A truism of school reform has long been the promise that technology, properly applied, will fuel dramatic improvement in teaching and learning. When tech-enabled schools or online learning programs haven’t delivered the hoped-for results, some have dismissed these shortcomings as implementation problems—evidence that we haven’t yet deployed the right tools or the most effective strategies. But what if the challenge is bigger? What if today’s connected youth are not well served by spending school hours in front of screens? In this forum, Daniel Scoggin, co-founder of the GreatHearts classical charter-school network, makes the case for school environments that put face-to-face dialogue and inquiry at the heart of learning. In contrast, Tom Vander Ark, CEO of the advisory firm Getting Smart, argues that K–12 education is poised to transform itself through wisely employed ed-tech.
In a time of increasing political and economic polarization, we need conversation, empathy, and character woven into our public life.

Schools are uniquely suited to fostering such abilities and qualities.

In the context of schooling, we must develop in our students the ability to step outside their own perspectives. They must be able to “de-self” in order to mature. As Aristotle observed, “It is the mark of an educated mind to be able to entertain a thought without accepting it.” This goes beyond critical thinking, and requires deep listening and rigorous empathy. In the study of literature, history, ethics, science, and the arts, we can convert our classrooms into mini-republics that reveal the best of human nature as we study it.

Can’t this conversation and community be “virtual”? Don’t social media serve as the new public square?

My response is to answer how Socrates would, with another question: can one parent virtually? Most of us would agree that good parenting requires direct human interaction. So, too, does education.

Building on the work of the sociologist James Davison Hunter, the New York Times columnist David Brooks talks about morally “thick” versus “thin” institutions.
New blended-learning models combine online and face-to-face activities to meet students where they are; help them move on when they’re ready; and expand access to electives, languages, and careers.

proficiency in reading and math; and the push for teacher and school accountability.

The standards movement did reap some laudable results: higher expectations for students, a commitment to equity, more measurement of student learning, and educational practices informed by data. However, the movement also had unintended consequences. Most notably, it bred a narrow focus on testing and compliance, often driving out creativity and collaboration rather than encouraging them.

The mid-1990s also saw the rise of the Internet and the first generation of mobile technology, which quickly led to more (connected) computers in the classroom. People in and out of school—at least those with broadband access—entered the anyone-can-learn-anything era. However, the first quarter century of tech-enabled learning in the schools was dampened by standards-based reforms, which not only locked in teaching to grade-level cohorts of students but also valued seat time over learning, proficiency over growth, and consumption over production. We learned that good teaching matters but forgot how important it is to give students agency over their own learning. Instead of encouraging innovation with the newly available tech tools, accountability systems based on narrow and dated measures tended to clamp down on new approaches. Many teachers decried the idea of “teaching to the test,” the new standards, and in turn, what they saw as the depersonalization of schooling wrought by technology. “Standards” and “technology” were often painted with the same brush.

But we have entered a new era. Today’s ed-tech offers unprecedented opportunities to improve the ways in which we educate our young people. It’s time to lean into these opportunities rather than reject them, particularly in light of these five key innovations and trends:

**Worldwide connectivity.** As it grows more sophisticated by the month, your mobile device is a powerful hub of seamless, synced, and simple-to-use tools. According to the technology-research firm Gartner, 20 billion devices will be connected by 2020. Cheaper, faster devices and nearly limitless data storage are accelerating the pace of change in every aspect of life, including schooling.

**Intimate computing.** We’re moving from personal to “intimate” computing, in which you know the technology, and it knows you. Soon, nearly everyone will have a digital “personal assistant” that will manage priorities, prompt as well as respond, span the personal and the professional, and continuously learn about the user’s information needs.

For more than 20 years, we have used a screen and mouse to navigate our computing experience. That experience is quickly becoming an omni-channel one with multiple communication points, including voice, touch, movement, and (if Elon Musk is right) even the brain itself. With a proliferation of sensors in all aspects of life, a personal interface will move seamlessly between home, transport, school, and workplace. Human–machine symbiosis will drive the automation economy.

**Experiential computing.** In the next three to five years, students will be immersed in augmented and virtual reality all day, every day, asserts Seth Andrew, founder of the Democracy Prep charter schools in Harlem and White House adviser to President Barack Obama. With virtual-reality technology, users wear special goggles and headsets to experience a simulated environment, be it a rainforest, the mouth of a volcano, or a space station. Augmented reality (AR), in contrast, doesn’t block out the user’s environment but adds to it, for instance, by inserting an interactive hologram into the person’s field of vision. Andrew is bullish on the potential of these technologies to deliver content, especially in career education, world languages, and certain electives. While he may be overreaching in his prediction of “all day, every day,” both (continued on page 59)
“A thick institution becomes part of a person’s identity and engages the whole person: head, hands, heart and soul. So thick institutions have a physical location, often cramped, where members meet face to face on a regular basis, like a dinner table or a packed gym or assembly hall. . . . Thin organizations are more anonymous, ephemeral, transient, and transactional, while thick organizations think in terms of virtue and vice.”

At GreatHearts schools, students are asked to leave behind the neurochemical high of skimming, surfing, texting, and Snapchatting, and engage the frontal lobes of their brains.

The best schools have qualities in common with an extended family, a traveling sports team, or a military platoon. They are thick communities, where students and teachers celebrate and suffer together; where you know when someone is having a bad day and ask what you can do to help; where in the classroom adventure and risk, cheers, and even embarrassment are experienced directly; where the wrinkle of a brow and what is not said mean just as much as what is spoken; and where disagreement can squat in the room like the elephant it usually is and not be mouse-clicked away.

**Screens in Context**

At GreatHearts, the classical charter-school network I cofounded, we are certainly not against technology. We just believe in putting reflection and conversation first. Our high school students have at the center of their day a two-hour Socratic conversation on works of great literature, philosophy, and history. What’s more, teachers deploy Socratic pedagogy in all subjects, from music to physics. Students have periods of time away from their smartphones and tablets during the day, and first engage with one another and the subject matter, to think, to laugh, and even, sometimes, to be bored and figure (continued on page 60)
virtual and augmented reality have much to offer in the classroom—or wherever future learning takes place (see “Virtual Reality Disruption,” what next, Fall 2016).

Tech-facilitated personalized learning. Proprietary reading and math systems that automatically adjust to the learner’s performance are already in wide use in K–12 classrooms, while fully adaptive learning-management systems are gaining a foothold there and in career and technical education. New blended-learning models combine online and face-to-face activities to meet students where they are; help them move on when they’re ready; and expand access to electives, languages, and careers. Still in its early days, personalized learning shows great promise for K–12 education.

Competency and credentials. We live in an increasingly “show-what-you-know” world, where it matters less where you went to school and more what you know and can do. Micro-credentials are emerging as a new means of gauging content mastery (see “Competency-Based Learning for Teachers,” what next, Spring 2017). They are a digital form of certification that indicates when a person has demonstrated competency in a specific skill set. More and more, we will see such measures of competency replacing seat time as the indicator of academic progress.

The key to getting screen time right is to start by asking: What should young people know and be able to do? What kinds of experiences will help them develop important knowledge, skills, and dispositions?

With personalized and competency-based models, learning can happen (and be assessed or demonstrated) anytime, anywhere. For example, LRNG is an online, national network of community-based learning opportunities for young people, especially the underserved. Some states will extend portability of education funding to community organizations with the expansion of education savings accounts. (continued on page 61)
The point is not to cordon students off from technology but to teach them how to go back and forth thoughtfully between media and understand the costs and benefits of each.

mainly serve to distract and numb us. Nicholas Carr, citing the science-fiction writer Cory Doctorow, calls them “an ecosystem of interruption technologies.” In this light, an essential skill we can impart to our students is to recognize the difference between their digital experiences and other forms of knowing. The point is not to cordon students off from technology—that would be foolish—but to teach students how to go back and forth thoughtfully between various media and understand the costs and benefits of each. The student’s job here is to cultivate the prudence to know when a digital experience can enhance, continue, or make possible interactions that would otherwise be forestalled, and, conversely, to know when a medium is being asked to do more than it should. For instance, students might use digital resources to conduct research and prepare for in-person conversations, then follow up on these dialogues with a class blog where they offer clarifications, share their writing, and develop seminar questions for the next convening. And coherent programs can be well supported by online learning and even some stand-alone online courses. “The development of a well-rounded mind,” Carr posits, “requires both an ability to find and quickly parse a wide range of information and a capacity for open-ended reflection.”

The MIT professor and author Sherry Turkle writes in Reclaiming Conversation that the new mediated life of unreflective turning to screens has gotten us into trouble. “Research shows that those who use social media the most have difficulty reading human emotions, including their own.” Screens offer the “illusion of friendship without the demands of intimacy.” However, Turkle goes on to say, “the same research gives cause for optimism. We are resilient. Face-to-face conversation leads to greater self-esteem and an improved ability to deal with others.”

Accordingly, we need to create in-person, digital-free circles for conversation, at least until the digital realm shows us it can offer an authentic space for such exchanges. In these conversations, students can seek first to understand the perceptions and premises of classmates; to ask clarifying questions before making assertions; and to then assert from first principles, acknowledge ambiguity, respect others in disagreement, live at times in doubt, and allow multiple interpretations to exist even when convictions are confirmed. This unsettling process forms gentlemen and gentlewomen who have a capacity to govern themselves and others.

Great schools are the crossroads of the human condition.
Young people deserve learning experiences that will help them develop an innovation mindset and design-thinking skills that will enable them to flourish in the automation economy where they will work with smart machines.

production and consumption, discipline-based and integrated—into a productive sequence of personalized learning experiences.

The nearly 200 schools in the nonprofit New Tech Network (90 percent of them district schools) use personalized learning to prepare students for extended and integrated projects that build student agency, collaboration, critical thinking, and communication skills (the four outcome areas assessed for every project). This thoughtful blend has resulted in high rates of high-school graduation, college enrollment, and college persistence.

Increasingly, schools are using online learning-management systems such as Brooklyn LAB Charter School’s Cortex and the Summit Learning platform (offered free to teacher teams that apply to Summit Public Schools) to deliver and organize custom playlists of activities for students and to allow educators to track students’ progress incrementally (see “Pacesetter in Personalized Learning,” features, Fall 2017). Such platforms often include comprehensive curricula, student project ideas, and assessments.

The most effective blended-learning models use the best available tools to create the most optimal learner experiences while keeping adult guidance and peer relationships foremost. “It’s not about the device, it’s about the access the device facilitates,” says David Haglund, school superintendent in Pleasanton, California. Haglund believes in purposeful interaction. Sometimes that takes place online, but often it happens face to face. He acknowledges that some learners prefer reading printed material and thinks schools should accommodate that as well.

“What facilitates empowerment?” Haglund asks himself. “What provides access to resources on and off campus? Young people need tools to connect, collaborate, gather feedback, and engage with people,” including those working in fields of interest to students. When employed toward these ends, technology can make learning more social instead of less so.

For instance, when Haglund was superintendent in Santa Ana, his 4th graders visited Disney Studios in Burbank. They produced their own films, screened them at a downtown theater, and shared them with producers in Santa Monica. Haglund watched his students engage with the producers in a professional way and then stay in touch for a month.

With all the excitement around virtual-reality field trips such as Google Expeditions, the Pokémon Go craze points to an even larger opportunity for augmented-reality field trips. Researcher Christopher Dede of Harvard has been working for more than a decade on outdoor AR science; now, mobile technology and a new sensor-rich world are making this kind of experience widely accessible. AR field trips are just the beginning of learning with smart machines in ways that blend online with real-world learning: fitness sensors that prompt activity, digital tools that support more effective team collaboration, real-time translation that kindles cross-cultural dialogue, robotic toys that spur computational thinking, and mobile apps that promote and analyze print reading.

Parents and Teachers

Technology is an amplifier. It can make good parents, teachers, and experiences better—or it can have the opposite effect. Mobile devices, games, and social applications are potentially addictive and can lead to unproductive or even dangerous behaviors. Again, the effective use of ed-tech requires thoughtful management and oversight by teachers and parents. Caring adults also need to help young people develop positive self-regulation habits.

Appropriate limits are essential, too. For instance, very young children who are developing language and motor skills should have little or no access to screens. And of course, schools need to establish guidelines for cybersafety and -security. Students and parents should be required to sign an acceptable-use form, teachers should create a culture of acceptable use, and schools should offer classes to parents on how (continued on page 63)
to supervise device use and be alert to possible problem behavior online.

Parents wrestle with countless decisions about their children’s education and learning. In choosing and advocating for the most powerful learning experiences for their kids, they might keep in mind the Nellie Mae Education Foundation’s definition of student-centered learning: that which is personalized and competency-based; that happens anytime, anywhere; and that encourages students to take ownership of their own learning. All of these features require productive access to digital learning tools—and thoughtful advice from teachers and parents.

Leaders can create cultures where it’s safe for teachers (and students) to iterate and learn. Schools can work with like-minded schools in networks to leverage learning models and tools. Professional learning can model the same blend of online and offline practices we want for students.

Lean In

It’s never been easier to code an app, start a business, wrangle a big data set, and apply powerful tools to address global challenges. Young people deserve learning experiences that will help them develop an innovation mindset and design-thinking skills that will enable them to flourish in the automation economy where they will work with smart machines. Today’s students are tomorrow’s inventors, engineers, teachers, artists, and leaders. They need more from their schools.

A 2015 survey by Marc Brackett of Yale University asked 22,000 high-school students how they felt when they were in school. Their top responses were “tired,” “stressed,” and “bored.” Without active engagement on the part of the student, learning stalls out. Rather than focusing on grades and test scores, students need opportunities to take on big issues, work with diverse teams, and produce innovations that will make their communities proud. Technology can help motivate and accelerate learning. It can help young people create and invent, launch social movements, and even contribute to solving global problems. That requires schools where young people are producers more than consumers, collaborators more than observers, game makers more than game players.

It’s time for us as teachers and parents to lean in rather than push back. More than ever, we need to be intentional about how and when young people use technology and make it productive time, not a waste of time.

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