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Some educators question if whiteboards, other high-tech tools raise achievement

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Under enormous pressure to reform, the nation's public schools are spending millions of dollars each year on gadgets from text-messaging devices to interactive whiteboards that technology companies promise can raise student performance.

Driving the boom is a surge in federal funding for such products, the industry's aggressive marketing and an idea axiomatic in the world of education reform: that to prepare students kids for the 21st century, schools must embrace the technologies that are the media of modern life.

Increasingly, though, another view is emerging: that the money schools spend on instructional gizmos isn't necessarily making things better, just different. Many academics question industry-backed studies linking improved test scores to their products. And some go further. They argue that the most ubiquitous device-of-the-future, the [whiteboard](#) -- essentially a giant interactive computer screen that is usurping blackboards in classrooms across America -- locks teachers into a 19th-century lecture style of instruction counter to the more collaborative small-group models that many reformers favor.

"There is hardly any research that will show clearly that any of these machines will improve academic achievement," said Larry Cuban, education professor emeritus at Stanford University. "But the value of novelty, that's highly prized in American society, period. And one way schools can say they are 'innovative' is to pick up the latest device."

The appeal

Federal dollars for educational technology, minuscule until the mid-1990s, grew to more than \$800 million last year, and industry analysts estimate that federal, state and local expenditures will total \$16 billion next year. Money that once bought filmstrips and overhead projectors has spawned a thriving industry of companies that pitch their products as a way to help schools meet the federal priorities of the day. Glossy brochures that claimed whiteboards would help teachers reach Bush's [No Child Left Behind](#) goals, for instance, now say the devices will help schools win "Race to the Top" grants from the Obama administration.

Nancy Knowlton, the chief executive of SMART Technologies, said that schools are desperate to find ways to engage multi-tasking, tech-savvy kids, who often play video games before they can read and that some "strictly gathered research data," along with anecdotal evidence, show that her company's products work.

"[Students] are engaged when they're in class, they are motivated, they are attending school, they are behaving and this is translating to student performance in the classroom," she said. "Kids want an

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energized, multimedia learning experience. . . . When you ask them to shut off when they enter the classroom, that doesn't really work for them."

Fairfax County public schools began installing interactive whiteboards several years ago, one of which landed in Sam Gee's classroom at W.T. Woodson High School. On a recent morning, the popular history teacher dimmed the lights, and his students stared at the glowing, \$3,000 screen.

As he lectured, Gee hyperlinked to an NBC news clip, clicked to an animated Russian flag, a list of Russian leaders and a short film on the Mongol invasions. Here and there, he starred items on the board using his finger. "Let's say this is Russia," he said at one point, drawing a little red circle. "Okay -- who invaded Russia?"

One student was fiddling with an iPhone. Another slept. A few answered the question, but the relationship between their alertness and the bright screen before them was hardly clear. And as the lesson carried on, this irony became evident: Although the device allowed Gee to show films and images with relative ease, the whiteboard was also reinforcing an age-old teaching method -- teacher speaks, students listen. Or, as 18-year-old Benjamin Marple put it: "I feel they are as useful as a chalkboard."

On its Web site, Smart Technologies cites more glowing testimony, quoting a former Fairfax high school teacher saying that after the whiteboards arrived, he saw "significant" increases in student performance "across all grade levels."

Such statements reflect the fact that many teachers love whiteboards -- industry groups say one in three classrooms will have the device by 2011. They also reflect the relationships that ed-tech companies cultivate with school officials to market their products, underwriting major education conferences and sponsoring professional associations. After the Montgomery County school system signed a \$13 million deal with Promethean to lease 2,600 whiteboards in 2008, for instance, its technology director, Sherwin Collette, spoke at Promethean events during several major education conferences. A district spokesman said Collette was not "promoting" the products per se, but speaking about technology generally.

Last year, the Arizona attorney general criticized Tucson Unified School District officials for accepting rooms, meals, an open bar and free iPods at a resort conference paid for by Promethean after the district spent \$2.1 million on products. Mark Elliott, president of Promethean North America, said the company has since revised its ethics policy. But he and others said such events help the industry "keep its finger on the pulse" of what schools need.

"The private sector engagement is a good thing," said Doug Levin, executive director of the State Educational Technology Directors Association, which lists Promethean, SMART Technologies and Apple among its \$30,000 platinum sponsors. "It is the [job] of the public sector to evaluate claims of these vendors."

The reality

But according to many academics, industry claims about whiteboards are not based on rigorous academic studies. One frequently cited study, conducted by Marzano Research Laboratory and funded by Promethean, surveyed 85 teachers who volunteered to teach a lesson of their choice to two classes, one with the whiteboard, one without. The teachers then gave a test of their own design, with results showing an average 17-point gain in classrooms with whiteboards. "It's a suggestive study -- you can't conclude anything," said Steve Ross, an education professor at Johns Hopkins University. "And that's being generous."

Even the study's author, Robert Marzano, noted that 23 percent of the teachers reported higher test scores without the whiteboard, and some reported lower scores using it. "It looks like whiteboards can be used in a way that can lull teachers into not using what we consider good instructional strategies," Marzano said in an interview.

After using an interactive whiteboard for a year, [William Ferriter](#), a sixth-grade teacher in North Carolina, came to a similar conclusion, deciding the whiteboard was little more than "a badge saying 'We're a 21st-century school.'" He spent weeks trying to devise collaborative lessons that he knows engage students. The best one, he said, brought kids to the whiteboard, where they used their fingers to sort words describing metamorphic rocks, as a video played to the side.

"It just allows you to create digitized versions of old lessons," he said. "My kids were bored with it after about three weeks."

Chris Dede, an education professor at Harvard University, said whiteboards are popular precisely because companies designed them to suit the old instructional style with which teachers are most comfortable.

"No one should be beating up on these companies," Dede said. "They're just doing what a capitalist society tells them to do."

One recent morning, an amiable corporate salesman in a dark suit wheeled into a Maryland classroom the latest high-tech device -- a \$6,500 table with an interactive touch screen that allows students to collaboratively count, do puzzles and play other instructional games. "We had a first run and boom! They sold out," Joe Piazza said in his presentation to administrators at Parkside High School on the Eastern Shore. "It was kind of like the iPad."

In the cinder-block classroom, a few kindergartners sat around the fancy table, working a digital puzzle as blips and canned applause encouraged them. The school officials seemed pleased.

"So," the district's technology director asked Piazza, "do we just call you for pricing?"

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