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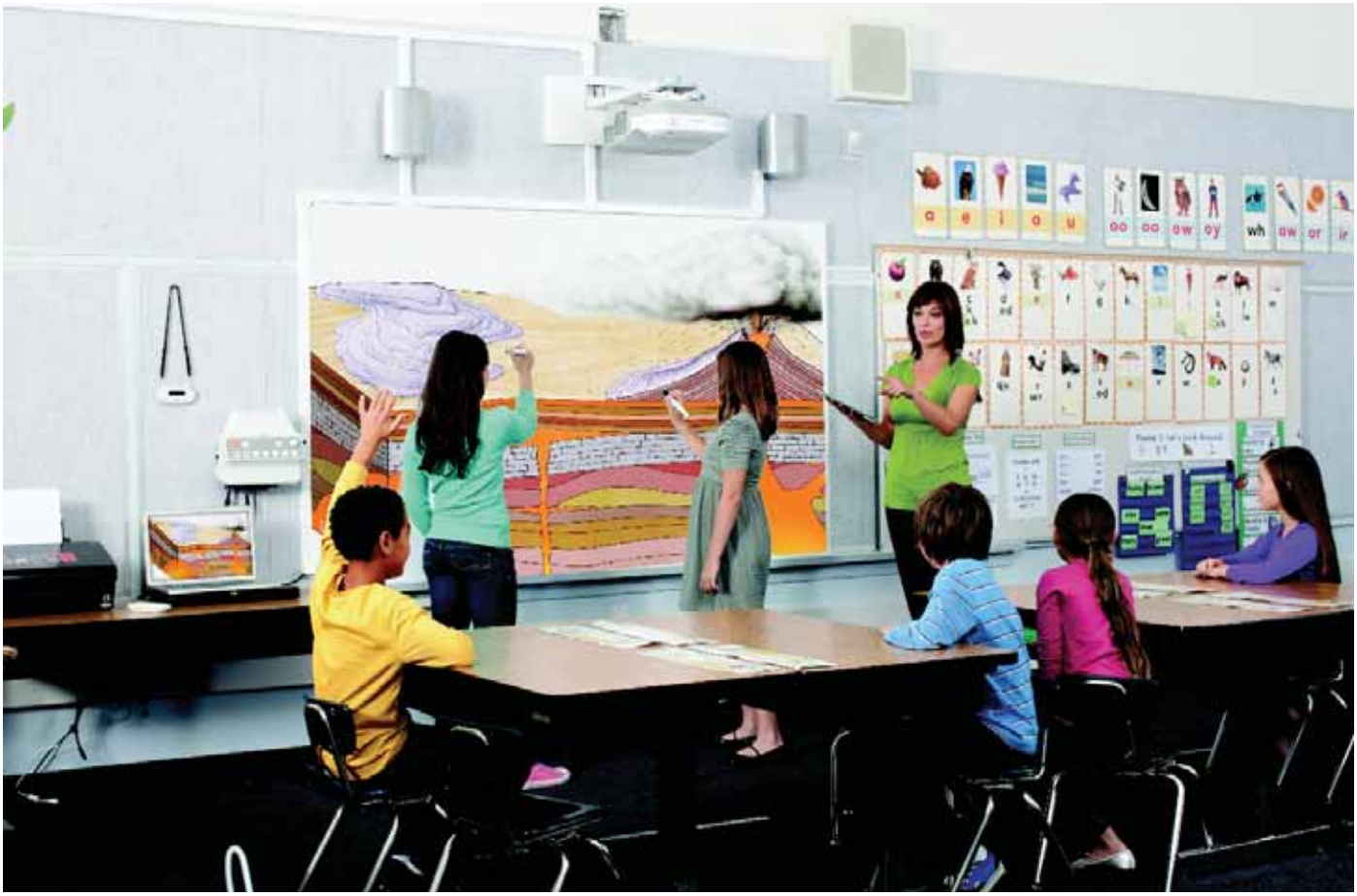
Projecting Success



How the latest advancements in digital projectors can enhance teaching and learning

Inside this publication:

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- New projectors make any wall an interactive environment
- iPad-ready projectors: How to share content from mobile devices with the whole class

Editorial & Production
Editorial Director & Publisher
Gregg W. Downey
gdowney@eschoolnews.com
Editor
Dennis Pierce
dpierce@eschoolnews.com
Managing Editor
Laura Devaney
ldevaney@eschoolnews.com
Associate/Online Editor
Meris Stansbury
mstansbury@eschoolnews.com
Assistant Editor
Dennis Carter
dcarter@eschoolnews.com
Creative Director
Chris Hopson
chopson@eschoolnews.com

Advertising Sales
Eastern Region
Barbara Schrader
(800) 394-0115 x 163
bschrader@eschoolnews.com
Midwest Region
Patty Voltz
(813) 991-4099
pvoltz@eschoolnews.com
Western Region
Paul Turchetta
(310) 540-3344
prturchett@aol.com
Sales Administrator
Lee Calloway
lcalloway@eschoolnews.com
Circulation & Online Director
Nancy David
ndavid@eschoolnews.com

Online
Director of IT
Vincent Carlson
vcarlson@eschoolnews.com
Web Communications Specialist
Jeffrey Festa
jfesta@eschoolnews.com

Corporate Board of Directors
Chief Executive Officer
Rob Morrow
rmorrow@eschoolnews.com
President
Gregg W. Downey
gdowney@eschoolnews.com

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Section 1:
New AV advancements come into focus

A way to measure the color brightness of projected content, new and easy ways to share content from mobile devices with the whole class, and the emergence of “extreme” short-throw projectors are some of the key developments in audio-visual technology in recent months.

In this section, we’ll explore these new trends and others—and we’ll explain what they mean for education.

A new way to measure color brightness debuts

From staff reports *Originally published Aug. 8, 2012*

A new way to measure the brightness of colors was among the key developments in audio-visual technology discussed at the 2012 InfoComm conference in Las Vegas—and this news has important implications for schools.

When evaluating projectors, everyone looks at lumens as one of the primary indicators of image quality. But lumens only measure the brightness of white light, not colors. Until now, educators haven't had a standard way to measure and compare color intensity.

That all changed in June 2012 with the introduction of the International Display Measurement Standard (IDMS). Developed by the Society for Information Display along with the International Committee for Display Metrology, the IDMS includes a uniform method for calculating what it calls "color light output." This measurement gives school leaders an easy way to evaluate the color performance of various projectors.

"Twenty years ago, a typical projector presentation was text-based, usually plain black and white," said Tanya Lippke, a principal at the market research firm TFCinfo. "Today, users demand high-quality photos, graphics, and video in their daily presentations, driving the demand for superior image quality."

The new color performance metric applies to digital displays as well as projectors. Besides asking for color light output data when comparing different models, educators also can measure this for themselves with the aid of a simple light meter.

"A color light output specification should be of real benefit to … those responsible for projector selection, [making] it possible to properly compare different projector technologies," said Art Feierman, president of ProjectorReviews.com. "Many projectors produce a hefty amount of white lumens but come up very short when trying to produce rich, accurate colors."

3LCD, an industry group of projector manufacturers that use a three-LCD-chip design, has long claimed that its red-green-blue chipset produces more vibrant colors than Texas Instruments' DLP technology.

At this year's InfoComm in Las Vegas, 3LCD put its claims to the test by letting visitors to its booth measure the color light output of high-end (7,000-plus lumens) 3LCD and DLP projectors.

When measured side-by-side using what 3LCD claimed was the same standard configuration, the output from the three-chip projectors produced a higher color intensity than that of comparable single-chip DLP devices, reporters found.

A growing trend in school AV solutions: Convergence

From staff reports *Originally published March 23, 2012*

School audio-visual solutions seem to be converging, with major suppliers of AV products releasing their own versions of solutions offered by competitors in an effort to keep pace. Interactive whiteboard makers are releasing projectors, and projector makers are releasing student response systems—making nearly every AV supplier a one-stop shop for presentation tools.

For instance, ELMO USA now offers a student response system (SRS), which it demonstrated at the Florida Educational Technology Conference in January 2012. Available in 24- or 32-unit bundles, ELMO's SRS devices operate on the 2.4GHz radio frequency, with a range of about 50 feet. The software that drives the system works on Windows XP, Vista, or 7 computers.

In another example of this convergence, Promethean unveiled its own version of an interactive tabletop surface at FETC, the ActivTable. Like other companies' interactive tables, it's aimed at elementary and special-needs students in particular—but it includes several unique features as well.

At 46 inches, the high-definition LCD display allows up to six students to use it at any one time, with ample room for them to work together on tasks that require problem solving, critical thinking, and group decision making. The ActivTable includes web browsing and tools such as keyboards, math applications, and more, and it integrates with resources and content from Promethean and other vendors, including interactive whiteboards.

Promethean also has teamed up with Houghton Mifflin Harcourt to offer new interactive math content designed for use with interactive whiteboards and handheld learning devices. "Go Math! Interactive Lessons," aligned with the Common Core standards for grades K-6, include hands-on activities to help students explore math concepts more deeply, the companies said. The content follows the scope and sequence of HMH math textbooks, but it includes embedded assessments so teachers can use student response systems to gauge understanding before they move on.

SMART Technologies, meanwhile, introduced its first interactive projector, the LightRaise 40wi. It's a pen-enabled, ultra-short-throw projector that can turn nearly any surface into an interactive learning space. The LightRaise includes SMART Notebook collaborative learning software for collaborative learning, and it comes with a rechargeable interactive pen, a pen holder, USB and VGA cables, and an easy-to-install wall mount. The projector can produce screen sizes up to 100 inches in a widescreen format.

Epson, one of the pioneers in interactive projection technology, introduced a mobile app that lets iPad, iPhone, and iPod touch users present to any networked Epson projector right from their mobile device. Called iProjection, the app allows users to display documents and photos to Epson projectors wirelessly from most iOS Apple devices running iOS 4.2 or later. It's available free of charge in Apple's App Store, and it also supports cloud-based file services such as Dropbox or various eMail applications, Epson says.

"As tablet and smart phone popularity continues to grow, both business users and teachers are in need of an intuitive and easy-to-use application that will allow them to leverage content from their Apple iOS devices and project it wirelessly," said Brian Savarese, product manager for Epson America. "Whether presenting on the road or in the classroom, iProjection expands iOS devices' wireless capabilities for collaboration with larger-than-life images on wireless Epson projectors."

In other school AV news, Samsung demonstrated its SDP-860 Digital Presenter, which it says is ideal for presenting oversized objects or documents in crisp detail to large audiences with its jumbo, 16.5-inch by 11.7-inch shooting area. Its 1.39-megapixel design offers resolutions of SXGA, WXGA, XGA, or 720P, and it can be used as a webcam with Skype and lecture capture products. It allows for 48X combined zoom—6X optical and 8X digital—and includes SD memory for capturing and playing back still and video files. The device also folds down to 2.6 inches flat for easy carrying and storage.

Crestron discussed its "Cash for Trash" program, which allows the trade-in of old analog video distribution systems for a "significant credit" toward a brand-new Crestron DigitalMedia 8G+ system, which offers digital HD audio and video, the company says. "Upgrading to digital with Crestron DigitalMedia 8G+ is painless, quick, and easy," said Sean Goldstein, vice president of marketing. "You can use existing wiring, so you don't have to break open walls. You literally just swap out the hardware. Now, with our trade-in program, we're even paying you to do it." For more information, eMail techsales@crestron.com.

And, as more schools adopt tablet computers in the classroom, Florida-based MountMe has introduced a product line that offers tablet mounting solutions to help secure the devices.

With MountMe's Freedom line, tablets are not only encased, but can be securely mounted to a wall, desk, or nearly any other surface imaginable, the company says—ensuring the safe handling of the devices. Schools in Florida's Collier, Broward, and Glade counties have brought MountMe accessories into their classrooms to add extra protection to the tablets they are using as educational tools.

All Freedom mounts, which start at about $60, have the ability to pan 360 degrees and tilt 90 degrees, according to MountMe.

Short-throw projectors going 'extreme' in education

By Dennis Carter, Assistant Editor *Originally published May 31, 2011*

Not every classroom is a vast lecture hall. There are many small rooms in schools and colleges that serve as meeting spaces—confined areas where projectors must be placed just a few feet away from a surface.

Casting a large, clear picture on a screen or wall is rarely a challenge in the most spacious of lecture halls; instructors can place their projector as far back into the room as needed to get a crisp image that supplements a class lesson.

For educators who don't have the luxury of nearly unlimited space, however, there is a new generation of short-throw projectors that have adopted a new name: "ultra short throw" or "extreme short throw."

These extreme versions of the short-throw projector can create images up to 80 inches diagonally across, sitting only two feet or less from a screen or wall—making the machines ideal for educators working in a tight space.

Having the projector so close to the wall also lets instructors roam the classroom or stand in front a whiteboard without casting shadows on the projection, experts say.

"This past year it's been all about who puts the 'short' in short-throw projectors," said Elizabeth Dourley, a researcher and writer for Projector Central, a website that tracks projector technology for entertainment and educational use. "Short throws are extremely popular for applications where space is tight, but they also prevent light hitting a presenter in the face or shadows obstructing the image."

Many extreme short-throw projectors require only about one foot to produce an image—a significant difference when compared to a standard projector used in education. Traditional projectors need at least eight feet to cast a clear image on a wall or screen, and many need several more feet to operate.

Ultra short-throw projectors have developed a following both in K-12 schools and on college campuses, Dourley said. And she expects the educational fascination with short-throw projectors to continue.

"Short-throw projectors have always been favored by schools, because of space constraints and other issues," she said.

One of the first ultras short-throw projectors was Epson's 450Wi, which "has excellent … resolution from bottom to top and edge to edge," said Keen Gravely, an instructional technology specialist for the Nash-Rocky Mount Public Schools in Nashville, N.C.

"I have not seen [many other models], but so far I've seen nothing as good as the Epson," Gravely said. "It turns a standard teaching surface into an interactive display area with a very sharp, bright image."

Many projector companies have unveiled their latest lines of ultra short-throw options in recent months, but few—if any—compare to the limited distance needed by the Dell S500wi projector, which hit the market in February 2011.?Projector Central researchers and analysts, during tests with the Dell product, found the S500wi produced a 75-inch diagonal image (63 inches wide) sitting only five inches from the screen.

From just two feet, the projector can create an image measuring 100 inches diagonally, according to Dell.

Dell's latest ultra short-throw projector, along with many others on the market, don't require the pesky task of calibrating the on-screen image every time the projector is moved, even by a few inches. This can be particularly useful for educators who move projectors around the classroom on carts.

The S500wi, like others in the extreme short-throw category, create large images from short distances by reflecting the image off a mirror. There are, however, new extreme short-throws that avoid the use of mirrors, which experts say can degrade the on-screen image, if only slightly.

Mitsubishi's WD380U-EST and XD380U-EST extreme short-throw projectors don't rely on mirrors to cast a large image from a short space, but instead employ specialty lenses introduced by the company in May 2011.

The newest Mitsubishi line of ultra short-throws requires more space in front of the screen or wall—about two feet instead of the five inches needed for the Dell projector—but the company claims it provides a clearer image for educators and their students.

"It's technological prowess that we use to create imaging wonder, not smoke and mirrors," said Wayne Kozuki, product manager for Mitsubishi Digital Electronics.

Mitsubishi's latest short-throw machine features a lamp life of up to 6,000 hours if left on "low mode" and a built-in 10-watt speaker, which will work even if the projector is left on standby mode. This would allow educators to save lamp life by shutting down the projector's visual component without sacrificing audio that could be crucial to a presentation or lecture.

Projector Central has a tool that can take the guessing out of projector choices, especially for educators who are unsure which projector to request for their classroom with limited space.

The website's "Projection Calculator Pro" helps educators understand which machines will fit in the available room space. Using manufacturer-supplied specifics on a range of projectors, Projector Central's calculator accounts for screen size, room lighting, and—of course—the number of feet an instructor has between a projector cart and a screen or wall.

Section 2:
Interactivity on the rise

The emergence of interactive projectors in recent years is a game-changer for education.

Now, cash-strapped schools no longer have to buy special hardware to create an interactive display surface; instead, teachers and students can interact directly with the beam of light from any interactive projector. These new projectors also don't rely on a computer for their interactivity. The possibilities this new paradigm shift creates are limited only by educators' imaginations.

New projectors make any wall an interactive whiteboard

By Meris Stansbury, Associate Editor *Originally published Jan. 13, 2010*

In a move that could shake up the interactive whiteboard (IWB) market, projector manufacturers have released new products that can turn virtually any surface into an IWB.

The development means schools no longer have to buy separate hardware to enjoy the benefits of IWBs, whose interactive surface and ability to engage students have made them quite popular in classrooms.

"We would certainly consider this projector a game-changer," said Claudine Wolas-Shiva, project manager for Epson Electronics' BrightLink 450Wi. "It's not just the newest and latest in projectors, but in whiteboards as well."

The BrightLink projector can be mounted to any type of classroom wall (of course, the smoother the better—and old-fashioned, non-electronic whiteboards work the best). Because it's an ultra short-throw projector, it can project a whiteboard surface image from a very short distance, meaning that as a teacher or student interacts with the surface, no shadowing exists.

The projector comes in XGA or WXGA models, and images can be anywhere from 59 inches to 96 inches diagonally with WXGA resolution, or from 55 inches to 85 inches with XGA resolution.

"The entire projection area is the interactive area," explained Wolas-Shiva. "Before, educators would have to consider board size in terms of both pricing and classroom size, and costs would differ accordingly. With this projector, which has Epson 3LCD technology and 2,500 lumens, now educators can choose any type of size for their IWB, at no cost increase. It's every size of whiteboard in just one projector."

Educators and students can interact with the whiteboard surface using an infrared pen, and the software driving the system is platform-agnostic, meaning students and educators can work with virtually any Web 2.0 application, digital media file, or eTextbook.

Epson also is partnering with RM Education to provide RM's Easiteach interactive lesson software. As of press time, the BrightLink 450Wi was priced below $2,000 (including mount).

The day before Epson announced its new BrightLink projector, Boxlight introduced a similar product, the ProjectoWrite2/W—a short-throw LCD projector with XGA resolution that can project an IWB surface up to 80 inches diagonally. The ProjectoWrite2/W improves upon a technology that Boxlight first unveiled in 2007.

Epson and Boxlight aren't the first companies to come out with technology that can turn any flat surface into an IWB. AVRover's SVS200 with ONfinity CM2 Max is a portable AV system that can turn almost any surface into an IWB. And Mimio's Interactive System includes a small bar, stylus, mounting hardware, software, and USB interface that can attach to any dry-erase board or other surface to make it interactive.

But to use these other systems, schools still would need a digital projector—whereas Epson's and Boxlight's solutions are self-contained.

For less than $2,000—half the price of the average IWB—schools can have twice the number of IWB surfaces in their schools, simply by purchasing the BrightLink, Wolas said.

"Or they can use the money saved for other school costs," she added.

According to Ted Lai, director of technology and media services for the Fullerton School District in Fullerton, Calif., the BrightLink 450Wi is a great solution for future-proofing classrooms.

Lai said that while traditional IWBs are useful, there are still problems. For example, "with a mounted LCD and IWB, there can be issues of calibration when AC units turn on or the building shakes. The shaking/calibration issues are more pronounced in portables," he said.

He added: "With the traditional all-in-one IWB units, we have found those are much more stable, but they are also a much higher cost for the hardware and installation. Additionally, the projectors on all-in-one units are generally lower quality than what we are accustomed to. The Epson image is much clearer and brighter and has more accurate colors. Also, the BrightLink is a single unit that is installed, not a board and projector."

And with fewer parts involved, "less can go wrong or break," he concluded.

Mike Rodems, founder of AVRover, said adding IWB capabilities directly to a projector eliminates the need for constant recalibration, and it makes setup easy. But he noted that his company's ONfinity solution will work with any projector, "allowing [schools] to select the projector that matches their needs best." And with the ONfinity technology separate from the projector, "the interactive technology will be available to use long after the projector wears out, becomes obsolete, or is … damaged," he said.

Linda Thomas, vice president of marketing for SMART Technologies, the leading manufacturer of IWBs for schools, had this to say about the new IWB-capable projectors:

"We are confident that educators will continue to choose SMART Board interactive whiteboards [owing] to their superior ease of use, driven in part by our touch technology." (SMART Board users don't need a stylus to interact with the board, as the company's technology is touch-sensitive.)

Thomas continued: "There are already many low-cost, pen-only hardware offerings in the marketplace. We are not concerned about another entrant in that space. When educators invest in education technology, they are not just buying a whiteboard or a projector. They are also investing in the content, resources, and services that are required to transform classrooms. They choose SMART because we provide the best complete education solution."

Projectors becoming more interactive

From staff reports *Originally published July 21, 2010*

Earlier this year, Epson and Boxlight made news when they introduced projectors that can turn virtually any surface into an interactive whiteboard (IWB). The development meant that schools no longer have to buy separate hardware to enjoy the benefits of IWBs, whose interactive surface and ability to engage students have made them popular in classrooms.

Now, Texas Instruments has developed a similar ability for projectors that use its Digital Light Processing (DLP) technology. TI's new technology, which it unveiled during InfoComm 2010 in Las Vegas, gives users the ability to interact with a projector's beam of light from anywhere in the room, on virtually any surface, without the need for cumbersome calibration.

"My mom is a teacher, and I heard her frustration expressed more than once about the limitations of being tied to the front of the room when teaching—she couldn't help kids out in the back of the class without stopping the lesson and having kids out of their chairs creating a disturbance," said TI engineer Marshall Capps, who invented the technology. "I thought of a way to remedy these issues and created something that allows presenters to spend more time sharing information in a collaborative way."

The technology allows users to make notes digitally on the projected image with a handheld pen device. Digital patterns from the pen are detected and then sent to the projector over a radio frequency. All information is passed to the computer in the same way as any other mouse or pointer device, and instructors can use the technology with any software, on any surface without purchasing any additional hardware beyond the pen and projector.

TI's technology doesn't require calibration steps and doesn't tie the presenter to the screen or front of the room, the company said. The instructor can move around the room, or hand the pen to someone at the back of the room to interact with the projected content.

"The value of an interactive solution is undeniable," said John R. Martin, director of learning resources for Tarrant County College's Northwest Campus. "When people have the opportunity to be a part of the presentation, information seems to be better understood and retained, making a DLP projector more of a collaboration tool than before."

The technology already has been incorporated into certain models of DLP projectors from manufacturers that include Acer, BenQ, Dell, InFocus, and ViewSonic, TI said.

As for Epson, it debuted the PowerLite S9 at InfoComm 2010, a $499 projector for education that features 2,500 lumens of brightness and SVGA resolution. The PowerLite S9 is intended to replace Epson's PowerLite S7 model, which cost $529 and offered 2,200 lumens of brightness.

Computer-free annotation, inputs from multiple sources enhance projector usability

From staff reports *Originally published Aug. 8, 2012*

Yet another key development in AV technology revealed during InfoComm 2012 in Las Vegas is the ability to control a projector and interact with projected content from a variety of input devices without going through a computer, which gives educators more flexibility when teaching.

Epson's newest ultra short-throw interactive projectors, the 475Wi, 480i, and 485Wi, allow educators to switch between input devices and still have interactivity, the company says. This frees up the teacher's computer and allows the teacher to connect multiple devices directly to the projector.

For instance, a DVD player can be connected to the projector, and then a teacher could ask a student to come up to the interactive surface and annotate an image from the DVD.

This is a significant advancement, said Claudine Wolas-Shiva, senior marketing manager for Epson projectors.

Before, if teachers switched to another input source, they lost the ability to interact with the projected content. That's because other projectors have relied on software installed on the user's computer to drive their interactivity, whereas Epson's latest devices have an annotation application built in. As a result, students and teachers can use them to create an "electronic wall"—even when there is no computer connected.

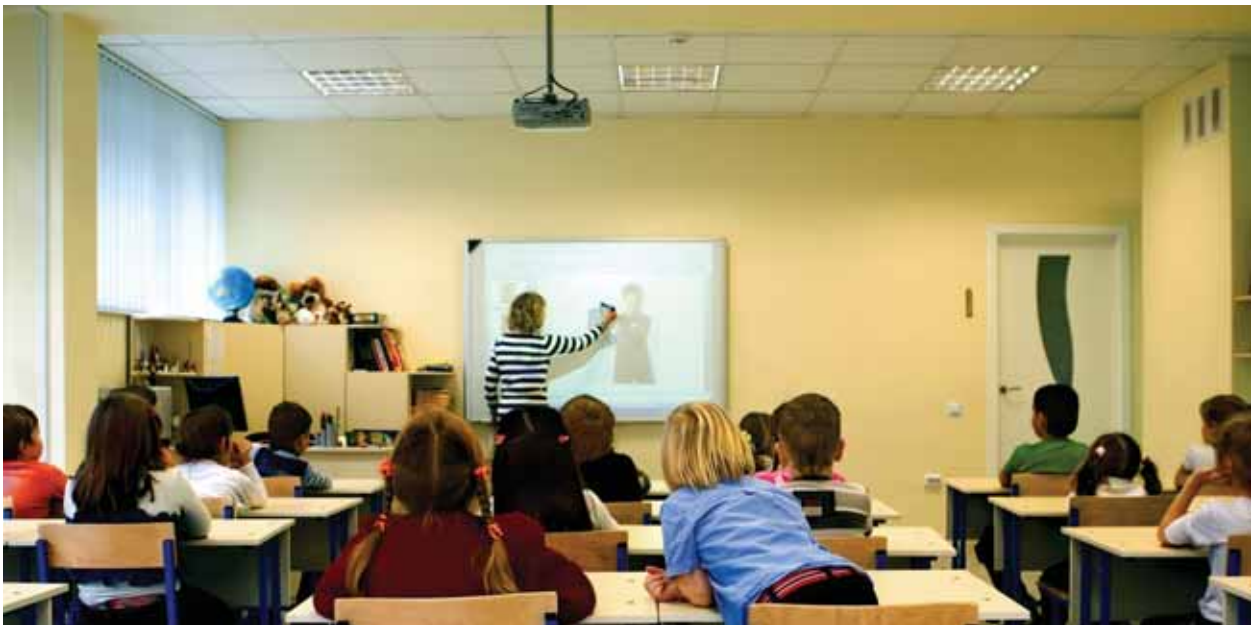
"We've heard from schools that this new level of interactivity, what we call Interactivity 3.0, has … improved classroom dynamics for one-to-one [computing]," Wolas-Shiva said.

Soon, DLP projectors will have a similar capability, as TI announced a new DLP chipset at InfoComm 2012 that can display content from almost any device. Projectors with the new chipset, which will be available in late summer 2012, will be able to display content seamlessly in common 3D formats from virtually any mobile device, TI said—including tablets, smart phones, laptops, and Blu-ray players.

"Creating a chipset that makes 3D and interactive technologies more accessible for projector developers is a major step forward for the industry," said Roger Carver, general manager of DLP front-projection technology for TI. "This helps our customers build off-the-shelf projectors while adding new capabilities at a comparable price point."

For schools with networked projectors, or projectors with wireless functionality, Epson earlier this year released a free app called iProjection, which enables users to project content from an iPad or Android tablet. At InfoComm 2012, NEC also previewed an app called ImageExpress, which will let users project content and control presentations wirelessly from their iPad.

Richard McPherson, senior product manager for NEC projectors, said educators can use the app to turn their NEC projector into a document camera, taking a photo with their iPad and showing it to the class through their projector.



Section 3:
21st-century classrooms

With help from the latest advancements in technology, more schools are using digital projectors to create 21st-century teaching and learning environments.

In this section, we'll look at the rise of these 21st-century classrooms in more detail.

Interactive technology transforms learning for one Texas school district

By Alex Guajardo *Originally published April 7, 2010*

As the fourth largest school district in Texas, the Northside Independent School District (NISD) in San Antonio makes it a priority to keep up with the ever-changing need for technology in its classrooms. In fact, in 2005 the National School Board Association recognized the district as a leader for using technology in its instruction and operations.

By 2007 most NISD classrooms featured 27-inch analog televisions to enhance learning experiences. However, that equipment became outdated and difficult to repair when manufacturers began shifting to digital technology and stopped producing analog televisions and their replacement parts. NISD needed to find a way to keep its 104 schools up to date in the midst of change.

The district saw the opportunity to upgrade the classroom viewing experience with the passing of School Bond 2007, which specifically allocated $7 million to place ceiling-mounted projectors in classrooms. The suggestion for projectors came from classroom teachers, who saw a chance to access the internet and show videos, simulations, and other presentations in their classrooms. NISD wanted the new equipment to be user-friendly so that students would be able to show off their multimedia presentations to the entire class.

Other concerns outlined by the district technology team included energy efficiency, reliability, affordability, and installation time frames.

NISD began working closely with CCS Presentation Systems, an audio and visual technology integrator, to assess its options. The CCS education team consists almost entirely of former educators and school administrators. The district felt the company had an excellent understanding of the K-12 environment and the district's specific classroom needs. CCS recommended that the district replace the analog televisions with digital projectors, which are less expensive than flat screen televisions and more energy efficient.

The Epson 83 Projector was selected for its outstanding audio and performance standards. The projector is supported by 2,200 lumens of white and color light output and has a built-in 10 watt speaker, which eliminates the need for external speakers.

Each school's video distribution system is connected to the projectors, which means students and staff can watch the morning announcements and other school-wide video broadcasts on the big screen. The Epson 83 Projector has an energy-efficient feature so that it automatically shuts off when not in use, and it features a built-in closed-captioning decoder that helps

meet ADA requirements for hearing-impaired students. It can be upgraded easily with new technology and software, an important feature for this fast-growing school district. Because the projectors have a long lifespan, the district enjoys a longer return on its investment.

CCS Presentation Systems has installed Epson projectors in roughly 5,000 NISD classrooms and expects to complete the project with an additional 1,500 projectors installed by the fall of 2010. CCS is putting in upgraded screens and new cabling along with the projectors.

"Our ultimate goal in integrating technology in the classroom is to increase student achievement," said Andrew Luther of CCS. "Projectors engage students by capturing their attention and, in the long run, improve their ability to understand and retain information."

Statistics prove the value of projectors and screens in the classroom. A recent survey of educators revealed that projectors significantly increased student attention and improved the quality of teacher presentations, as well as made it easier to edit and change those presentations for classroom viewing.

NISD officials are pleased with the district's progress toward completing the installation. With two-thirds of the project behind them, CCS is on budget and on time–two areas in which the district was inflexible.

"We could not risk working with a vendor who could not finish the project in a timely fashion," said Technology Project Manager Tracy Rayburn. "Projects of this nature must be completed outside of classroom hours so that the learning experience is not impacted."

Mary Helen Cover, principal at NISD's Driggers Elementary School, said teachers and students love the projectors.

"Projectors allow students to connect to real world experiences and view places they may have never seen such as top of Mount Everest, the rainforest in the Amazon, or your backyard, and provide answers to scientific questions about type of soil, plants, animals, insects, etc.," Cover said.

The projectors also have lots of applications for math and other subjects, and even parents get to take advantage of them on family and parent education nights, said Cover.

"We use the new equipment on parent and education nights so that the entire family is exposed to this technology," said Kelly Smith, NISD's assistant superintendent for technology service.

As the community continues to grow, NISD will promote the new technology to parents moving to the area who are looking for high-tech classroom experiences for their children. The district continues to grow rapidly, with an average increase of 2,000 to 3,000 new students each year.

Upon completing the installation, NISD will be one of only a handful of districts in Texas with a ceiling-mounted digital projector in every classroom. NISD has been proactive in embracing new technologies in other areas, as well. In 2010, the district will open its first green school, Martin Elementary School, which is expected to earn a LEED silver certification upon completion. The district also has a long-standing and extensive energy management program that saves about $1 million a year in electricity and water utility fees.

Smith said: "We try to push the boundaries in technology, energy efficiency and other areas to continue to improve our schools in ways that will have a lasting impact on our students, their quality of education and quality of life."

Alex Guajardo is the Business Development Manager for CCS Presentation Systems, Texas.

A look at the 21st century classroom in action

By Jonathan Carrier and Jonathan Stovall *Originally published May 25, 2010*

The only thing that stays the same is the fact that everything changes. Just as the hands of time manipulate the world around us, so has the student learning experience, climate, and anatomy of the classroom. The evolution of technology and the academic experience in public education is in full throttle.

Take a moment to sit back and contemplate a classroom where the students are assessed both formatively and summatively with authentic, valid feedback without outside peer influence. Imagine a classroom where the teacher can evaluate and analyze student performance in "real-time." Envision collaborative instruction on one side of a metropolitan area, using team teaching, with another teacher on the other side of the same city.

With 21st century resources available, teachers are cognizant and equipped to use every teaching strategy and technology tool mentioned in this illustration. "Best practice" is not only apparent, (i.e. collaboration, assessment, classroom management, evaluation, self reflection, etc.) but more efficient. In Bowling Green, Ky., two colleagues, serving in two separate elementary schools, are maximizing 21st century teaching strategies and tools. These educators communicate via video conferencing in conjunction with other media to present to two diverse student bodies to meet all learning needs.

Jonathan Carrier is a 5th grade math and science teacher at Potter Gray Elementary School in the Bowling Green Independent School District. Potter Gray is a 2009 National Blue Ribbon School that has a history of high test scores and academic achievement. Approximately 25 percent of the student body qualifies for free and reduced lunch and 9.8 percent are minority students. Across the district, Jonathan Stovall is a 4th and 5th grade science teacher at Parker-Bennett-Curry Elementary. More than 98 percent of Parker-Bennett-Curry students qualify for free and reduced lunch, 85 percent are minority students, and at least 7 different languages are spoken in the school each day.

Both schools are terrific places to educate children, but they have unique and vastly different challenges. To meet the demands of these diverse challenges, Carrier and Stovall have turned to technology. These young educators use multiple modes of technology in the classroom to make the learning experience more engaging for the students and more efficient for the teacher. The staple software programs used in their classrooms include Interwrite, TurningPoint, Skype, and other web-based resources that evaluate student learning. Real time evaluations allow for collective, whole group reflection that compares and contrasts the knowledge of students from two different schools with completely different backgrounds and life experiences.

Carrier and Stovall have consolidated the use of Skype and TurningPoint to team-teach. Skype is a free internet-based program that allows remote sites to interact and communicate via video conference. The two classrooms are able to see and hear each other as they complete developmentally appropriate, content driven, teacher-created lessons. TurningPoint is used and viewed as a user interface that shadows the screen of other software application windows. It has the versatility to be used creatively "on the fly" and be accessed to respond to questions viewed by a document camera, from a web site, through a PowerPoint presentation, as well as other software applications. The material and content displayed on the screen can be polled using a response pad.

TurningPoint response tools let teachers develop a baseline of student knowledge, gauge student retention, and identify trends that ultimately guide instruction. The electronic devices used for student response provide anonymity and eliminate the element of stage fright or negative peer pressure. The teacher can see the immediate response of the entire class right away and divulge his/her attention to individual needs from the feedback provided by individual diagnostic reports.

The dual classroom, team-teaching experience begins with a teacher-created presentation displayed on both interactive classroom boards. Each presentation is designed according to the content of curriculum that is being taught at the time. Presentations may be used as a pre-assessment to introduce new material and determine what is familiar and unfamiliar to the students, or as post-assessments to review and evaluate student retention. After the presentation is displayed, response tools are distributed to each individual student, a Skype call is made, and the lesson is ready to begin.

The TurningPoint presentation overlaps the Skype video feed to ensure that students in both classrooms can see the lesson and presentation, and also hear both teachers. Carrier and Stovall introduce the lesson title and topic, and when they are ready to assess students, they open TurningPoint polling for student responses. The teachers alternate moderating questions throughout the assessment. After students respond, teachers close polling and student results are displayed as a group on the screen in the form of a graph. The teachers briefly interject and compare results from both sites.

Students at each school have the opportunity to showcase their intelligence and acknowledge that diverse populations have academic commonalities. Teachers make real-life connections and elaborate according to the real-time feedback. When disparaging responses are evident, teachable moments are apparent and in-depth instruction takes place.

As the lesson comes to a close, both teachers minimize the TurningPoint presentation and maximize the video component of Skype to actively engage in student self-reflection. Each student speaks to the camera for a brief introduction and to reflect by participating in a "Think, Pair, Share" conversation. This promotes relationship building between children from different backgrounds, allows the opportunity to establish and maintain a positive rapport among students within the school district, and reinforces the aspect of audibly reviewing essential points from the lesson.

Using Interwrite, Skype, TurningPoint, and more, Carrier and Stovall have discovered that interactive technology tools provide an avenue to engage student learning and to expand beyond the four walls of their classroom. Students in Bowling Green, Ky. are interacting with peers from various cultural backgrounds, building relationships, and are engaged in student learning. Plus, student assessment is more readily available, efficient, authentic, and valid.

As the world evolves, educators must also evolve and prepare classrooms to reach all students. Schools must embrace technology and the endless opportunities that it provides to promote 21st century skills, enhance student learning, and build relationships.

The Bowling Green Independent School District is located in the downtown area of Bowling Green, in south central Kentucky. Currently serving approximately 3,800 students in seven schools, the district strives to lead the way in education for all students, and encourages and recognizes distinction in every field of human endeavor.

Poll: Teachers, parents want more technology

Most teachers say they need additional training to use tech tools effectively

By Laura Devaney, Managing Editor *Originally published Sept. 11, 2012*

Results from a new poll suggest that parents and teachers support more use of technology to improve students' education and real-world skills. The poll comes from the Leading Education by Advancing Digital (LEAD) Commission, a non-governmental organization exploring the opportunity to use technology to improve education in the United States.

The survey reflects responses from 812 K-12 public school teachers and 883 parents of K-12 public school children in August 2012. This included an over-sampling of low-income parents.

Both parents and teachers said they believe U.S. public schools have some catching up to do when it comes to technology use. Many believe the nation is behind the curve when it comes to other parts of the economy and other countries.

In fact, a majority of both parents and teachers said more investments in technology are worthwhile at the local, state, and federal levels. Sixty-three percent of teachers said that additional investments are "definitely worth it," and 32 percent said they are "probably worth it." Similarly, 65 percent of parents said these additional investments are "definitely worth it," and 26 percent said they are "probably worth it."

Respondents said technology can be helpful in addressing many education reform goals, including:

1. Providing more individualized and flexible learning.
2. Offering more hands-on learning opportunities.
3. Helping students become more engaged in their own learning.
4. Making closer connections between the classroom and the real world.
5. Exposing students to experts outside the classroom and different perspectives on issues.

Parents and teachers alike said that broadband technology is important to student learning and achievement, and they acknowledged that students who do not have access to broadband service are at a disadvantage.

Seventy-four percent of teachers and 82 percent of parents said it is very important for schools to make good use of technology. Fifty-four percent of teachers and 64 percent of parents said that technology will be increasingly important in preparing young people for the future.

When compared to other sectors such as business, 74 percent of teachers and 59 percent of parents said they believe that U.S. public education is somewhat behind the curve in the way it uses technology. Twelve percent of teachers and 17 percent of parents said U.S. public schools are far behind the curve, and 26 percent of teachers and 29 percent of parents said that the U.S. is ahead of the curve.

The survey asked teachers and parents if they would support investments in technological devices instead of investments in traditional textbooks if given the choice. Eighty-nine percent of teachers and 76 percent of parents said they would support an investment in an internet-connected device instead of purchasing new science textbooks.

Student engagement emerged as a large issue in the survey, with 92 percent of teachers and 89 percent of parents saying that helping students become more engaged and active participants in their own learning is a critical or very important objective.

What's more:

- 91 percent of teachers and 85 percent of parents said making closer connections between the classroom and the real world is critical.
- 86 percent of teachers and 83 percent of parents responded that exposing students to different perspectives or ways of thinking about topics is critical.
- 86 percent of teachers and 87 percent of parents said students should have access to more hands-on learning opportunities.

A majority of both teacher and parent respondents said technology also can…

- Offer real-time feedback on student performance.
- Help tailor individual/flexible learning to each student.
- Offer more hands-on learning opportunities.
- Offer closer connections between the classroom and the real world.
- Make students more active and engaged.
- Extend learning opportunities beyond school hours.

Low-income parents are even more likely to place importance on technology's potential to positively impact the various learning goals identified in the survey.

The majority of teacher respondents said they need more training to effectively use technology: 47 percent said they receive a fair amount of training but need some more, and 35 percent said they receive a little training and need a lot more. Five percent said they receive no training, and just 13 percent said they receive all the training they need.

The poll release serves as a prelude to the LEAD Symposium on Technology in Education, a day-long gathering of education, technology, and policy leaders to discuss the current barriers and opportunities involved in the adoption of technology in K-12 education. The event, which will take place on Sept. 11 at the Stanford Graduate School of Business, will conclude with a discussion with U.S. Department of Education Secretary Arne Duncan and Federal Communications Commission Chairman Julius Genachowski.

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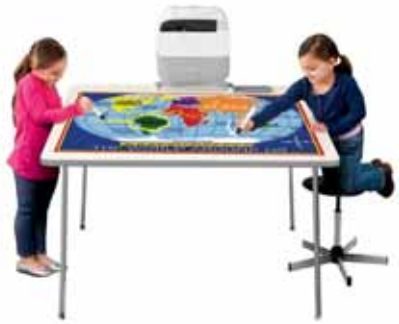

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