

# techLEARNING

## Ten Top Tech Trends

By Susan McLester

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### **A look at the major issues, products, and practices of the day.**

#### **1. Data mining is earning its keep.**

No Child Left Behind may not be the most popular education legislation of our time, but few would argue against the real benefits of focusing on data to provide evidence of progress or need. A recent *New York Times* article showcased a study by the Educational Testing Service that correlates low scores on standardized tests to four variables completely out of the hands of schools: single parent homes; exposure to reading under age 5; hours of television watched in eighth grade; and number of school days missed monthly in eighth grade. The study, which used several data sources including the Census Bureau and Child Trends research center, brings attention to an issue that's long been oversimplified for consumption by the American general public.

#### **2. Cyberbullying is in the spotlight.**

Google the term and see what pops up: more than 1,000 entries attesting to the fact that misbehavior in chat rooms, e-mail, and instant messaging is the issue of the day internationally. Conclusions are mixed. A *Journal of Adolescent Health* report publicized last month found 11 percent of middle school kids were victims of online bullying, calling cyberbullying "an emerging public health problem." On the other hand, a recent study conducted by the National School Boards Association suggests concerns may be exaggerated, finding "fewer recent or current problems...than school fears and policies seem to imply." At any rate, Internet safety and security are on everyone's mind these days, making a strong case for high-quality technology literacy education in schools.

#### **3. Twenty first-century skills have a foot in the door.**

When the Partnership for 21st Century Skills was formed in 2003, it felt like the ed tech industry was talking to itself. However, in the wake of growing concerns over the outsourcing of American jobs, a slew of studies showing employers' concerns over the lack of "promotable" college graduates (*The Workforce Readiness Report Card*), the National Academies' call to arms for more science, math, and engineering brainpower (*Rising Above the Gathering Storm*), new federal funding for STEM from the recent America COMPETES Act, and the growing popularity of "hybrid" academies that combine higher-order thinking with hands-on workplace skills, the message on the national radar is that education must change. Increasingly, institutions such as Tucson's Empire High School (see "[Tossing Out Textbooks](#)") and entire states such as West Virginia are taking the lead in crafting new models for what it means to be educated in the

global, digital world.

#### **4. Digital content is on the rise.**

In the recent report, *A Revolution in K-12 Digital Content: How Soon Is Now?* research group Eduventures declares the textbook "dead...or at least dying" as the "primary content delivery mechanism" for schools, while acknowledging that printed content isn't going away any time soon. New media is interactive, customizable, timely, motivating, instantly accessible, and 21st-century ready. The downside is the possibility of having it all crash—if new information security and bandwidth issues spawned by its exponential growth are not seriously addressed—one company aiming to find some innovative solutions to the heightened security vulnerabilities through a partnership with Carnegie Mellon's CyLab—who predicts that by 2010 there will be 10 Internet-connected devices for every person on the network.

#### **5. We like learning at leisure.**

New statistics from *Keeping Pace with Online Learning*, an annual study conducted by virtual schools and consulting firms nationwide, show that 42 states currently have "significant" supplemental or full-time online learning programs and that they're growing at a rapid 25 percent annually. *America's Digital Schools 2006* predicted that the 3.8 percent of students taking core curriculum topics online would grow to 15.6 percent (or 8 million students) by 2011. Among the major challenges faced by districts with online learning programs are ensuring that their infrastructures can handle the increased demands, and providing instructors with new kinds of training for this new environment. Florida Virtual School's multifaceted professional development program—which includes face-to-face training, shadowing, peer coaching, on- and offline materials, phone calls, chat videoconferencing, and more—represents the innovation that has come to characterize this new breed of school. Online learning programs have enjoyed a freedom of expression not shared by their traditional counterparts, and providers want to keep it that way. Currently at the top of their list is pre-empting a host of national government policy mandates, which could bring the experimental opportunities to a halt. We applaud their initiative.

#### **6. Personal responders are sweeping the K–20 market.**

They may look like garage door openers/TV remotes, but these low-tech, unglamorous tools are performing services that schools are swiftly coming to find essential. "Clickers" are handheld transmitters that collect learner input real time and pair with a host software system that tabulates the data for instant display on a computer monitor or large projection space. Among their uses are: keeping large classes engaged via question-and-answer activities peppered throughout a lesson; providing instant feedback to presenters who can use the information to change the course of instruction on the spot; mid-lesson evaluation of how well learners are understanding material presented so far; and the ability to give each student a chance to be heard in privacy. Score a big one for differentiated instruction.

#### **7. Mobile tools are driving the path of education reform.**

Handheld science devices that freed students from their desks and allowed them to conduct real-time experiments in the field may have been the first truly mobile solutions that impacted instruction in a systemic way. Following handhelds are laptops, which paved the way as the first full-featured computing devices that empowered students to truly extend learning beyond the classroom. Laptops have been the primary force behind the one-to-one movement, now

increasingly pervasive nationally, with the ADS2006 survey reporting 24 percent of all districts of 2,500 or more students have begun or are planning to begin one-to-one programs. Closing in quickly behind laptops are tablets, which educators love for the sketching and handwriting recognition options and which ADS2006 sees growing 78 percent in the next five years. And, of course, student personal tools are growing faster than ever. The iPod, the most ubiquitous student tool, is enabling college students to tap into lectures on their own time, and in the K–12 space, podcasting is opening up the classroom to parents and to the community. Up next look for the cell phone to play a transforming role.

## **8. Bandwidth is suddenly an issue.**

Karen Henke sums up the core concern in her October 2007 *T&L* article, "How Fast Is Fast Enough?" "As capacity gets divided among more students using increasingly demanding data, voice, and multimedia applications, every student's service degrades." Experts such as Maryland-based researcher Peter Grunwald and Tom Greaves, whose Greaves Group conducts the ADS survey, predict that as students increasingly become producers of media through social networking and multimedia, schools will find themselves more and more at the "tipping point" in bandwidth. That is, they'll be at the point where just one more simulation or video-conference could top out the connection, resulting in timed-out sessions, dropped connections, and lost data.

ADS2007 reports on a surprising twist on the bandwidth crisis. The ADS research team shows that there is a direct correlation between low income, rural districts, and an uncommonly high percentage of bandwidth per pupil. QED's Jeanne Hayes says credit for that goes to E-rate, for its high level of funding to the country's neediest districts. For all others, we suggest getting on board now to build in as much bandwidth capacity as you can afford.

## **9. The penguin is snowballing.**

The open source software solution Linux has been around since 1991, but it has reached a new level of friendliness, reliability, and interoperability that makes it more viable than ever for schools. Paired with one of the new low-cost computers such as the Eee PC from ASUS Technology (\$299) and with open source software such as OpenOffice, the Linux solution is, as Indiana's special assistant for technology Michael Huffman says, truly "affordable, repeatable, and sustainable." Another sure sign this budget-conscious solution has a future is that Dell and HP will soon offer affordable Linux-based desktops at dramatically reduced rates. Stay tuned for a future that mixes and matches commercial solutions with often-free offerings that allow schools and businesses to customize, innovate, and get out from under the weight of crippling annual fees.

## **10. The participatory Web.**

If we were *TIME* magazine, we might name Web 2.0 (if it were a person, that is) *TIME*'s Person of the Year. Its impact has certainly been undeniable. Blogs, wikis, social networking sites, and organizational tools such as the Moodle learning management system, social calendars, and other document-sharing applications have given voice to the silent, have invited input from the previously unsolicited, and have created communities of the like-minded. In fact, we're so impressed by the power of the participatory Web, we're beginning a whole new column in *T&L* on that topic (see "[News & Trends](#)"). However, as with *TIME*'s Person of the Year, sometimes the news is not all good. While we love the whole Gold Rush feel of it, the wild and woolly frontier of unvetted information can be dangerous for students—and for the world. Ed tech guru and trained librarian Kathy Schrock lauds the wiki for its collaboration, peer editing, note

taking, and other uses but takes a more cautious view of public tools such as Wikipedia, which claims to be a "free encyclopedia" but offers no author names that students might investigate to determine authority and no information on the volunteer "editors" who monitor pages and create content. In this age of overflowing information, critical evaluation and savvy consumption of data is more important than ever. Let's not forget those crucial library skills.