Disrupt education? No Thanks

The pandemic upended education as we know it. The EdTech industry says its "innovative" products can ease our pain. Research says otherwise.

By Criscillia Benford, PhD

In response to the COVID-19 pandemic schools closed their doors this spring, impacting the lives of 1.5 billion students around the world and sending teachers and school administrators scrambling to keep students connected to learning opportunities. To do this they deployed a range of old and new technologies including radio, television, USB drives, CDs, cellphones, tablets, laptops, and even paper packets. Some called it "crisis schooling," and rightly so.

Crisis schooling surfaced an always-important yet little-discussed fact about so-called brick-and-mortar schools: as physical spaces, schools provide far more than academic instruction. When children attend physical schools, teachers and other support staff have an easier time identifying abuse, neglect, psychosocial distress, and suicidal ideation. Children interacting with peers and teachers in physical schools have an easier time developing social and emotional skills. Schools also provide stability, reliable nutrition, opportunities for physical activity, special education services, and mental health and physical/speech therapy. And, of course, public schools are safe, free settings for child care.

As I write, schools worldwide are developing their learning plans for the Fall, and facing immense pressure to resume in-person instruction. The United Kingdom's Royal College of Pediatrics and Child Health (RCPCH) has warned that keeping schools closed "risks scarring the life chances of a generation of young people." A statement by the American Academy of Pediatrics (AAP) reminds decision makers that the "importance of in-person learning is well documented, and there is already evidence of

the negative impacts on children because of school closures in the spring of 2020." School closures pose particularly fierce challenges for families with primary care-givers who must work away from home, as well as families without homes. Unesco affirms that disruptions caused by school closures "exacerbate already existing disparities within the education system," and are "particularly severe for the most vulnerable and marginalized" children and their families.

Schools in some countries did remain open despite the COVID-19 pandemic, and more than 20 countries reopened schools just months after closing them. Staff at Science looked to schools in these countries for patterns that could indicate likely best practices for keeping students and school staff safe. What they found will not surprise many readers of this article. Masks, smaller class sizes, hand washing, adequate ventilation, testing, and physical distancing help reduce spread of the disease in learning environments. And it appears that younger children are less likely to transmit the disease or become infected.

Yet despite this promising news, it is likely that many schools will remain closed or deploy a mix of in-person and remote instruction for the foreseeable future. There are many reasons for this, mostly having to do with space, planning, time, money, and uncertainty. To follow physical distancing guidelines a school would need access to more physical space, or mandate students attend physical school in shifts. In many jurisdictions, schools still lack comprehensive plans for safely opening physical buildings, as well as the time and financial resources needed to implement such plans. And because there remains so much uncertainty regarding SARS-CoV-2 and COVID-19, many parents, teachers, and staff believe that returning to physical school buildings is too risky to tolerate.

In the midst of our collective anxiety and grief, pixelated vampires have appeared. These dangerously virtual substitutes for physical schools, made glamorous by the

EdTech industry's rhetoric of innovation, efficiency, and cost-savings, promise to save us from COVID-disruptions. All we need to do is invite them in.

Please don't. I wrote this article to explain why.

WHAT IS EDTECH?

The EdTech Industry is a global industry serving the full spectrum of the education market –– pre-school, K-12, higher education, corporate/enterprise/continuing education, assessment and verification, and informal learning. Venture-backed EdTech companies worth hundreds of millions of dollars are based in the United States, China, India, Indonesia, and the European Union.

These companies sell educational content and hardware such as interactive white boards, laptops, and tablets. They also sell software designed to mediate communication between stakeholders (e.g., students, teachers, parents, administrators), and extract or accept hand-entered data in order to algorithmically manage student behavior and/or deliver algorithmically-generated reports, instruction, and guidance. The poster vampire (ahem, poster child) of the industry is a software-enabled, data-driven (and sometimes gamified) instructional approach called "personalized learning."

What does gamified personalized learning look like in action? Personalized learning transforms teachers into "guides on the side" who assist students as they interact with YouTube-style recommendation algorithms that select assignments and determine when a student moves on to the next "level" of the curriculum. *Gamified* personalized learning seeks to increase student engagement through the incorporation of game-like elements such as badges, avatars, storylines, competitions, progression bars, "power-ups" –– and even the ability to earn in-game cash.

Products like these are being touted by advocates for the EdTech industry as one-stop solutions to all COVID-related educational challenges. Dissatisfied with your school's reopening plan or worried that physical schools are unsafe? Try virtual schools! Lack space for physical distancing? Try blended learning! Baffled by disengaged students with varying preparedness levels? Data-driven personalized learning to the rescue! Worried about your students' psychosocial distress? Let tech-enabled emotional surveillance help with that! Facing budget cuts or teacher shortages? Let AI teach the kids! Crazed by platform overload? Come buy! Come buy!

Sounds great, right?

Not so fast.

While EdTech's marketing rhetoric is appealing, its track record is dismal.

More often than not, EdTech fails to deliver on its promises to improve equity and learning outcomes. Many platforms ignore children's real needs, and some may even violate children's rights. Others simply waste (or even steal) funding that could have been used for more positively impactful initiatives. Anecdotes describing EdTech's shortcomings abound, and research seeking to understand EdTech's impact supports unfavorable individual verdicts: EdTech disappoints.

Since 2013, the National Education Policy Center (NEPC) has published an annual report documenting the growth of the EdTech sector in the United States and examining the year's research on virtual education. Each year, researchers find that full-time virtual schools and blended schools produce worse outcomes than brick-and-mortar public schools, and that industry claims regarding cost savings are not supported by available research. Research evaluating instructional models used by virtual schools and describing the student experience is sparse, and what is available is "methodologically questionable" and in other ways subpar. Accordingly, NEPC

recommends that policymakers "slow or stop the growth in the number of virtual and blended schools and the size of their enrollments until the reasons for their relatively poor performance have been identified and addressed." You can find the full 2019 report here, and a summary of the report by one of its authors, Alex Molnar, here.

NEPC researchers aren't alone in their skepticism. A June 2020 report by McKinsey warns against "uncritically" accepting EdTech as a solution to COVID-related educational challenges, and urges careful planning and preparation to increase the probability that an initiative will be successful. "These lessons hold true regardless of geography," the report states. The World Bank makes a similar claim in its "knowledge map" of the impact of information & communication technology (ICT) on learning and achievement: "In general, despite thousands of impact studies, the impact of ICT use on student achievement remains difficult to measure and open to much reasonable debate." Writing for the fifth volume of the Handbook of the Economics of Education, Drs. George Bulman and Robert Fairlie, researchers based at the University of California, Santa Cruz in the United States, state that evidence of EdTech's effectiveness "appears to be strongest in developing countries" and the outcome depends upon the "characteristics of the intervention."

So what does a successful EdTech intervention look like? Tusome, a USAID-funded program adopted by the Kenyan government and described in a 2018 article for The Economist, offers clues. Tusome means "let's read" in Kiswahili, a Bantu language spoken in East and Central Africa and the official language of Kenya. As an EdTech intervention, Tusome consists of more than hardware and software. Tusome includes a custom reading curriculum, custom books, and detailed lesson plans. Human teachers deliver the lessons in physical classrooms while coaches log information about the teachers' and their students' performances into the Tusome platform using a tablet. Coaching advice based on data entered by the coach is dispensed through the tablet. All entered and processed information can be reviewed by the county offices that run the local schools. The program costs about $4 per child per year, and research shows that

thanks to Tusome the portion of Kenyan Grade 2 students who could read 30 words-per-minute doubled, rising from 1/3 to 2/3.

Programs like Tusome succeed because they are designed to address specifically local educational challenges –– in this case, insufficient teacher training, lack of teacher oversight, and teacher absenteeism.

EdTech initiatives usually fail to live up to their hype –– in large part because the characteristics of such initiatives are neither aligned with established research explaining how children learn, nor with local reality. Unsuccessful initiatives are hobbled by core design assumptions that are simply wrong for usage contexts, assumptions regarding things like cultural norms, relevance to existing curriculum, relevance to student experience, connectivity availability, available time-on-task, prior student knowledge, and available teacher training resources.

Consider, for example, the One Laptop Per Child (OLPC) initiative. Nicholas Negroponte, founder of the MIT Media Lab, launched the program in 2006 with the intention of putting inexpensive-but-durable laptops in the hands of poor children around the world. "We will literally take tablets and drop them out of helicopters," The Economist quoted him as saying.

The program got a lot of people excited. However, it was ultimately a failure in more ways than one. The laptops were more expensive and less durable than Negroponte had predicted, and his plan for selling them was blinkered by Western hubris and lack of global perspective. Most importantly, the OLPC laptops did not lead to improved learning outcomes in math and language, though such improvements were the declared objective of the program.

Negroponte's OLPC initiative is a classic example of hardware dumping, a presumptuous and ultimately wasteful way of "improving" education through the

introduction of technology. Hardware dumping assumes that hardware and connectivity access alone will improve learning outcomes. Research and experience shows that this is simply untrue.

Tech for tech's sake in educational settings diverts money, time, and attention from meeting students' learning needs, and arguments supporting this approach wrongly imply that mere exposure to today's technology will translate into tomorrow's upward mobility.

Los Angeles Unified School District learned the hardware dumping lesson the expensive way in 2013. The district introduced a $1 billion initiative to give every student an iPad loaded with curriculum developed by Pearson, a textbook and standardized test publisher. Before the roll-out period was over, students had figured out how to circumvent security locks, allowing them to exit Pearson's walled garden and visit noneducational sites. The district eventually demanded a refund from Apple, citing what WIRED described as "crippling technical issues with the Pearson platform and incomplete curriculum that made it nearly impossible for teachers to teach." The FBI launched an investigation.

Michael Trucano, Global Lead for Innovation in Education at the World Bank, decries hardware dumping in a 2010 article entitled "Worst Practice in ICT Use in Education." Though the article is a decade old (ancient in internet years), it remains relevant. In addition to hardware dumping, three additional worst practices are particularly relevant to the COVID-era: 1) assuming technology alone can disappear equity issues, 2) failing to estimate the "total cost of operation" (TOC) of an educational technology initiative, an estimation that ought to include not just the purchase price of hardware and software, but also maintenance costs, training costs, and more, including a calculation of the difference between cost-per-participant and cost-per-graduate, and 3) failing to ask *What else could be done with the financial and other resources potentially allocated that would have a greater impact on educational goals?*

LET THEM EAT TABLETS

These are the kinds of questions that EdTech advocates sidestep with rhetoric. Such rhetoric appeals to our collective desire to remain relevant in the future, our intuitive sense that something is deeply wrong with education in its current form, and our moral sense that all children have the right to a high quality education.

Consider, for example, how the following rhetorical pyrotechnics front-load the old saw that education today is outmoded, while obscuring EdTech's other agenda items. First up, a few lines from a statement called "The Future of School" by the Center for Education Reform (CER), a pro-EdTech advocacy group based in the United States: "We must change the way we educate and in myriad ways strive to deliver education using the very technologies that are tracking and delivering our food, our supplies, and so many other necessities of life." [*Translation: Education today is old fashioned. Let's update it by treating students and learning modules like Amazon packages.*] A sponsored article in Forbes more directly connects the case for EdTech to the case for closing the digital divide, describing the internet as the portal to "new tools" for interacting with students in "new ways that both enhance the teacher's ability to teach and gives students the flexibility to learn in ways more suitable to the 24/7, always-on society we live in today." [*Translation: Education today is old fashioned. Let's update it so that even children regard the boundaries between online/offline life as blurred.*] Writing for the Washington Post, former Florida governor Jeb Bush suggests that if public funds intended to help schools become COVID-ready were instead used to pay for laptops and connectivity "students would be better prepared for the learning platforms of college and the workforce. Teachers would be able to deploy more innovative and personalized instructional strategies." [*Translation: Education today is old fashioned. Let's update it so that teachers can help children, rich and poor alike, become accustomed to taking orders from the kinds of machines that will sculpt their lives as adults.*] Such visions of the future give me goosebumps, and not in a good way.

EdTech has long used rhetoric laced with technophila and future-proofing to lay the groundwork for increasing its share of the education market. This rhetoric casts EdTech's products in a rosy light while simultaneously disparaging teachers, their unions, and brick-and-mortar schools. Deploying such anti-teacher/anti-school rhetoric while the world still reels from COVID-19 to lobby for the use of public funds to further the industry's growth agenda –– funds that could go to purchasing PPE, hiring additional staff to support physical distancing, and other measures that would improve the safety of physical schools –– reeks of disaster capitalism. As defined by Naomi Klein, disaster capitalism involves the use of "large-scale crises to push through policies that systematically deepen inequality, enrich elites, and undercut everyone else."

To be clear: I'm not against closing the digital divide.

What I am against is reckless profiteering, especially in the form of hardware dumping and a privatized version of public education that pretends to serve the needs of children while in fact invading their privacy, treating them like lab rats, impairing their academic achievement, and undermining their development as humans.

Temptations to recklessness are great. The EdTech industry receives little oversight, and continues to grow despite a history marked by startling amounts of waste. Moreover, as the 2019 NEPC report makes clear, lack of regulation isn't the only problem. To date nobody has even envisioned, much less put forward, regulations that could "increase accountability, identify efficient and cost-effective best practices, and eliminate profiteering." EdTech companies know that schools do not always read terms-of-use statements closely, introducing yet another moral hazard. Moreover, policies at the local, state, and Federal levels regulating the collection, use, and storage of student data do not always align. Security holes in widely-used platforms have been easy for hackers to find. Data breaches are alarmingly common, putting the personal safety and financial health of students and staff at risk. Effectively, the EdTech industry operates in a 21st-century Wild West.

When *people* think about education, they see children and perhaps even themselves preparing for the future. When EdTech industry *investors* think about education, they see "a critical source of human capital for global growth" and a large market ripe for digital disruption. Publicly available estimates of the size of this market vary, from HolonIQ's 2018 estimate of $5.9 trillion to TechCrunch's 2019 estimate of $10 trillion. According to GSV Ventures, the EdTech industry currently represents 2.3% of the global education market. Due to COVID-driven changes in market conditions, the EdTech industry is now projected to capture 11% of the market by 2026 –– up from a pre-COVID projection of 4.5%. COVID-19 is boosting industry growth from 100% to 400%.

Why are venture capitalists so excited about the education market? In addition to the size of the market there are several reasons, including scalability opportunities, a relative lack of competition (especially in mobile-first), and relative ease of identifying "pain points." Business models vary. Most of us are familiar with freemium platforms that ask users of a free product to upgrade to a paid version. These platforms are used in a "bottom up" strategy whereby the company pursues early adopters who then help market the platform by word-of-mouth. Expensive EdTech is usually part of a "top down" business model whereby a company's products are marketed directly to administration.

When it comes to enumerating profit sources for tech companies –– even EdTech companies –– the elephant in the room is Big Data. EdTech is an exciting sector because machine-mediated student/teacher relationships and student/curriculum relationships produce new and valuable data resources. Of course, personalized learning relies upon data extraction and analysis. However, educating children is only part of the picture when it comes to EdTech as a for-profit industry.

As students use EdTech platforms to learn, those platforms collect what Shoshana Zuboff, author of The Age of Surveillance Capitalism, calls "collateral data." Such data

points might include (depending on the product) a student's location, click patterns, dwell times, time-to-completion, time-to-frustration, browsing and search history, biometric data, photos, textual and voice communication content and history . . . the list goes on. A given platform may collect 50,000 data points or more per student per hour.

This data is valuable because it is machine-extracted over multi-year baselines and keyed to real children with verified educational records and directory information. Directory information can include a student's legal name, current home address, date and place of birth, gender, primary language spoken, and more, even photographs and social media handles. Educational records include grades, standardized test scores, disciplinary records, attendance records, medical and health records created and maintained by the school, courses taken, awards conferred, and more.

The data amassed by an EdTech platform will become more than fodder for the platform's "personalization" algorithms. It can be repurposed to "optimize" the platform and to make informed budget decisions. It can be further repurposed to inspire and guide the development of new, more-futuristic platforms. That's why, along with the new opportunities for data collection portended by future school closures, EdTech investors anticipate the advent of highly-adaptive EdTech in the form of AI tutors, immersive games that teach subliminally, Hollywood-style educational videos, and even *à la carte* university degrees whereby students purchase individual courses from a pre-determined group of separate online institutions.

What is unlikely to excite investors: the selling of personally identifiable data for marketing purposes. EdTech companies don't need to. (Though Google used to mine student emails to sell targeted advertising, and other EdTech companies have been caught selling sensitive student data to their affiliates.)

These days, Ed Tech companies can use their troves of aggregate data to create and sell what Zuboff calls "prediction products" –– algorithms and predictive models which

forecast and/or control individual behavior with uncanny precision, even without knowing individual names. This work is accomplished by aggregating and mining collected data. Also important to this work: running continuous experiments, often entirely automated. These experiments increase the accuracy of prediction products by nudging user behavior toward desired outcomes, and generating "insights" about how individuals and groups of similar individuals behave, think, and feel when served content with given a message type and form factor at a given time and place.

Forecasting and "nudging" products can be sold to companies in any industry seeking to maximize profit and minimize risk — e.g., advertising, insurance, healthcare, entertainment, finance, retail, transportation. No wonder then CEO of Instructure, the Utah-based parent company of the popular EdTech platform Canvas, boasted to investors in March of 2019: "We have the most comprehensive database on the educational experience in the globe. So given that information that we have, no one else has those data assets at their fingertips to be able to develop those algorithms and predictive models."

Hello disaster capitalism! Meet surveillance capitalism.

WHEN CHILDREN BECOME USERS

I say surveillance capitalism. EdTech says personalized learning.

Rhetorically, the term *personalized learning* is meant to position recommendation algorithms that match students to learning material as an "innovative" solution to old-fashioned, clueless teachers who are unwilling or unable to connect with students as individuals with individual needs.

In addition to what it calls personalized learning, EdTech also uses "gamification" to solve what it imagines as problems caused by bad/overwhelmed teachers. Gamification is a type of persuasive technology that is player-centered (rather than user-centered). The term refers to the application of game elements and game design principles to non-game contexts.

Together the terms *personalized learning* and *gamification* allow EdTech to conjure visions of delighted, motivated students interacting with data-driven technology that knows what they need to learn, and meets those needs in a timely fashion.

Here's what's really happening: under the banner of "innovation," gamified and data-driven personalized learning platforms are engineering the behavior of children.

Gamified platforms are everywhere, not just in EdTech. They work similarly. Like any behavior-change app (from diet apps to social media platforms like Facebook), gamified EdTech platforms create an absorbing human/computer interaction made all the more attractive by the dispensing of "rewards" on a variable schedule.

Variable reward schedules are a proven way to orchestrate the release of dopamine in humans and animals. Dopamine is the neurotransmitter that makes learning possible. It is key to goal-directed behavior, motivating us to act by helping us make associations between actions and outcome. It is triggered even when we simply anticipate a "reward" that we never in fact receive, or when a reward is not as satisfying as we anticipated. [To learn more about the neuroscience behind learning, see "Monetizing Children's Brains Means the End of Our Species" by neuroscientist William Softky, my husband and research partner for the article "Sensory Metrics of Neuromechanical Trust."]

The behavioral psychologists and User Experience (UX) designers that work together to create gamified EdTech understand all of this quite well.

They also know that human brains are wired to crave the instant feedback that gamified platforms provide. And they know that we humans (especially when we're feeling uncertain or overwhelmed) are attracted to the explicit goals, objectives, and paths to mastery (e.g., "skill trees") that characterize game-like learning environments.

Advocates for gamified EdTech like to imply that such platforms can help a student build self-esteem because these platforms minimize the impact of "failure" while "rewarding" the completion of target behaviors and the adoption of target attitudes.

Researchers at The Ohio State University in the United States found otherwise. Over time, students receiving a gamified curriculum felt less motivated, less satisfied, and less empowered. No wonder. Engineering engagement through automated, instant feedback risks reducing intrinsic motivation by triggering what psychologists call the "overjustification effect."

Enterprise/Corporate EdTech companies already incorporate into their pitches this understanding of the negative impacts of gamified platforms. "You need us," they say to potential corporate clients, "because younger workers have spent so much time on games and gamified platforms that traditional motivators don't work on them." Here's an example of this kind of logic at work in a pitch that proposes gamification as a solution to (as well as cause of) Millennial demands for constant feedback. Here's an example of that kind of logic at work in a pitch that proposes gamification as a solution to "bad parenting" [!] as well as the Millennial "need for engagement" and demand for constant feedback and fun in the workplace.

We can do better than rely upon gamified platforms to "engage" our children in school.

It's one thing to play a game for fun, or use a gamified informal learning app now and again. It's quite another (and frankly a quite terrible) thing for public schools to

participate in engineering into students an intolerance of complexity, an inability to set their own goals, and a profound need for external motivators. All students deserve an education that supports, rather than stunts, their intellectual and personal development.

Students understand this kind of critique. In New York, Pennsylvania, Connecticut, and Kansas, students have organized to protest against the Summit Learning Program, an EdTech platform developed by Facebook engineers and backed by the for-profit Chan Zuckerberg Initiative. In a letter to Mark Zuckerberg published by the Washington Post, students attending Brooklyn's Secondary School for Journalism wrote, "Unlike the claims made in your promotional materials, we students find that we are learning very little to nothing. It's severely damaged our education, and that's why we walked out in protest. . . ."

As Ruha Benjamin puts it in her award-winning book Race After Technology, "[T]hese students have a lot to teach us about refusing tech fixes for complex social problems that come packaged in catchphrases like 'personalized learning.' They are sick and tired of being atomized and quantified, of having their personal uniqueness sold to them, one 'tailored' experience after another. They're not buying it."

And neither should we.

LET'S GO OUTSIDE

Today's EdTech marketing taps into collective fears about sharing space with other humans, and frustration with the hodge-podgy usage of technology that characterized many crisis schooling efforts.

Yet, there is a better path: making use of outdoor space on school grounds, nearby land, public spaces (like football stadiums), or at home with guidance from schools. Schools

with plans to open full-time and those with plans for a mixture of in-person and remote instruction could walk this path.

Outdoor learning environments offer solutions to many COVID-related educational problems. Research suggests that COVID-19 is less likely to be transmitted outdoors. Research also indicates that being outdoors reduces children's stress levels, and improves their motivation and wellbeing. Outdoor learning environments also provide children with much-needed opportunities for movement and play as well as opportunities for place-based learning activities. Moreover, exposure to outdoor environments helps human brains stay in calibration because brains are optimized for high-bandwidth, three-dimensional, continuous-time processing of sensorimotor inputs. Outdoor learning environments can provide everything that brick-and-mortar schools can, and much more.

Outdoor education is an old idea, traditionally practiced across the Asian and African continents. Outdoor education gained popularity in Europe and North America during the tuberculosis epidemic of the early 20th century, spawning The Open Air School Movement. Schools were set up in repurposed structures, tents, prefabricated barracks, and purpose-built pavilions. Some schools consisted simply of rows of desks outside. You'll find photographs of a variety of these schools here. Recently, Tuxuka Architects designed and built a circular open-air kindergarten outside of Tokyo.

Today, schools in Denmark, Finland, Singapore, New Zealand, Scotland, and Bangladesh have turned to outdoor learning environments as a way to meet COVID-related educational challenges. In Bangladesh, children were involved in the redesign of their school courtyard for outdoor learning. That intervention was a success, improving not just the children's engagement with the curriculum but also their attainments in math and science.

In the United States, outdoor learning tied to public schools could make up for the pandemic-driven loss of outdoor programs conducted by nature centers, parks, and outdoor science schools. Facing budget shortfalls, many of these programs are in danger of closing. Those that remain open have plans to freeze subsidized programing, scholarships, grants, and fee waivers. It is estimated that by the end of the year, 11 million children in the United States will have missed out on outdoor learning opportunities, about 60% of them from communities of color or low-income communities. About 30,000 outdoor educators across the country have already lost their jobs. Advocates for outdoor learning environments suggest that using public funds to redeploy these educators to K-12 public schools would be a boon to children and their families. Green Schoolyards America, a non-profit organization dedicated to helping public schools use outdoor space to enhance student wellbeing, has devised detailed, research-backed guidelines for outdoor learning as part of its Outdoor Learning Initiative.

SAY NO TO VAMPIRES

Traditionally, schools have been oriented toward extrinsic motivators: grades, test scores, teacher approval, status, little prizes and rewards. When I was an elementary student, one of my teachers gave the student with the highest spelling score that week a tiny ceramic animal that my teacher had made herself.

EdTech's gamified personalized learning platforms turbo-charge this strategy. In this sense, such platforms are not innovative at all. Rather, they are simply new ways to do old things . . . old things that don't work very well.

Pairing data-driven "personalization" with gamification is a quick fix solution to a problem resting at the core of public education today. Groaning under the weight of

high stakes testing, today's public schools crush student excitement in learning for its own sake.

What if we did away with high stakes testing? These tests have many problems, from baked-in cultural bias to an over-emphasis on those curricular standards that are easy to test at the expense of less quantifiable ones. What if we just got rid of them? Surely there are other ways to assess performance. High stakes tests have already been cancelled all over the world this year.

And while I'm sharing my dream of public education truly reimagined, I'd like to also pose this question: What if during this time of uncertainty and fast-change we, in our various localities, determined from the ground up the role that technology ought to play in our public school systems? By "from the ground up" I mean, asking students and teachers about their own technology use. How has tech helped them? How has it gotten in the way? I suspect the answers will surprise many, and illuminate high-impact ways to incorporate technology in the classroom and address the educational issues facing students living in "smartphone only" homes, as well as students living without reliable broadband connectivity, or without any access to the internet at all.

It's time to shift the focus of education away from the needs of corporations (workforce needs and others) to the needs of children. What do children need to thrive? We already know the answer. Children thrive when they experience shared attention, build life skills through developmentally-appropriate challenges, experience a sense of belonging, and are allowed to personally contribute to learning activities. Meeting these goals does not require EdTech.

Let's help children thrive by making outdoor learning available in public schools. And let's not stop there. Let's help children thrive by hiring more teachers and support staff for our public schools. Let's help children thrive by giving teachers the support they've asked for to translate live, onsite instruction to remote instruction. That support need

not take the form of an EdTech initiative. It can take the form of training, increased time for planning, and uniform policies regarding what remote instruction should look like.

I realize all of this will cost money. But then again, so does EdTech.

Let the vampires go to the workplace. Don't invite them into our schools.