school-issued laptops.

Administrators at Baltimore County Public Schools, the 25th-largest public school system in the United States, have embraced the laptops as well, as part of one of the nation’s most ambitious classroom technology makeovers. In 2014, the district committed more than \$200 million for HP laptops, and it is spending millions of dollars on math, science and language software. Its vendors visit classrooms. Some schoolchildren have been featured in tech-company promotional videos.

And Silicon Valley has embraced the school district right back.

HP has promoted the district as a model to follow in places as diverse as New York City and Rwanda. Daly Computers, which supplied the HP laptops, donated \$30,000 this year to the district’s education foundation. Baltimore County schools’ top officials have traveled widely to industry-funded education events, with travel sometimes paid for by industry-sponsored groups.

Silicon Valley is going all out to own America’s school computer-and-software market, projected to reach \$21 billion in sales by 2020. An industry has grown up around courting public-school decision makers, and tech companies are using a sophisticated playbook to reach them, The New York Times has found in a review of thousands of pages of Baltimore County school documents and in interviews with dozens of school officials, researchers, teachers, tech executives and parents.



A student using the “Church Lane Hug” to carry her laptop securely. Matt Roth for The New York Times



A teacher helped second graders at Church Lane as they worked on their HP devices, which can convert from laptops into tablets. The district has committed more than \$200 million for the laptops.

Matt Roth for The New York Times

School leaders have become so central to sales that a few private firms will now, for fees that can climb into the tens of thousands of dollars, arrange meetings for vendors with school officials, on some occasions paying superintendents as consultants. Tech-backed organizations have also flown superintendents to conferences at resorts. And school leaders have evangelized company products to other districts.

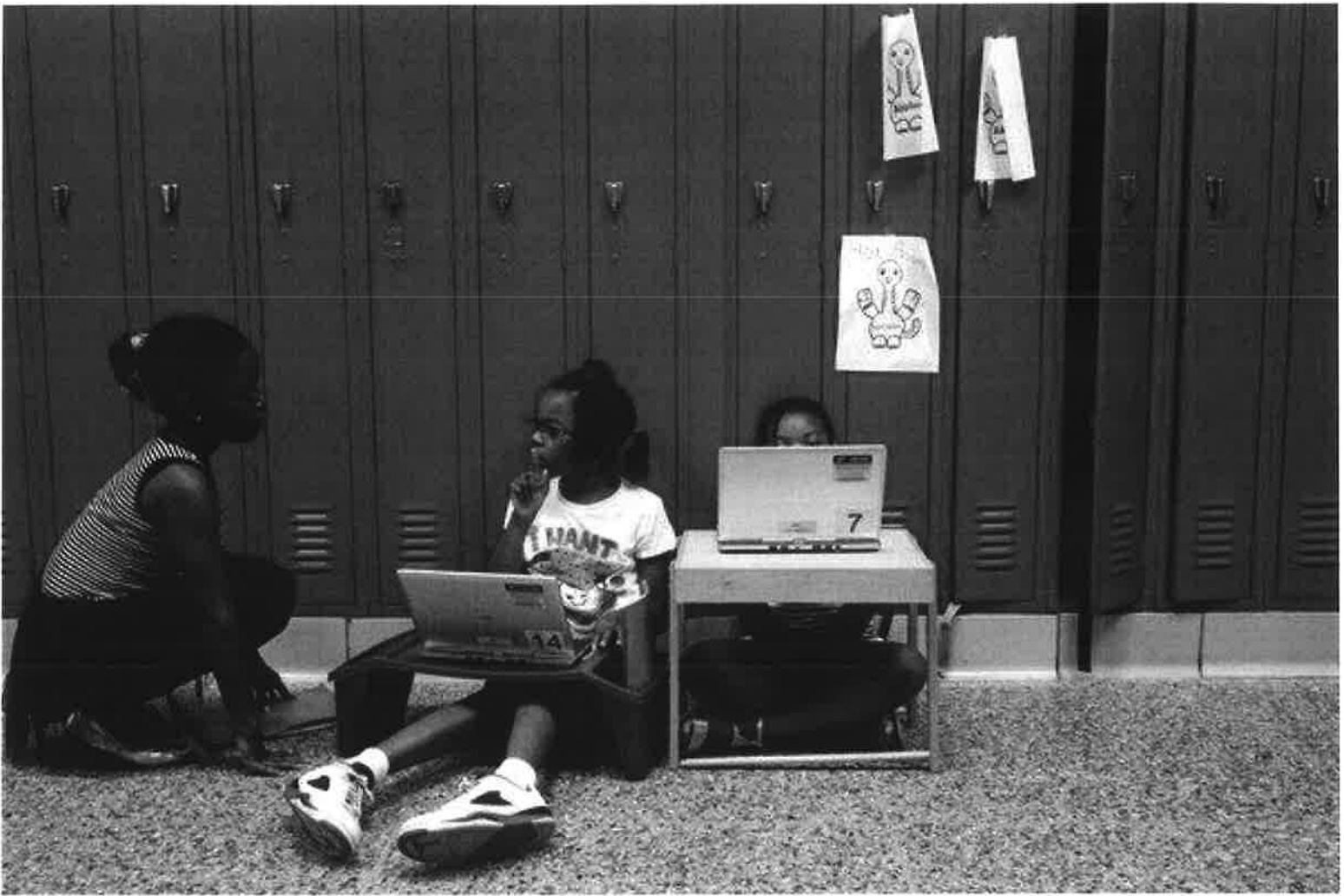
These marketing approaches are legal. But there is little rigorous evidence so far to indicate that using computers in class improves educational results. Even so, schools nationwide are convinced enough to have adopted them in hopes of preparing students for the new economy.

In some significant ways, the industry's efforts to push laptops and apps in schools resemble influence techniques pioneered by drug makers. The pharmaceutical industry has long cultivated physicians as experts and financed organizations, like patient advocacy groups, to promote its products.

Studies have found that strategies like these work, and even a free \$20 meal from a drug maker can influence a doctor's prescribing practices. That is one reason the government today maintains a database of drug maker payments, including meals, to many physicians.

Tech companies have not gone as far as drug companies, which have regularly paid doctors to give speeches. But industry practices, like flying school officials to speak at events and taking school leaders to steak and sushi restaurants, merit examination, some experts say.

“If benefits are flowing in both directions, with payments from schools to vendors,” said Rob Reich, a political-science professor at Stanford University, “and dinner and travel going to the school leaders, it's a pay-for-play arrangement.”



Students at Church Lane and other Baltimore County schools are encouraged to study wherever suits them best — including in a hallway. Matt Roth for The New York Times

Close ties between school districts and their tech vendors can be seen nationwide. But the scale of Baltimore County schools' digital conversion makes the district a case study in industry relationships. Last fall, the district hosted the League of Innovative Schools, a network of tech-friendly superintendents. Dozens of visiting superintendents toured schools together with vendors like Apple, HP and Lego Education, a division of the toy company.

The superintendents' league is run by Digital Promise, a nonprofit that promotes technology in schools. It charges \$25,000 annually for corporate sponsorships that enable the companies to attend the superintendent meetings. Lego, a sponsor of the Baltimore County meeting, gave a 30-minute pitch, handing out little yellow blocks so the superintendents could build palm-size Lego ducks.

Karen Cator, the chief executive of Digital Promise, said it was important for schools and industry to work together. “We want a healthy, void-of-conflict-of-interest relationship between people who create products for education and their customers,” she said. “The reason is so that companies can create the best possible products to meet the needs of schools.”

Several parents said they were troubled by school officials’ getting close to the companies seeking their business. Dr. Cynthia M. Boyd, a practicing geriatrician and professor at Johns Hopkins University School of Medicine with children in district schools, said it reminded her of drug makers’ promoting their medicines in hospitals.

“You don’t have to be paid by Big Pharma, or Big Ed Tech, to be influenced,” Dr. Boyd said. She has raised concerns about the tech initiative at school board meetings.

A Makeover Is Born

Baltimore County’s 173 schools span a 600-square-mile horseshoe around the city of Baltimore, which has a separate school system. Like many districts, the school system struggles to keep facilities up-to-date. Some of its 113,000 students attend spacious new schools. Some older schools, though, are overcrowded, requiring trailers as overflow classrooms. In some, tap water runs brown. And, in budget documents, the district said it lacked the “dedicated resources” for students with disabilities.

Dallas Dance, the former superintendent of Baltimore County Public Schools, helping students with math on their HP laptops. Mr. Dance has appeared in videos for school vendors like HP. Matt Roth for The New York Times

In a district riven by disparities, Dallas Dance, the superintendent from 2012 through this past summer, made an appealing argument for a tech makeover. To help students develop new-economy skills, he said, every school must provide an equitable digital learning environment — including giving every student the same device.

“Why does a first grader need to have it?” Mr. Dance said in an interview last year. “In order to break the silos of equity, you’ve got to say that everyone gets it.”

The district wanted a device that would work both for youngsters who couldn’t yet type and for high schoolers. In early 2014, it chose a particularly complex machine, an HP laptop that converts to a tablet. That device ranked third out of four devices the district considered, according to the district’s hardware evaluation forms, which The Times obtained. Over all, the HP device scored 27 on a 46-point scale. A Dell device ranked first at 34.

The district ultimately awarded a \$205 million, multiyear contract to Daly Computers, a Maryland reseller, to furnish the device, called the Elitebook Revolve.

Mychael Dickerson, a school district spokesman, said, “The device chosen was the one that was closely aligned to what was recommended by stakeholders.” Daly did not respond to inquiries.

With the laptop deal sealed, Silicon Valley kicked into gear.

In September 2014, shortly after the first schools received laptops, HP invited the superintendent to give a keynote speech at a major education conference in New York City. Soon after, Gus Schmedlen, HP's vice president for worldwide education, described the event at a school board meeting.

“We had to pick one group, one group to present what was the best education technology plan in the world for the last academic year,” Mr. Schmedlen said. “And guess whose it was? Baltimore County Public Schools!”

An HP spokesman said the company did not pay for the trip. He said the company does not provide “compensation, meals, travel or other perks to school administrators or any other public sector officials.”

The superintendent later appeared in an HP video. “We are going to continue needing a thought partner like HP to say what’s working and what’s not working,” he said.

Microsoft, whose Windows software runs the laptops, named the district a Microsoft Showcase school system. Intel, whose chips power the laptops, gave Ryan Imbriale, the executive director of the district’s department of innovative learning, an Intel Education Visionary award.

Recently, parents and teachers have reported problems with the HP devices, including batteries falling out and keyboard tiles becoming detached. HP has discontinued the Elitebook Revolve.

Mr. Dickerson, the district spokesman, said there was not “a widespread issue with damaged devices.”

An HP spokesman said: “While the Revolve is no longer on the market, it would be factually inaccurate to suggest that’s related to product quality.”

Asked what device would eventually replace the Revolve in the schools, the district said it was asking vendors for proposals.

Mr. Dance’s technology makeover is now in the hands of an interim superintendent, Verletta White. In April Mr. Dance announced his resignation, without citing a reason. Ms. White has indicated that she will continue the tech initiative while increasing a focus on literacy.

The Baltimore County district has developed close relationships with, and won awards from, tech companies. Ryan Imbriale, a district administrator, was named an Education Visionary by Intel, which supplies the chips that power student laptops. Matt Roth for The New York Times

A Baltimore County school board member, David Uhlfelder, said a representative from the Office of the Maryland State Prosecutor had interviewed him in September about Mr. Dance's relationship with a former school vendor (a company not in the tech industry).

The prosecutor's office declined to confirm or deny its interest in Mr. Dance.

Mr. Dance, who discussed the district's tech initiatives with a Times reporter last year, did not respond to repeated emails and phone calls this week seeking comment.

Courting the Superintendents

In Baltimore County and beyond, the digital makeover of America's schools has spawned a circuit of conferences, funded by Microsoft, Google, Dell and other tech vendors, that lavish attention on tech-friendly educators.

Mr. Dance's travel schedule sheds light on that world.

Between March 2014, when the laptop contract was announced, and April 2017, when he announced his resignation, Mr. Dance took at least 65 out-of-state trips related to the district's tech initiatives or involving industry-funded groups, according to a Times analysis of travel documents obtained under public records laws — nearly two trips per month on average. Those trips cost more than \$33,000. The Times counted only trips with local receipts, indicating Mr. Dance set foot in the cities.

At least \$13,000 of Mr. Dance's airline tickets, hotel bills, meals and other fees were paid for by organizations sponsored by tech companies, some of which were school vendors, The Times found. The \$13,000 is an incomplete number, because some groups cover superintendents' costs directly, which means school records may not include them.

Another way tech companies reach superintendents is to pay private businesses that set up conferences or small-group meetings with them. Superintendents nationwide have attended these events.

One prominent provider is the Education Research and Development Institute, or ERDI, which regularly gathers superintendents and other school leaders for conferences where they can network with companies that sell to schools.

ERDI offered several service levels this year, according to a membership rate card obtained by The Times. A \$13,000 fee for Bronze membership entitles a company to one confidential meeting, where executives can meet with five school leaders to discuss products and school needs. Diamond members could pay \$66,000 for six such meetings.

ERDI has offered superintendents \$2,000 per conference as participating consultants, according to a Louisiana Board of Ethics filing. And there are other perks.

“Because we are asking for their time and expertise, we commonly offer to pay the cost of their food, transportation and lodging during their participation,” ERDI’s president, David M. Sundstrom, said in an email.

Mr. Dance’s calendar indicated that he had attended at least five ERDI events.

Mr. Dance received payment last year as an adviser for ERDI, according to his most recent district financial disclosure. It lists Dulle Enterprises, a company that owned ERDI in the past, as an employer from which he earned income.

Last February, at an ERDI conference in New Orleans, Mr. Dance met with Curriculum Associates, which makes reading software, as well as DreamBox Learning, a math platform.

At the time, both companies had contracts with the district. A few months after the event, the school board approved additional money for both companies. Each contract is now worth about \$3.2 million.

A DreamBox spokeswoman said there was no connection between the meeting and its contract. “Even the appearance of impropriety is something we take very seriously and take steps to avoid,” she said.

A Curriculum Associates spokeswoman said: “These panels are not sales presentations, but rather focus-group opportunities to solicit feedback on products under development.”

Ms. White, the interim superintendent, has been involved with ERDI since 2013, according to Mr. Dickerson. He said Ms. White used vacation time to attend events, where she “provided guidance to education-related companies on goods, services and products that are in development to benefit student performance.”

Asked whether Ms. White had received ERDI payments, Mr. Dickerson said, “Participation in ERDI is done independently of the school system.” In an email, Ms. White said she found ERDI to be a “beneficial professional learning experience.” She didn’t respond to a question about ERDI compensation.

She added, “I do not believe there are any conflicts of interests” related to the district’s tech initiative.

Mr. Sundstrom, ERDI's president, said education companies pay a fee to attend events "not to meet school leaders or make a sale," but to get meaningful feedback on their education products from knowledgeable school leaders. He added that school officials do not make purchases at ERDI sessions and that it is their school boards that approve district purchases.

Baltimore County's travel rules say, "No travel expenses will be paid by those seeking to do business with the Baltimore County Public Schools prior to obtaining a contract." Mr. Dickerson explained that applied to companies currently bidding for contracts.

Students at Church Lane are also encouraged to read books offline. Matt Roth for The New York Times

A Foundation's Big Fund-Raiser

Beneath crystal chandeliers last April, politicians, school leaders, vendors and community members gathered in a banquet hall. The occasion was State of the Schools, an annual fund-raising luncheon arranged by the Education Foundation of Baltimore County Public Schools.

The foundation was created in the early 1990s and raises money for schools. Tech companies have made significant donations, and have directors sitting on the foundation's board. The directors include employees from Discovery Education, Pearson and Microsoft, all vendors with multimillion-dollar district contracts.

Daly, the laptop provider, was the biggest donor, giving \$30,000. McGraw-Hill, Discovery Education, Pearson and Microsoft each donated \$1,500 to \$15,000. Of the \$211,500 in publicly listed donations for the event, tech companies gave about 43 percent.

“You have these huge contracts, and then you donate all this money, and the foundation puts up a banner advertising your company’s name,” said Michael J. Collins, a former Maryland state senator and former school board member. “I just didn’t think that passed the smell test.”

Discovery Education said it trained employees to avoid potential conflicts of interest. Microsoft said its policies followed government gift and ethics rules. Pearson said its donation had been nominal and vetted to prevent conflict of interest. McGraw-Hill said it was committed to integrity and transparency.

Deborah S. Phelps, the foundation’s executive director, said it awarded scholarships and gave schools grants for projects in culture, science, technology and other subjects.

When asked if the foundation had policies governing donations from vendors or potential vendors, Ms. Phelps said no. “There’s not necessarily a policy,” she said. There is also no policy prohibiting foundation board members who are vendors from reviewing grants involving their or competitors’ products, she said.

Mr. Dickerson said the focus of Baltimore County Public Schools was on “supporting students, teachers and their learning environments.” He added: “We are unapologetic for engaging with our Education Foundation, business partners and community stakeholders in an effort to close known achievement gaps.”

Mr. Reich of Stanford suggested school districts establish clearer rules governing their relationships with vendors, particularly with tech companies racing to win over the gatekeepers to America’s classrooms. Otherwise, parents could lose trust in the system.

“School leaders should be just as concerned about the perception of corruption as actual corruption,” he said.

Lilia Chang contributed reporting from Washington, and Jeremy Merrill from New York. Doris Burke contributed research.

A version of this article appears in print on Nov. 3, 2017, on Page A1 of the New York edition with the headline: Tech Firms Entice Schools With Steak and Travel

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