

Getting in Touch

Touchscreen use in education technology will continue to grow.

BY KURT O. DYRLI

WHEN APPLE INTRODUCED THE IPHONE on June 29, 2007, it was one of the largest and most anticipated consumer electronics releases ever. The device was revolutionary, not just because it combined a cellular phone, MP3 player and Internet access into one compact, sleek gadget, but because it relied entirely on a unique touchscreen user interface, lacking a keyboard, buttons or stylus, and was controlled entirely by finger taps and swipes. The original iPhone sold 270,000 units in the first 30 hours, and the device has gone on to sell some 13 million units to date, including the next generation iPhone 3G released in July. Some industry analysts are predicting Apple will sell 45 million iPhones a year worldwide by the end of 2009, growth driven primarily by consumer enthusiasm for touchscreens. “This new user interface will be like a tsunami, hitting an entire spectrum of devices,” predicts Francis Lee, CEO of touch sensor maker Synaptics.

Interactive Whiteboards

A touchscreen interface isn't entirely new to school districts, however, some of which have been using touch technology like interactive whiteboards for many years. In 1991, SMART Technologies invented the first interactive whiteboard, a device that combines a whiteboard with a projector, presenting a computer screen for an entire class and enabling teachers to con- ▶

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control the computer with the touch of their hand or pointer instead of a keyboard and mouse. Today similar technology is sold to schools worldwide, with whiteboard models now offered by a variety of manufacturers including Hitachi, 3M, eInstruction, Promethean, and Mimio. Whiteboards' touchscreen interactivity and their increasing affordability have made them more popular than ever, and they are now estimated to be in 16 percent of all American classrooms—a number that keeps growing.

This summer, the Lovejoy (Texas) Independent School District installed 235 Hitachi StarBoard FXDuo interactive whiteboards across its five schools. "We wanted to convert our learning environment into a more interactive environment, and achieve better student engagement and an improved learning environment," says Dennis Womack, assistant superintendent for operations for the district. The boards' advanced touch features increased the appeal for the district. "We liked the fact that you're not restricted to a proprietary writing instrument. You can use your finger, the back of your hand, or whatever you want to write on the board," he says. Wichita (Kan.) Public Schools has approximately 1,500 SMART Technology interactive whiteboards. "Students want to use the boards," says Marcia Jeans, the school district's instructional technology specialist. "Those who normally wouldn't want to get in front of the class are eager to use the board." Interactive whiteboard software helps district teachers create interactive lessons, such as virtual science labs. Jeans finds the technology particularly helpful for teaching challenging math and science concepts, for example. "There are a lot of different ways to easily demonstrate a process," she says.

Touchscreen Versatility

Besides whiteboards, specially designed touchscreens have also been common tools in other education technology sec-



The intuitive touchscreen control of the iPod touch has contributed to its high popularity among teenagers, and some districts are beginning to make use of the devices.

tors for some time. Touchscreen computers have aided special needs students, as they enable those uncomfortable with or unable to operate keyboards and mice to more easily use a computer. The Wichita district, for example, also uses about 20 touchscreen PCs for special education students. And students have commonly used other touchscreen devices such as tablet PCs and PDAs in school, with

enabled devices just beginning to come to market and soon to impact education technology. "Apple changed everybody's mind about touch," says Geoff Walker, global director of product management at Tyco Electronics' Elo TouchSystems.

Consumers are now seeing touchscreens in a wide variety of electronics, not only in competitors to the iPhone from Sony, Samsung, Motorola, LG and

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—*Marcia Jeans, instructional technology specialist, Wichita (Kan.) Public Schools*

some districts purchasing and providing them through recent technology grant funding provided by the U.S. Department of Education. The Mesa County Valley (Colo.) School District 51 recently installed touchscreen kiosks in the area's local library and grocery stores as part of its "Parent Bridge" initiative, which allows parents to easily log in and view their child's academic records, even if they do not own a computer and are unfamiliar with a keyboard and mouse. This summer, administrators at Culbreth Middle School in the Chapel Hill/Carrboro City (N.C.) Schools announced their intention to supply an Apple iPod Touch for students to help teach organizational skills, technological proficiency, and to encourage them to record podcasts.

In the consumer market, however, the iPhone demonstrates recent advances in touch technology that have enhanced its functionality while increasing its affordability, resulting in a flood of touchscreen-

T-Mobile, but also in desktop PCs, printers and copiers, televisions, and MP3 players. Hewlett-Packard's new TouchSmart PC, released this summer, is a groundbreaking all-in-one home computer designed to be used primarily by its touchscreen; it doesn't require a keyboard or mouse for many applications. Sony's recently released third-generation Reader Digital Book is now a touchscreen model, the company claiming that the capability makes for a more intuitive reading experience. Teens, if they don't have a touch-enabled phone, PDA or MP3 player already, often use touchscreen cash registers or kiosks in retail or other jobs. Even young children are often familiar with the concept from playing games on the multimillion-selling Nintendo DS, a touchscreen-enabled handheld video game system. Both students and teachers alike are becoming increasingly comfortable with using a screen as an interactive, hands-on interface in their daily ▶

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lives, and are coming to expect it in their school's technology as well.

Meeting Growing Demand

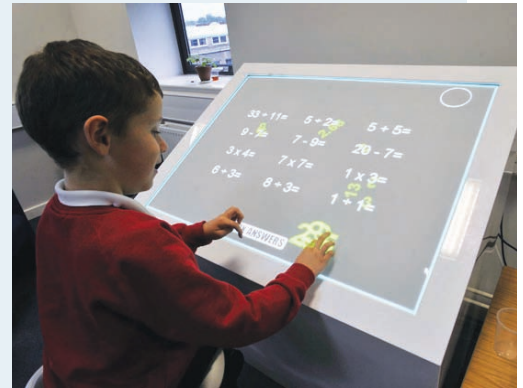
MPC Computers, which has just released its K6-focused laptop, the TXTbook PC, also offers several touchscreen "convertible tablet" laptops intended for high school and college students. These models' screens swivel as they fold into a tablet, enabling users to take notes, draw and use applications directly on the screen with a stylus. Recent touchscreen innovations are a paradigm shift in how students approach computers, says MPC convertibles product line manager Deborah Herud. "We're seeing very strong demand from schools for this technology," she says, pointing out the many advantages of touch. "For younger students who aren't yet typing or cannot type well, or for special needs students, it's much more intuitive for students to write on the screen, to use their fingers to control the PC," and MPC is currently evaluating ways to incorporate touch in more models focused on education. The iPhone has sparked huge demand for more touch technology, says Lenovo notebook product marketing manager Mika Majapuro. "It's so much more natural for students to use touchscreens to control their systems," he says. Lenovo has just released its new ThinkPad X200 Tablet PC, a touchscreen model geared toward the education market. "Touchscreens today are faster, more accurate and more sensitive than in the past, and we're definitely going to be seeing more and more of this technology in education," he says.

A Glimpse of the Future

In anticipation of this trend, manufacturers such as Apple and HP are rumored to be working on a variety of touchscreen products, and interactive whiteboards are expected to be increasingly common in schools. One of the most prominent innovations in Microsoft's next-genera-

TOUCHSCREENS COULD FOSTER FUTURE COLLABORATION

For all their advantages, most touchscreen devices currently in use are unable to recognize more than one user at a time. "Multi-touch" screens are therefore the next goal for touchscreen manufacturers, which would enable multiple simultaneous users on a device and illustrate what analysts believe is the future direction of education technology: collaboration. A recent report by research firm Compass Intelligence found that "implementing collaborative tools to enhance instruction" would be one of the main growth areas in future education technology plans. The Sarasota County (Fla.) School District, for example, spent \$14 million over four years installing some 3,000 Promethean ActivBoards in classrooms across the district and in every grade. Director of information technology Mike Horan says the collaborative possibilities are appealing to the district. "We are looking at getting the teacher away from being the only one with the knowledge, the only one interacting with the board," he says. Multi-touch screens could prove to be an important part of the trend. Education technology



The U.K.'s Teaching and Learning Research Programme demonstrated this prototype touchscreen interactive desk in September.

researchers from Durham University in the U.K. demonstrated their prototype "interactive desk" with students in a British elementary classroom in September, a project that was part of the government-funded Teaching and Learning Research Programme. Like a desk-sized iPhone or interactive whiteboard, the prototype is intended to be a combination desk and computer, and it "allows for multiple finger presses on a screen at one time, unlike one computer mouse," says Liz Burd, lead researcher for the project. The unit demonstrates the possible future for collaborative, touch-based school technology. "With three kids at one unit, you can have thirty pointers to the screen at any time. For the first time you have one computer for many individual users." Students can work alone or together on the desks, while teachers are able to control the content via a master console. "They can send out to the desks whatever activity they want pupils to work on. A panel on the teacher's console will show what each of the pupils are doing, so they can offer extra instruction or support where necessary," says Burd. "Significant bodies of research highlight how students learn more deeply when they are engaged in discussing their work with others. We believe that the combination of direct touch and group activity through a multi-touch environment will significantly enhance students' learning experiences."

tion operating system, Windows 7, will be multi-touch functionality. Microsoft founder Bill Gates discussed the growth of touch as part of the new future of

"natural user interfaces" with technology in his keynote speech at the 2008 Consumer Electronics Show. "The first digital decade was largely driven by the keyboard and the mouse," he said. "Just in the last two years we've started to see the emergence of other modes of interaction. The reaction to those natural interface implementations has been very dramatic. People are very interested in a simpler way of navigating the information. ... [But] we're just at the beginning." DA

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