Digital Whiteboards Outsell Traditional Chalkboards

On a sunny November morning, standing under a sign that says “No Whining” teacher Mike Lenowitz looks intently at his first-period trigonometry class at Thomas A. Edison High School here and talks math. He scribbles on a digital whiteboard—cosine, hypotenuse, the Y-axis—his inkless marker squeaking against the smooth surface.

When he runs out of writing space, instead of erasing the board, he taps it gently with a finger. The board instantly erases itself, reappearing in miniature on the right side of the screen.

To solve an equation, his students pull out calculators from their backpacks. Instead of following suit, Mr. Lenowitz touches the whiteboard screen lightly, his fingers acting like a computer mouse, and up pops a two-dimensional, 3-foot, sleek, black graphic calculator.

He quickly punches the calculator’s keys, which dwarf his fingers. Numbers and an animated graph showing the X and Y axes fill the calculator’s oversize LCD display. The students nod in agreement when they see that their calculations match his. Mr. Lenowitz touches the board again and the calculator disappears, leaving only an expanse of clean, white, empty space.

Schools across the country are gradually replacing the chalkboard—a mainstay of classrooms since the 19th century—with its high-tech, wired cousin; the interactive digital whiteboard. In fact, digital whiteboards, which cost anywhere from several hundred dollars to $20,000, have been outselling chalkboards for the past five years, according to school supply manufacturers and distributors.

The Alberta, Canada-based SMART Technologies has sold “tens of thousands” of its “SMART boards” to schools and universities across North America, the company says. More than 800 schools and colleges have purchased Boston-based Virtual Ink Corp.’s digital whiteboards, and more than 70 colleges or universities are using the “LiveBoards” made by Simply Liveworks Inc., of Tempe, Ariz.
Versatile Tool
Not bad for a device that was originally meant for the business board-room, not the school classroom.

“The K-12 teacher is our best niche for our SMART Boards,” said Scott Tallman, the vice president of marketing for SMART Technologies, which counts among its clients the New York City board of education and the 140,000-student San Diego city schools, as well as the 1,660-student Edison High.

And, he said, the trend toward use of digital whiteboards by schools is still growing.

Experts have described digital whiteboards as essentially “interactive computers writ large.”

Teachers can do anything on a digital whiteboard they can do on a computer, said Mr. Lenowitz, one of a few dozen teachers using the whiteboards at Edison High. But instead of students crowding around a teacher seated at a 15-inch computer monitor, they can stay at their seats and view a 4-by-5-foot screen. That way, even the last student in the last row can see it clearly.

A digital whiteboard works in conjunction with an Internet-accessible computer and a projector, which usually take up the front and center of a class. The whiteboards have a deep cache of memory, which means teachers can write as much as they want, then save their notes in their handwritten form or as text to a Web site or e-mail them.

Teachers can also use the whiteboards to download Web sites or CDROMS, play movies and music, display PowerPoint presentations, or zoom in or out when viewing maps or photographs. In addition, teachers can use whiteboards to write over video clips with electronic pens, much as TV sportscasters do when they explain play-by-play action during football games.

What's more, a teacher can hook up a magnifying camera or microscope to a digital whiteboard to view the cellular structure of a leaf, for example, or the inner workings of a machine.

"It's extremely beneficial," Mr. Lenowitz said after one class, the whiteboard glowing behind him. "I can show them, not just tell them."

For instance, he can show a difficult equation on the digital whiteboard because he can flip, invert, and move graphs around, which he can't do on a regular chalkboard.

Edison 11th grader Jerome Brown said he tends to pay more attention when his teachers use digital whiteboards, and they are easier to read than chalkboards. Besides his trigonometry instructor, his history and chemistry teachers use the whiteboards.

Like others his age, Mr. Brown likes the animated, visual nature of these tools.

“They're just like TV,” he said with a smile.

Officials such as Maribeth Luftglass agree that the whiteboards belong in schools. She's a spokeswoman for the 166,000-student Fairfax County school district, which includes Edison High.

Eventually, she and others hope a digital whiteboard will grace most if not all, classrooms in the county's schools. Already, more than 1,000 of the devices are in Fairfax County schools, up from zero just a few years age. Edison High alone has 65, and will have 11 more before the end of the school year.

“They're becoming more and more popular,” Ms. Luftglass said. “We're utilizing technology more, and once [teachers] have them, they don't want to give them up.”

Weighing the Cost
Still, not all teachers think digital whiteboards are a useful learning aid.

As with all new technology, teachers must negotiate a learning curve, experts in educational technology stress.

Teachers may not want to use digital whiteboards unless they've acquired enough confidence not to get flustered if they can't figure out how to perform certain functions.
Mr. Lenowitz, for one, is adept at using the tool, but still encounters glitches from time to time. During a recent trigonometry class, for example, it took him several tries to create a box on the whiteboard, or shrink a graph and move it around.

“Some reachers,’ Mr. Lenowitz said, “may be concerned with how [whiteboards] work. They don't want to look stupid in front of their students.”

While digital whiteboards make for more interactive, compelling, and perhaps even more effective lessons, using them can translate into more work for teachers. Mr. Lenowitz had to create some of the graphs on the whiteboard before class, for instance, and his lesson plans must be more meticulous.

“It’s made teaching harder,” he acknowledged. “It involves more thought, more learning, and more preparation.”

Digital whiteboards can also take time away from students, Mr. Lenowitz added, especially for teachers still learning how to use them. And because of the limited length of many digital whiteboards—usually no more than several feet across—only two three students can write on a board simultaneously.

Teachers note some technical shortcomings, too.

A digital whiteboard can't decipher handwriting if it's too small, or if a person writes too fast. And if the whiteboard isn't tailored exactly to the screen of the computer powering it, the buttons on the whiteboard may be a few centimeters off, making it difficult to use.

The relatively high cost of digital whiteboards and their upkeep is also is potential barrier. The whiteboards used at Edison High cost about $1,800 each. Pair that expense with a computer and video projector and the package costs about $4,000. Upgrades are also needed every few years; traditional chalkboards last at least 20 years, with little maintenance necessary.

In fact, Edison High was able to put so many digital whiteboards in its classrooms only because it had financial support from the Washington-based McGettigan Foundation. which has given the school almost $1 million over the past four years for technology.

That said, digital whiteboards are here to stay, predicted Patrick H. McGettigan, who heads the foundation. which seeks to improve public education in the Washington area.

“They give the biggest bang for the buck,” he said. “They bring the entire world to a class.”

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