



Are computers educational?

May 31, 2006

By Thomas W. Hazlett

Third graders in US public schools now craft writing assignments on desktop computers, cranking out reports in Word or PowerPoint. The belief is that getting kids into software early will produce happy, net savvy adults.

It's a stretch. Hardware, software, and network connections for schools cost real money, funds that could be spent on textbooks, classrooms, teachers, or teachers' training. One federal program in the US, "e-RATE," has been pumping over \$2bn per year into computers and connections for educational institutions since 1998, monies piled on top of other billions in state, local, and private expenditures.

The most troubling opportunity cost is not denominated in dollars, but sense. Does it make Johnny or Suzie smarter to seat them in front of a start-up screen? Learning is mostly about growing an ability to think, and web surfing skills or even championship agility in the point-and-click Olympics scarcely pings the higher cerebral reaches.

At worst, the classroom PC sucks up valuable oxygen, diverting youngsters from frog dissections, multiplication tables, and the A,B,Cs. These nurture the brain in time-tested exercises. The test of time may appear a weak empirical standard, but the asserted correlation between smart boxes and smart students is weaker still. As Clifford Stoll opined a decade ago about educational TV and classroom PCs: "Both give you the sensation that merely by watching a screen, you can acquire information without work and discipline."

There is no reason to quarantine curious little ones from the Information Age. My experience with the primary school set (assisted by daughters of six and eight), however, is that they grasp the networking nuances that escape their elders, pretty much by the age of three. They conquer this universe in playtime; it's kiddie R&R. The common problem is not exposing them to too little of the online world, but too much. Play an instrument, enjoy a sport, read a classic and then plop down to several decades of logging on.

The educational research on computer-assisted student achievement signals caution. Well-crafted studies that adjust for students' backgrounds and teachers' competence generally find that computers don't push school achievement. A 2002 paper by Joshua Angrist and Victor Lavy in the *Economic Journal* carefully charted the change in Israeli student performance when a 1994 state lottery funded computers in elementary and middle schools. While many teachers adopted computer-assisted teaching techniques, the only general changes observed were declines in math test scores by 4th graders "where the new computers had the largest impact on instructional techniques."

The point is that modern systems - from networked communications to artificial intelligence - are not a boon to mankind, or that children should be barred from enjoying their fruits. It is that computers, which complement the sweaty mental work-outs that grow young minds into strong thinkers, do not substitute for exercise.

The political world trumpets the educational equivalent of an eat-your-candy diet. All your brain needs is a lap-top, and off you blast into rocket science. The former Republican leader, Newt

Gingrich, staked out a franchise in the visionary market with his prediction that "laptop learning" would be "as big a breakthrough as textbooks were in the 20th century." Wow, that's big. The gusto is contagious. Former Vice President (and later Democratic presidential candidate) Al Gore issued a challenge to the nation in a 1994 speech to connect every classroom to the internet by Y2K.

We blew past that deadline, but Mississippi became the first state to hit its mark when it announced, Dec. 31, 2002, that each of its 32,354 public school classrooms contained an online computer. The Associated Press reported the event as "a milestone for student achievement and state pride," but the only the latter is evident.

Throwing laptops at the education problem is, alas, a whole lot easier than figuring out how to actually teach kids. In the sound-bite world, computers equal smart and key demographics swoon for magic in the classroom. They don't call it "high technology" for nothing. Pols can spot a parade.

Not many are inclined to march to a different drummer. David Shaw, who chaired President Clinton's Committee of Advisers on Science and Technology, noted in 1998 that "the reality is we haven't the faintest idea what really works in a classroom," even as his Committee was recommending funding e-RATE, a program that has now spent upwards of \$15bn for computers and net connections at educational institutions. Perhaps this will buy us a learning curve; it would be nice to know which way it slopes.

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