Teacher Technology Toolboxes

With technology becoming an increasingly significant aspect of education, both teachers and students need to have a basic level of skill with the computer. Unfortunately, what constitutes a basic level of skill is often a matter of opinion. For that reason, technology, like so many other matters of education, is increasingly standardized—everything from what a teacher knows when he enters the classroom to what constitutes computer literacy in the seventh grade. Unfortunately, as writer Glen Bledsoe establishes, standardization does not always lead to the betterment of teacher, pupil, or the broader educational picture.

GLEN L. BLEDSOE

Can you teach PowerPoint?” Steve asked during our first educational technology planning session a few years back.

I’m good with computers. Very good. But I wasn’t born that way. It’s just something I picked up after becoming a teacher. That’s why the School of Education at Willamette University in Salem, Oregon, hired me as a one-year sabbatical replacement—somebody to help teach “ed tech” to graduate-level education students.

I didn’t happen to use PowerPoint, but I said, “Sure” and made a mental note to run through the menus before the first class. It couldn’t be that hard. After all, I built my own presentation software more or less from scratch.

“Are you familiar with Word?” Steve asked.

Most people were. I wasn’t. AppleWorks was my word processor of choice.

“Sure.”

“HyperStudio?”

I used SuperCard instead. It had a scripting language that made it much more powerful for me than HyperStudio. I’d seen HyperStudio around, of course.

“Uummmm, sure.”

“Inspiration?”

“I don’t use it myself, but I could teach it. I bet.”

“What do you use for Web design?” Steve asked.

“For simple stuff, Claris Home Page. It’s old and a little out of date like me, but it gets the job done. More complex things I lay out in Painter, slice up the images into a table, export, and tweak the html by hand.”

“We use Frontpage.”

It figured.

From conversations I’ve had with other educators across the country since, I’ve learned that the Willamette School of Education’s teacher technology toolbox—a selected set of software programs for teachers—closely resembles those that are taught to most student teachers. But are the technology tools given to our new teachers really basic to the diverse jobs that teachers do?

Over the past eight or so years, my third through sixth grade students have produced some astonishing works including computer animated stories, Internet radio plays, and fractal poetry, and they’ve won thousands of dollars of prize money in state and national website contests, but, oddly enough, we’ve never once used any of the specific software tools of the prescribed teacher technology toolbox. If my students are successful in using technology, and neither they nor I are using the teacher technology toolbox, then just how fundamental can it be?

Is having a set of endorsed technology tools really an important issue? The International Society for Technology in Education (ISTE) believes so. Chip
Kimball, assistant superintendent to the Lake Washington School District, Washington, in conjunction with ISTE and the Gates Foundation ("Pay no attention to the man behind the curtain!") has proposed a Technology Support Index (http://tsi.iste.org/techsupport/), a guide for what hardware and software teachers will use in schools. Among the eight items listed as "exemplary" on the first page of that index are the following:

- Software standards are established, and only those applications on the list are permitted on computers.
- All grant equipment, purchased and given, must meet district specification or it isn't allowed on the district network or in the school.

Permitted? Allowed? Those words should raise an eyebrow or two. Who is creating these standard sets of software toolboxes, and on what are they basing their decisions? How does someone who doesn't know me, doesn't know the way I teach, doesn't know my skill level with technology, and has never been in my classroom know which software is best for my students? When better software is written, as it surely will be, who will monitor that and decide when or if it's permitted for classroom use? Why can't teachers be trusted to monitor, adopt, and use new technologies? Are we not professionals? Ultimately, is there any evidence that these standards describe the best practice for students and teachers? Or are they being created to make the job of technical support easier?

What is it about technology that makes it such a powerful force in our culture? Technology is powerful because it embraces change, innovation, and revolution. No design, no brand, no operating system, and no circuit is so sacred that it can't be overthrown by something more ingenious, more useful, and less expensive. It's going to be very difficult to write standards for the academic use of something that is constantly squirming, morphing, and redefining itself. Standards are about rules, and technology is in the business of breaking rules.

Computers are the most open-ended tools yet created by humankind. Computers may be used for word processing, spreadsheets, sending email, and browsing the Web, but they weren't created for those purposes. They were created to do whatever a software engineer is clever enough to imagine and brilliant enough to design. Software defines what computers do. Change the software and the computer does something different. This is a very, very good thing. Since nearly anyone can write software (many software developers are self-taught), anyone can redefine what your computer is. Very democratic, isn't it? Software restriction is censorship. Pure and simple.

For example, nearly all the standards outlined in the document known as the Texas Essential Knowledge and Skills for Technology Applications (or Texas TEKS, http://www.tea.state.tx.us/rules/tac/ch126.html#s12611) have to do with word processing, spreadsheets, presentation software, and web searching. How were those tasks decided on? Are those really the skills students will need in the twenty-first century? Do we really think the future of technology is going to include increasingly complex versions of Microsoft Word? There is no mention in the standards of requirements such as "the student will learn to adjust the contrast of a photo" or "the student will be able to compress sound and video using three different codecs." Why not? Certainly there are many jobs even today that require these skills. They're technically no more difficult than adding a formula to a spreadsheet or centering a title of a word processing document.

There is no reason that word processing should be considered more fundamental in the twenty-first century than digitally adjusting photographic images. So why do standards focus on Microsoft Office–like skills? Hint: What do the people who create the standards use technology for? These standards aren't being created by the folks at Pixar. What happens is that we end up creating office-worker competencies, not academic technology standards.

Worse, we trivialize technology. The Texas TEKS guidelines for the seventh grade state that the student will "create documents created with a word processor using readable fonts." Of course, he will. It's a byproduct of word processing but not an academic objective unto itself. That's like saying "the student will learn how to sharpen a pencil." Such fixed standards expose a dishearteningly narrow vision of the future of technology.

Technology is about more than just change. It's about rapid change. Just when education thinks it knows what to do with technology, technology changes. Over the last decade or so, I've seen educational technology defined as: computer aided instruction, email, multimedia presentations, hypertext, message boards, web page design, the Web-as-the-ultimate-library, the Web-as-the-ultimate-student-publishing-opportunity, the Web-as-a-place-to-shield-our-students-from, the Web-as-the-ultimate-trivia-repository, chat rooms, digital video, computer animation, weblogs. Educational technology clearly is not just one of these. It is all
of these and far, far more. Does anyone seriously believe that we've reached the end of the line of what technology can do for education and, therefore, can pin it down to a set of standards? Can anyone doubt that something quite useful to teaching will surely drop into our laps when we least expect it?

While I don't believe there should be a universal standardized teacher technology toolbox and certainly no restrictions as to what we are allowed to use, I do think individual teachers can adopt slowly changing, individualized sets of software tools that they find useful in their classes. How to choose that software? A couple of rules of thumb:

First, I don't use any software in school that I haven't used and had fun with at home. That's not a conscious decision on my part; it's just something I happened to notice. Some odd little program will come to my attention. I try it and become lost in the possibilities of what I can do with it. It doesn't take long before I think, "Hey, I know how this could be used with kids." Besides, who has time to learn new software at school when there are students to manage, more and more meetings to attend, and papers to be graded? Learning software you're not particularly interested in is going to be a great deal harder than learning something you want to learn and think is fun. Letting teachers use what they like, rather than limiting them to a set of tools they neither like nor need, will save schools money in the long run.

Second, you don't have to use software in the way it was intended. Teachers often identify talented and gifted students by watching for students who make unusual connections. Why not let the teachers make some unusual connections? For example, I have a quirky piece of software and an evil twin somewhere in the world (an unrelated namesake whose unstable credit history is occasionally confused with my own). The software, Kari's Power Goo, serves no other purpose than to stretch photos of people's faces until they look ridiculous. It is probably not something that is going to pass muster in any district that has adopted ISTE's Tech Support Index. This past summer, I told students in the Oregon Writing Project at Willamette University Young Writers Camp about the time I got a phone call from a creditor looking for my evil twin.

"Does your evil twin look just like you?" the students asked.

I've never set eyes on my twin, but that didn't stop me from showing them a photo of myself worked over with Power Goo. "Behold," I said.

"Wicked," they said. Before long, with the help of a digital camera, they'd made evil twin pictures of themselves and were busy writing away at what their evil twins had done to get them into trouble. An excerpt of Daniel's piece, below, captures the general enthusiasm of the students' imaginations at work:

Yesterday, in the morning, I woke up. I went down to breakfast. Mom and Dad pointed at the morning paper. Mom said, "Hey look! You robbed the bank."

"But I didn't rob the bank, Mom."

"Don't you but me! Go to your room now!" Mom ordered.

I went to my room. But I knew I had to find out who did it.

A voice said, "I did it. I robbed the bank."

"Who said that?" I asked.

"Your evil twin said that," the voice said.

I turned around to see who was there. It was somebody who looked like me but different. He looked evil. He had a weird looking face.

"I will get you for what you did to me!" I said. So I gave him some of these and some of those. After he fell

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down, I threw him in jail. From that day on, everything was fine.

—Daniel Mitchell

In fact, very little of the software I use is what anyone would consider mainstream. MetaSynth, for example, is a program that allows the user literally to paint sounds. Red colors create sounds on the left channel. Green colors on the right. Yellow in the center. The higher the mark on the Sound Canvas, the higher the pitch. The longer the mark, the longer the duration of the note. For instruments you can use saxophones, guitars, bongos, or just electronic blips and bleeps. MetaSynth can be used for creating everything from Switched-On Bach-like arrangements of the classics to techno dance tracks. Eric Wenger, MetaSynth's inventor, didn't envision kids using it to create hair-raising sound effects for their Internet-broadcast ghost stories. Nor is it likely that he had in mind that students would use it to create musical backdrops for another young writers camp project of mine: “New Lyrics for Old Songs,” satirical song remakes that would cause “Weird Al” Yankovic himself to do a double take.

Buff the Tragic Hot Dog

(Sung to the music of Puff the Magic Dragon by Peter, Paul, and Mary)

LYRICS BY DREW, KEHL, AMANDA,
NATALIE, NICOLE, BRIANA, NATASHA, MELANIE,
CLAIRE, AND RAFA

Buff the Tragic Hot Dog lived in a bun
and he frolicked in the mustard pot,
but he never had no fun.
Little Kelly Ketchup loved that rascal Buff
and brought him cheese and chili sauce and other spicy stuff.

Together they would simmer in a pot of boiling oil.
Kelly had a cookout, everything was wrapped in foil.
Rowdy kids and campers dripped Kelly in the fire.
Buff jumped in to save his friend,
and there they both expired.

(You can hear the full arrangement and the arrangements of several more songs at www.willamette.edu/owp/pages/tywc001/ywc001.html.)

If ISTE's Technology Support Index standards were in place, I have serious doubts Power Goo or MetaSynth would be on any district technology approved list, and so would not be allowed into the building. Students would miss these kinds of unusual writing opportunities.

My final tip. The best software is still between your ears. Never forget that. It's the teacher who decides how to use the software. It takes creativity, experience, and a knowledge of your students to make those kinds of decisions. It takes making unusual connections.

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