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Powering Up Technology

from Passive Access to Active Integration

By Shay Taylor

For over 30 years, the rallying cry of many adults who worked with students who were deaf or hard of hearing was *access*. Finally we established the right of deaf and hard of hearing students to equal access in every academic space they entered, whether in a residential school surrounded by deaf peers or in a public school surrounded by those who hear. Technology was the tool of choice for providing the surest access in almost every situation.

Now 15 years into the 21st century, our community is global—and a lot more accessible to all. Alpha-numeric pagers, captions, the Internet, and videophones have, in the most general sense, connected—or potentially connected—all of us. The call for technology to provide "access" has become myopic at best. Once the wave of the future, technology is now standard in most classrooms.

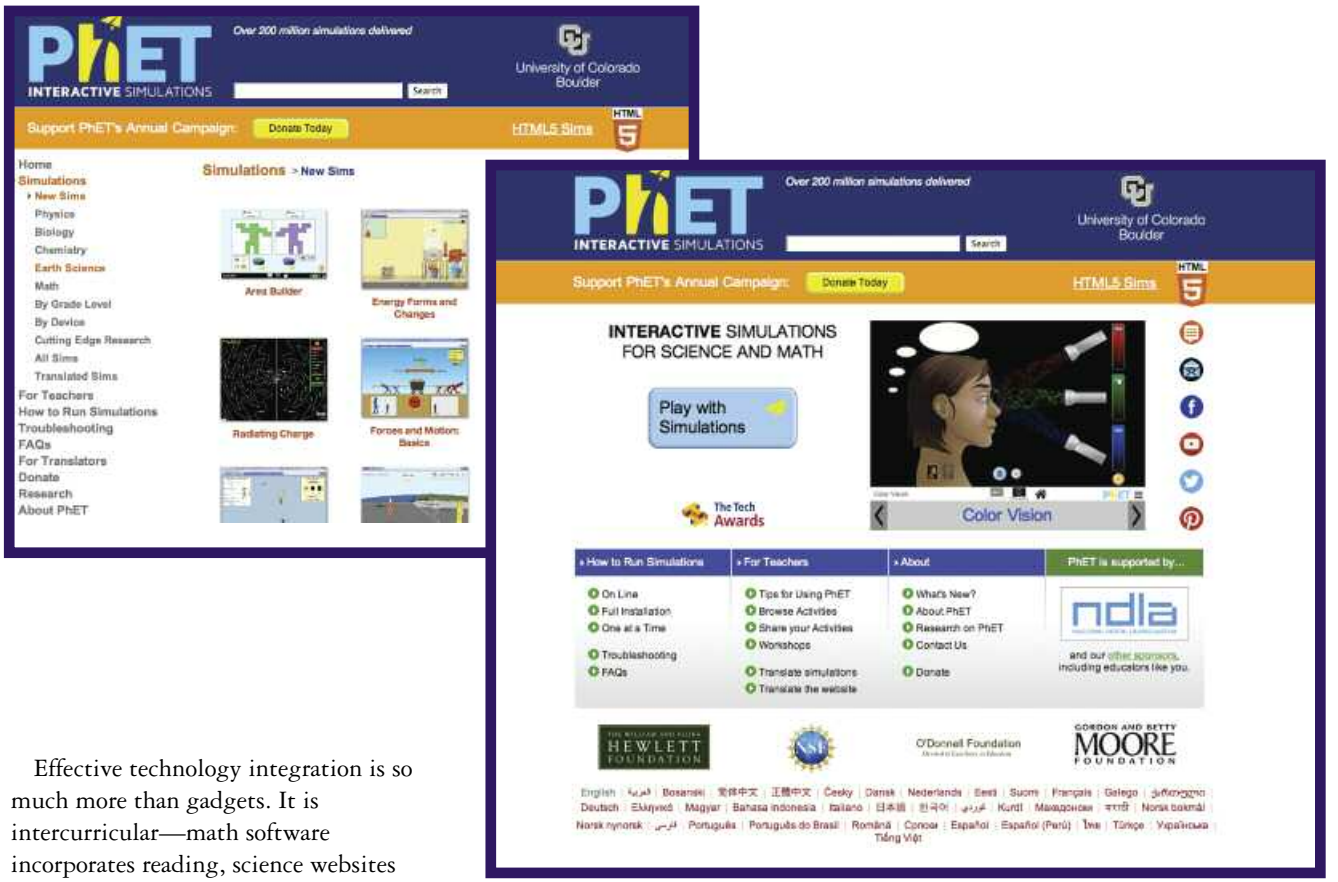
We need to raise the bar. *Access* means merely putting students in the presence of technology. *Action* means students and educators working with technology and making the technology work for them. We are moving from *access* provided through *incorporation of technology* to *action* inherent in the *integration of technology*. This is the framework we must claim for 2015 and beyond.

Incorporation to Integration

In a superficial sense incorporation and integration are synonymous, but the dictionary tells us differently. *To incorporate* is to include a thing, an individual, or an event as part of something else. *To integrate*, however, is to combine whole systems into an existing system that then becomes so changed in the combination that it becomes something new (*www.merriam-webster.com*). Today it is taken for granted that students use a computer to type a paper or use a website to watch a video. These activities are technology incorporation—but they are just the beginning. The electronic device is part of the learning process, but it does not affect the outcome. A computer may be easier to work with, but it makes no more impact on the students' learning than a typewriter would have 40 years ago. It may be cool to have the latest iDevice in the classroom, but a worksheet on an iPad is still just a worksheet.

Illustrations courtesy of Shay Taylor

Right: Many websites, such as PhET, offer a wealth of visual and interactive resources to support students.



Effective technology integration is so much more than gadgets. It is intercurricular—math software incorporates reading, science websites support language skills. It is multimodal—requiring not just clicking and reading but filled with visual, kinetic, and interactive information. It requires students to think more critically, not only to connect to content but to get more from the content than they would if they didn't have technology.

It's important to remember: The *how* of educational technology should be peripheral to the *why*. The key is integrating technology that supports and enhances learning goals and follows the four key components of learning (adapted from *www.edutopia.org*, 2015):

- **ACTIVE ENGAGEMENT—**Students retain more information and process it better when they are actively involved with their learning.
- **PARTICIPATION IN GROUPS—** Students work together, fostering collaboration and teamwork.
- **FREQUENT INTERACTION AND FEEDBACK—**This allows for independent self-monitoring and increases active engagement.
- **REAL-WORLD CONNECTIONS—** How can students apply their new knowledge to something they know/use/do?

At the Model Secondary School for the Deaf in Washington, D.C., for example, high school students use the discussion board feature of the Blackboard Learning Management System to develop critical commentary on historical and political issues and current events. Students share their own thoughts and questions and respond to those of their peers, posting their commentary in English and American Sign Language (ASL). Themes of social justice, oppression, and the American political system are contextualized historically but applied to modern-day events and situations.

As they pursue their discussions, students use technology not for technology's sake but as a tool to develop a sense of understanding of the world around them. Through discussions in English and ASL, they develop empathetic approaches to social groups and discuss critical readings about social systems. Further, by presenting information through writing and video using the tools in Blackboard, they develop skills for blogging and vlogging.

Each of these activities fosters critical thinking and allows students to express themselves in expository and persuasive ways. Technology integration also allows teachers and students to extend their conversations beyond the context of the classroom. Students are expected to provide real-world examples to clarify a point or direct a discussion; they are encouraged to connect images, videos, and websites to their text.

In mainstream classrooms, students

use class-specific Twitter accounts to backchannel their reading experiences with peers. Through Twitter, they question content, raise issues, and make connections. Reading their students' commentary, teachers are able to provide clarifications and passage-specific prompts, often in real time. Students can reply to each other, too, and re-tweet comments they find meaningful.

For example, the National Education Association's magazine, *NEA Today*, explained how George Mayo, a teacher in Montgomery County, Maryland, integrated Twitter into his class by using it as a platform for collaborative story writing. Through an account he called "Many Voices," Mayo and his students crafted an ongoing story through tweets. The project began with one line in 2007 and grew 140 characters at a time as his students and students from other states and six countries around the world added their thoughts (National Education Association, 2015). The project that Mayo and his students developed allowed them to increase their sense of global belonging, develop creative thoughts, exercise narrative writing skills, and connect with others.

For instructors who are wary of on-line technology or who don't have the district-wide or school-wide infrastructure to integrate technology in class, Edmodo (*www.edmodo.com*) is a solid option. This on-line system has the look and feel of Facebook but is fully secured to prevent unauthorized access. Edmodo allows students to post comments to the class but not directly to each other, and class discussion can be teacher moderated. This maintains transparency and minimizes possibilities of on-line bullying or harassment. A free program, Edmodo does not require software downloads or personal information to be shared.

Another great program is Fakebook (*www.classtools.net/fakebook*). Young children can demonstrate their knowledge of characters in an assigned reading, use critical thinking and integrate language art skills by capturing the actions, personality, and motivations of a character in creating a fun profile. This website, modeled on that of Facebook, is not publically shared. Fakebook is ASL-friendly; it allows posting of videos. Consider assigning students to record a short introduction of themselves portraying characters from a book as part of their "on-line" profile project.

Teachers can also integrate digital recording technology and editing software to develop visual storytelling skills. Everything within the video frame has meaning for the viewer, and students can learn to create and analyze video, then apply those literacy skills to other forms of media. As teachers integrate social networking programs, either through on-line programs that are publicly available or through off-line programs where access is limited to those in the classroom, they can teach appropriate digital citizenship skills.

Math and science classrooms have a wealth of on-line resources available to support deaf and hard of hearing students, including free access to science experiments. Among the best: The PhET Interactive Simulation Project of the University of Colorado (*www.phet.colorado.edu*), which is highly visual and interactive and not dependent on sound. Several math and science textbook publishers offer on-line components of the textbook chapters with supporting text, extension activities, and visual glossaries. This kind of tool allows deaf and hard of hearing students to extend learning, and it supports them in making clear, visual connections with the discussion seen and heard in class. At their own pace, students can explore topics further, see videos that demonstrate complex processes, and explore unknown words—all in one seamless experience.

It's important to understand that deaf and hard of hearing students who find themselves in classrooms without integrated technology experience a double whammy. They lose access to requisite information and the global connections and discourse that technology provides. They also lose opportunities to develop their skills in both technology and critical thinking that will shape how they connect with the world as adults, learn new information, figure out how to solve problems, and develop new ideas.

All students, regardless of hearing ability, should have full access to the technology available today—just like they have access to pencils and paper. Integrating educational technology allows students to construct their own learning from where they are and with what they have. However, access alone is not sufficient. The goal of access is action. Moving beyond technology incorporation to technology integration ensures deaf and hard of hearing students are getting every opportunity to flourish as young people in the 21st century.

References

Edutopia. (2015). *Why integrate technology into the curriculum? The reasons are many*. (n.d.). Retrieved January 16, 2015, from *http://www.edutopia.org/technology-integration-introduction*

National Education Association. (2015). *Can tweeting help your teaching?* (n.d.). Retrieved February 17, 2015, from *http://www.nea.org/home/32641.htm*

Yes, You Can!

10 THINGS YOU CAN DO NOW TO GROW YOUR TECH-SAVVY SELF

By Shay Taylor

1. Learn to love Twitter. With a Twitter (*www.twitter.com*) account, your professional learning network will grow exponentially. Follow people and groups: @*NAME*. Follow topics of discussion: #TOPIC. Check out an #*EdTechChat* in your state or someone else's state. Also try: @*Edutopia*, @*justforDeaf*, @*ASCD*, and @*JDSDE1*. Throw out a thought or a question, mark it with a matching hashtag (#)—the marker that connects related ideas to each other—and see all the responses you get! Search hashtags already on Twitter and follow the people whose hashtags interest you. Hashtags are a great way to be part of conferences when you can't be there in person. Great starters include: #*notatISTE,* #*FETCsummit,* #*edtech,* and #*deafed*.

2. Embrace Evernote. Evernote (*www.evernote.com*) is a curating tool for all your newly found information. It allows you to file websites, blogs, and newsfeeds, together with tags, and annotate and save screenshots and webpages. Keep these online as well as on your computer. This tool is available as an app and in the Chrome browser, and it can be downloaded to your mobile device from Google Play (Android) or from the App store (Mac/iOS).

3. Taste Feedly. Feedly (*www.feedly.com*) allows you to collect blogs, websites, and even on-line magazines and put the sites together in one place. You save time and ensure your privacy by avoiding signing up to individual sites or e-mail newsletters. Read what others are saying about technology integration, best practices in deaf education, and much more. You can also do similar things with other programs found at LinkedIn's *www.pulse.me*, *www.Digg.com*, and *www.NewsBlur.com*.

4. Create a Google forms station. If you have a Google account, you have access to Google forms, a free on-line tool that can be used for surveys, tests, and evaluations. From your Google account, open Google Drive and select the "forms" option. The Google form allows you to construct questionnaires and will fill out spreadsheets with the results for easy evaluation and tracking. Students can complete "checks for understanding" after individual reading time. This is a powerful, versatile tool. Start simple and then build as you go! Log in at *www.drive.google.com*.

5. Attend a local EdTech conference. The International Standards of Technology Education conference is held annually and has local chapters in several states that also hold annual conferences. Attendance will allow you to connect in person with those who are tech savvy as well as with others who are just learning. Check out *www.isteconference.org* or do a Google search for "educational technology conferences 2015" for a great list of upcoming conferences.

6. Take students on a virtual field trip. From history, to science, to math, to media—whatever your field of study—a virtual field trip can enhance your students' learning, allowing exploration of on-line primary sources and virtual artifacts. Most museums offer video clips of interviews, animals, and events; 3-D tours of buildings; and viewings of paintings and other art closer than you can get in real life. Many, but not all, have captions. These tours support in-class literature and social studies units. Check out *www.newseum.org/education/*, *www.educatevia360.com*, and *http://googlelittrips.com/GoogleLit/Home.html*.

7. Learn from Lynda. This on-line learning website, *www.lynda.com*, is designed for older students and adults who want to learn a specific program, software, or technical skill. While a paid membership is necessary for full access, many tutorials are free. The tutorials cover everything from shooting digital video to learning how to use Excel. The captioned video modules are comprehensive, covering basic to advanced skills. The website also has a channel dedicated to K-12 educators, with topics like "classroom management" and "flipping the classroom." It is great for personal enrichment, summer projects, and ongoing professional development opportunities.

8. Be a student again. Many opportunities exist to learn online. For example, Blackboard K-12, Edmodo, Simplek12 and SharemyLesson all sponsor on-line webinars—and they are free! Khan academy (*www.khanacademy.org*) offers "learning…free… forever," including channels for parents and teachers. YouTube also has a wealth of educational videos. Don't forget the face-to-face options; consider a technology class at a local community college or joining a workshop at a library or museum. One drawback: captions and interpreters are not guaranteed.

9. Create a visual scavenger hunt. Using a digital camera or web images, collect pictures of a set of people, places, and things that represent a single concept (e.g., obtuse angles, the water cycle, or public spaces that used to be segregated). Present the pictures in PowerPoint as a slideshow. Challenge students to determine the connection, and then let them create their own slide show, or virtual hunt, based on a topic you give them.

10. Make a tech-smart friend. This doesn't mean inviting your school's instructional technologist to lunch—but it could! Also consider connecting with people who use technology more than you do. Ask for an hour of their time just to show you what they do and how they do it.