In January of this year, I started a new job as the Executive Director of Physicians for Social Responsibility, a national public health advocacy organization, after working almost 20 years in a variety of roles in the adult education system. I worked in areas ranging from program support, professional development, coalition building, executive management, policy, and advocacy. I never served as a classroom teacher, although my first exposure to adult literacy was as a volunteer tutor. My career in adult education did provide me with some potentially useful policy and programmatic perspectives on the use of technology in adult education. Sometimes, in fact, technology was the main focus of my work; in 2014-15, for example, I served as the initial director of Digital Promise’s adult education initiative.

I mention my background at the outset to acknowledge that my observations on the promise and challenges presented by technology in the adult education field are not informed by hands-on experience in the classroom (as a teacher or as a learner). My work was focused on exploring the issue from a systemic perspective: studying how programs and communities support adult learning through technology, and thinking about how technology might improve our adult education system and provide more learning opportunities for adult learners, both in our communities and in the framework of national adult education policy.

With that by way of introduction, I would like to share with you some of my observations—and, more importantly—some of my still-unanswered questions—about the use of technology in adult education, especially in light of the enthusiasm in recent years for using mobile technology (smartphones in particular) to expand learning opportunities for adult learners as an adjunct or even as an alternative to participation in a formal program. These observations are by no means exhaustive. I also expect there will be areas of disagreement with some of what I write, but my hope here is to stimulate further discussion.

From the outset of my career in adult education 20 years ago, teachers, program directors, and policymakers were touting the use of technology to improve student learning (and professional development for teachers as well). Unfortunately, however, despite islands of excellence here and there, the introduction of computers and digital technology into adult education has often failed to live up to the loftier expectations proponents anticipated. I

---

1That career is not entirely in the rear-view mirror, by the way: I still serve in a volunteer policy and advocacy role with the National Coalition for Literacy.

2The $7 million Adult Literacy XPRIZE competition being the most prominent example: http://adultliteracy.xprize.org
think that one of the reasons we have often been disappointed is that we often set our hopes too high. We expect technology to overcome the pervasive lack of investment in our adult education system, or the significant barriers facing our learners when it comes to accessing and using technology—or that somehow the technology itself will make those problems go away. We also tend to underestimate the investments (in teachers, professional development, technical support, and basic infrastructure) that are needed to support the use of technology. We should not let those challenges dissuade us from developing these tools, but we should we be more discerning about the tools we use and more realistic about the challenges we face when deploying them.

**Examples of Challenges**

**Access to Broadband**

Digital learning tools usually require Internet access, and many learning tools employ audio and video resources and other bandwidth-heavy technologies that require broadband Internet access. While access to broadband is growing, only about three-quarters of American adults have broadband Internet at home, and those with lower levels of education and income are less likely to have it (Smith, 2017). Slow connection rates are concentrated in nonwhite and low-income communities.

It is true that an increasing number of Americans now use smartphones as their primary means of Internet access, even at home: one in 10 American adults accesses the Internet via a smartphone but don’t have home broadband service (Smith, 2017). This is an important trend that bears watching, but for now that is too small a number to obviate the need for home broadband access for many adult learners, which is still quite limited in some parts of the country, even when you can afford it. For lower income adults, even when smartphones and home Internet are technically available where they live, these services may be financially out of reach. Public institutions (such as libraries) in low-income communities are not necessarily capable of providing adequate access either.

I have often heard stories about classrooms full of students with smartphones, which is supposed to indicate that access is not the issue it once was. I agree these anecdotes sound promising, but the statistics I cite above suggest that despite the growth in ownership of mobile devices, robust internet access remains a significant challenge for many adults, particularly low-income adults (and many of our learners fall into this category). While some learning technologies attempt to get around this limitation (by not requiring Internet access, for example), many of the most promising uses of technology require some combination of broadband access and computing horsepower (whether its embedded in an actual computer, or in a tablet or mobile phone).

**Device Access**

Another thing that is striking in the research is how often the most successful examples of technology use for learning depend not only on adequate hardware and bandwidth access generally but also on student access to one-to-one computing opportunities. In the classroom, this means environments where there is one device available for each student, and the devices are readily available for multiple uses by the student throughout the school day. Research in K-12 contexts cites this as particularly important for lower-income students’ ability to gain fluency in using the technology, since they are less likely to have computers at home (Grimes & Warschauer, 2008).

As a result, there was a big push in K-12 several years ago to provide one-to-one device access for all learners. Maine’s statewide one-laptop-per-student program was an early and famous example of this. Many schools and school districts have adopted “bring your own device” (BYOD) policies, encouraging students to bring their own personal computers, tablets, mobile phones, and other Internet-compatible devices to class instead of relying on devices provided by the school. This shift, however, which appears most often to be driven by financial considerations
(technology investments are expensive, especially given that new devices are likely to become obsolete every few years), has been subject to criticism — the biggest being that BYOD tends to put students from lower-income families at a disadvantage. Services have emerged to address this problem, but this gap remains an issue.

There was never a program to provide adult education students with devices on the scale of something like Maine’s one laptop per child program. However, the growth of mobile device ownership among adult learners has led some to jump to the conclusion that we’ll be able to skip the stage of needing to provide these devices for learners and go directly to the BYOD model. The assumption is that eventually all of our learners will obtain the devices they need on their own, that these devices will all be adequate for the kinds of learning technologies that we hope to provide them, and that teachers will be properly trained to use the devices students will bring in.

I think it is important to consider that the BYOD movement in K-12 is being built on top of an infrastructure that (in general, though not everywhere) had already invested far more in the one-to-one model than the adult education system. While it may continue to be unrealistic to expect the equivalent of a “one laptop per child” program in adult education, is it realistic to expect to scale up the use of technology for adult learners (including mobile technology) without such an effort, or without fully subsidizing students to acquire devices?

The Role of Schools and Programs

Proponents argue that we can expand access to learning for adults not enrolled in programs via learning apps directly accessed on mobile devices. This may turn out to be true for a subset of adult learners, but it is worth taking into consideration the important role that physical schools and classrooms play for many adult learners.

Space and Time for Learning

For one, such institutions can offer learners quiet and productive spaces for learning (both in terms of time and physical space). For many learners, these quiet, focus-enhancing spaces may be unavailable elsewhere in their busy and crowded lives. (More than once, I have heard developers tout the advantages of being able to practice literacy skills while riding the bus. I often wonder how many of these developers actually ride the bus, let alone try to get work done while riding one.) Mobile learning app developers also seem to have a persistent belief that these apps can be transformative because learners can access them anytime, as well as anywhere. However, the structure that is associated with being enrolled in a program with set class times may be helpful for adults who lack the self-discipline to learn independently.

Secondly, those institutions provide important human resources. Students who are connected to programs have access to teachers, tutors, and perhaps counselors and other professionals. They provide opportunities for social interactions among students, and learning activities that are enhanced by working with others. I know that digital devices can and do provide remote access to all of these kinds of resources, but the personal touch of working with someone in a face-to-face setting is of particular importance to many adult learners who may lack confidence or have difficulty expressing their needs. Schools can also offer diverse learning environments using a variety of devices (one-to-one devices, stationary computer labs, mobile computer labs, and BYOD programs) and a variety of materials—including those that are geared toward content creation by students themselves. A well-equipped school can thus provide appropriate learning

---

3The Adult Literacy XPRIZE Web site, for example, notes that “[e]xisting programs… are often under-funded, small in size, not accessible to all and unable to scale to meet the needs of our country’s 36 million low-literate adults… We need a radical new approach to adult literacy learning. A solution that is relevant, scalable and accessible – anytime, anywhere.” (my emphasis) http://adultliteracy.xprize.org/about/overview
opportunities that are specific to the needs of each student. However, mobile apps are more limited in the number and variety of learning environments and delivery mechanisms they can provide.

Indeed, while research has revealed that independent learning is prevalent among adult learners, self-study and program participation appear to be complementary approaches, with many adults seeking support from tutors or teachers at certain points even if they are mainly working on their own. I am not arguing that mobile devices do not open up learning opportunities outside traditional program settings, but I think that many learners will struggle to succeed with them unless those opportunities are tethered, at least to some extent, to programs that can play a supportive role.

**Meaningful Interactivity**

There appears to be fairly widespread agreement among educational experts that interactive learning tools (including adaptive tools that can diagnose students’ levels of understanding and customize the material they engage with) show greater promise than the use of “drill and practice” tools. The best digital learning tools support deeper interactions between learners and the material they are studying—think of digital tools that offer different visualizations of concepts, for example, or that provide opportunities to actively work with data or express individual ideas.

But some of the adult learning tools I have seen that claim to provide some degree of adaptability or interactivity—including new tools being developed for mobile devices—are really just slightly more sophisticated versions of the old basic drill and practice tools, offering just rudimentary feedback for the learner on areas where further practice may be necessary.

**Creativity and Agency**

Another area where there appears to be widespread agreement among educators and researchers is that when students use technology to create their own content, rather than just being the recipients of content designed by others, they become more motivated and develop stronger skills. Creating content includes activities like making charts and graphs of data, which students have researched or developed; building websites; creating presentations; and making videos, multimedia content, or engaging in digital storytelling. These activities not only strengthen skill development but also often increase learner self-efficacy and agency—they offer students a chance to think about and take control of their own learning. Yet, in my experience, the most popular learning tools used in adult education offer little in terms of this kind of creative experience.

**Technology as a Compensatory Tool**

Technology has improved the lives of people with disabilities in profound ways, helping those with physical disabilities become more mobile, and providing those with visual and auditory disabilities with access to information that they might otherwise miss out on.

Many adult learners have disabilities that can be compensated for using assistive technologies. I have never understood why there is not more of an emphasis in adult education on helping students with learning disabilities gain access to and master these technologies as a way to compensate for their reading and writing difficulties. I am not sure, in fact, why we do not do this for anyone struggling with literacy, whether due to a disability or not.

As one adult learner put it, back in 2009, in testimony before Congress:

> For a lot of us, we do have learning disabilities. I cannot spell. Regardless of how long you sit me in a class, I cannot spell. I can comprehend. I can do a lot of stuff. I can plan a lot of things. But I can't spell. With the new technologies

---

*The Longitudinal Study of Adult Learning project is a key resource that has helped us understand the multitude of pathways adult learners take to improve their literacy skills, both in and out of programs. [http://www.lsal.pdx.edu/](http://www.lsal.pdx.edu/)*
out there for the blind and deaf, my workload would double. (New Innovations and Best Practices Under the Workforce Investment Act, 2009, p. 10)

I have not seen a lot of movement in this direction in the years since, despite the fact that assistive technologies are now more integrated into mainstream devices than ever before. Apple, Amazon, and Google have all invested in speech recognition technology that enables people to access information and perform tasks on digital devices without needing to type. These products are not even marketed as assistive technologies.

Every feature of an Apple iPhone is completely accessible regardless of whether you are able to see or read via a feature called VoiceOver. Once you turn this feature on, a voice describes for you anything that you touch on the screen—icons, words, and even status icons at the top. Gestures (tapping and swiping) can be used to control every aspect of the device.3

However, we employ technology as a learning tool, I cannot understand why we do not help adult learners take advantage of these kinds of technologies if their use will help them compensate for the reading and writing challenges they have.

**Recommendations**

We should continue to take the issue of access to broadband seriously. We need to be realistic about this issue and invest in solutions.

We need to ratchet up our advocacy for new investment in strong anchor institutions (in teachers, professional development, technical support, and basic infrastructure) to support the most promising technologies. I believe that if we seriously invested in our institutional capacity, the use of mobile technology to extend opportunities would develop more fluidly and effectively than by trying to support mobile learning opportunities outside of those institutions. Instead of thinking about technology as a way to work around program scarcity, why not expand adult education programs so that they all can support self-study in addition to classroom-based work?

We should concentrate or technology investments in tools and approaches that have demonstrated the greatest success, such as those that involve meaningful interactivity or involve students in the opportunity to use technology to create their own content.

We should consider reframing our investments in technology by asking how technology can help us enhance and scale what we do well, rather than to remediate for what we do not do well. In those instances where we are good, how is technology already contributing to that success? How might it extend that success further?

We should also look beyond instruction and fully support any technology that will improve adult learners’ lives. We should encourage teachers and programs to learn about assistive technologies and help adults to take advantage of these tools if it will help them compensate for the reading and writing challenges they have—whether or not they ultimately decide to avail themselves of reading and writing instruction.

**Conclusion**

The U.S. adult education system is very small, serving just a fraction of the adults in this country who need help with basic skills. Within this tiny system we have examples of excellent schools and programs. The problem has been how to take this system to a scale that adequately meets the need.

Some see the emergence of mobile devices as our best opportunity to accomplish this. I believe that the development of learning apps for these devices (and other kinds of digital learning tools) will be useful for many adult learners. Ultimately, however, I doubt we will be able to scale up our system to any significant degree unless we are willing to make investments in

---

3See this article for a great summary of VoiceOver features: http://finance.yahoo.com/news/david-pogue-on-iphone-voiceover-163733668.html
strong brick and mortar adult learning programs in every community. The reason we do not have them is not because programs don’t work, but because we invest so little in adult education in this country, and what little we do invest at the federal level (our largest source of funding for adult education) has been dropping dramatically over the last 15 years. Federally funded programs serve only 1.5 million of the estimated 36 million adults in the U.S. with low literacy and numeracy skills—significantly fewer students than the system’s highest enrollment year of 2002, when it served almost 2.8 million students. Taking inflation into account, funding has been reduced by almost 25% since the systems’ peak funding year of 2002. It should not be surprising that program closures and cutbacks have followed over this same period.

It seems unlikely that mobile learning apps alone can compensate for this level of disinvestment. In fact, as I argue above, I think that making investments in these technologies without accompanying them with significant new investments in “anchor” adult learning institutions will prevent them from meeting expectations. Our fascination with new technologies should not blind us to the fact that our adult education system has been slowly eroding away for the better part of a decade. Adult education in this country is facing a truly existential crisis that has no technological cure.

One of the things I enjoy about discussing the promise of technology in adult education is that it is an area in which people are encouraged to think big, and often do. It is considered visionary to talk about doubling or tripling the number of adult learners accessing learning opportunities via mobile devices. But if you talk about doubling or tripling our investment in existing adult education institutions in order to have robust, high-quality adult education services in every community, you are often met with the response that such thinking is “unrealistic.” However unrealistic, I remain convinced that there is no technology that will obviate the need for those investments.

---

Jeff Carter is the former President of the National Coalition for Literacy (NCL) and currently serves on a voluntary basis as their Senior Policy Advisor. Jeff is also the Vice President of the Committee for Education Funding (CEF). He is the former Executive Director of the National Adult Education Professional Development Consortium (NAEPDC) and the National Council of State Directors of Adult Education (NCSDAE) and the former Director of Policy and Government Affairs for ProLiteracy. He is also the founding Director of Adult Education Initiatives at Digital Promise.

---

References
