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Who really benefits from putting high-tech gadgets in classrooms?

How much genuine value is there in fancy educational electronics? Don't let companies or politicians fool you.

U.S. Education Secretary Arne Duncan, left, and FCC Chairman Julius Genachowski speak at a Digital Learning Day event sponsored in part by Google, Comcast, AT&T and Intel. (Mark Wilson, Getty Images / February 5, 2012)

By Michael Hiltzik

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Something sounded familiar last week when I heard U.S. Education Secretary Arne Duncan and FCC Chairman Julius Genachowski make a huge pitch for infusing digital technology into America's classrooms.

Every schoolchild should have a laptop, they said. Because in the near future, textbooks will be a thing of the past.

Where had I heard that before? So I did a bit of research, and found it. The quote I recalled was, "Books will soon be obsolete in the schools.... Our school system will be completely changed in 10 years."

The revolutionary technology being heralded in that statement wasn't the Internet or the laptop, but the motion picture. The year was 1913, and the speaker, Thomas Edison, was referring to the prospect of replacing book learning with instruction via the moving image.

He was talking through his hat then, every bit as much as Duncan and Genachowski are talking through theirs now.

Here's another similarity: The push for advanced technology in the schoolroom then and now was driven by commercial, not pedagogical, considerations. As an inventor of motion picture technology, Edison stood to profit from its widespread application. And the leading promoter of the replacement of paper textbooks by e-books and electronic devices today is Apple, which announced at a media event last month that it dreams of a world in which every pupil reads textbooks on an iPad or a Mac.

That should tell you that the nirvana sketched out by Duncan and Genachowski at last week's Digital Learning Day town hall was erected upon a sizable foundation of commercially processed claptrap. Not only did Genachowski in his prepared remarks give a special shout out to Apple and the iPad, but the event's roster of co-sponsors included Google, Comcast, AT&T, Intel and other companies hoping to see their investments in Internet or educational technologies pay off.

How much genuine value is there in fancy educational electronics? Listen to what the experts say.

"The media you use make no difference at all to learning," says Richard E. Clark, director of the Center for Cognitive Technology at USC. "Not one dang bit. And the evidence has been around for more than 50 years."

Almost every generation has been subjected in its formative years to some "groundbreaking" pedagogical technology. In the '60s and '70s, "instructional TV was going to revolutionize everything," recalls Thomas C. Reeves, an instructional technology expert at the University of Georgia. "But the notion that a good teacher would be just as effective on videotape is not the case."

Many would-be educational innovators treat technology as an end-all and be-all, making no effort to figure out how to integrate it into the classroom. "Computers, in and of themselves, do very little to aid learning," Gavriel Salomon of the University of Haifa and David Perkins of Harvard observed in 1996. Placing them in the classroom "does not automatically inspire teachers to rethink their teaching or students to adopt new modes of learning."

At last week's dog-and-pony show, Duncan bemoaned how the U.S. is being outpaced in educational technology by countries such as South Korea and even Uruguay. ("We have to move from being a laggard to a leader" was his sound bite.)

Does Duncan ever read his own agency's material? In 2009, the Education Department released a study of whether math and reading software helped student achievement in first, fourth, and sixth grades, based on testing in hundreds of classrooms. The study found that the difference in test scores between the software-using classes and the control group was "not statistically different from zero." In sixth-grade math, students who used software got lower test scores — and the effect got significantly worse in the second year of use.

The aspect of all this innovative change that got the least attention from Duncan and Genachowski was how school districts are supposed to pay for it.

It's great to suggest that every student should be equipped with a laptop or given 24/7 access to Wi-Fi, but shouldn't our federal bureaucrats figure out how to stem the tidal wave of layoffs in the teaching ranks and unrelenting cutbacks in school programs and maintenance budgets first? School districts can't afford to buy enough textbooks for their pupils, but they're supposed to equip every one of them with a $500 iPad?

"There are two big lies the educational technology industry tells," says Reeves. "One, you can replace

the teacher. Two, you'll save money in the process. Neither is borne out."

Apple has become a major purveyor of the mythology of the high-tech classroom. "Education is deep in our DNA," declared Phil Schiller, Apple's marketing chief, at its Jan. 19 education event. "We're finding that as students are starting to be introduced to iPad and learning, some really remarkable things are happening."

If you say so, Phil. But it's proper to point out the downside to one great innovation Schiller touted, a desktop publishing app called iBooks Author. The app is free, and plainly can help users create visually striking textbooks. But buried in the user license is a rule that if you sell a product created with iBooks Author, you can sell it only through Apple's iBookstore, and Apple will keep 30% of the purchase price. (Also, your full-featured iBook will be readable only on an Apple device such as an iPad.)

Among tech pundits, the reaction to this unusual restriction has ranged from citing its "unprecedented audacity" to calling it "mind-bogglingly greedy and evil." Apple won't comment for the record on the uproar. Whatever you think of it, the rule makes clear that Apple's interest in educational innovation is distinctly mercantile. But that didn't keep Genachowski from praising Apple's education initiative as an "important step." (Perhaps he meant a step toward enhanced profitability.)

Of course Apple draped its new business initiative in all sorts of Steve Jobsian pixie dust, as if it's all about revolutionizing education. The company's most amusing claim is that iPads are somehow more "durable" than textbooks and therefore more affordable, over time. Its website weeps copious crocodile tears over the sad fate of textbooks — "as books are passed along from one student to the next, they get more highlighted, dog-eared, tattered and worn." Yet as James Kendrick of ZDNet reports, school administrators who have handed laptops out to students to take home say the devices get beaten nearly to death in no time. The reality is obvious: Drop a biology textbook on a floor, you pick it up. Drop an iPad, you'll be sweeping it up.

Some digital textbooks may have advantages over their paper cousins. Well-produced multimedia features can improve students' understanding of difficult or recondite concepts. But there's a fine line between an enhancement and a distraction, and if textbook producers are using movies and 3-D animations to paper over the absence of serious research in their work, that's not progress.

Nor is it a given that e-books will be cheaper than bound books, especially when the cost of the reading devices is factored in. Apple tries to entice schools to buy iPads in blocks of 10 by offering a lavish discount of, well, $20 per unit. They still cost $479 each. The company also provides a bulk discount on extended warranties for the device, but — surprise! — it doesn't cover accidental damage from drops or spills.

Apple and its government mouthpieces speak highly of the ability to feed constant updates to digital textbooks so they never go out of date. But that's relevant to a rather small subset of schoolbooks such as those dealing with the leading edge of certain sciences — though I'm not sure how many K-12 pupils are immersed in advanced subjects such as quantum mechanics or string theory. The standard text of "Romeo and Juliet," on the other hand, has been pretty well locked down since 1599.

There's certainly an important role for technology in the classroom. And the U.S. won't benefit if students in poor neighborhoods fall further behind their middle-class or affluent peers in access to broadband Internet connectivity or computers. But mindless servility to technology for its own sake, which is what Duncan and Genachowski are promoting on behalf of self-interested companies like Apple, will make things worse, not better.

That's because it distracts from and sucks money away from the most important goal, which is

maintaining good teaching practices and employing good teachers in the classroom. What's scary about the recent presentation by Duncan and Genachowski is that it shows that for all their supposed experience and expertise, they've bought snake oil. They're simply trying to rebottle it for us as the elixir of the gods.

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