WHITE PAPER

Whiteboards on Campus: Beyond the Classroom

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Interactive whiteboards are becoming a fixture in educational settings of all types, from kindergarten classrooms to college lecture halls.

A 2016 study conducted by London-based technology market research firm Technavio predicts the global interactive whiteboard market will increase at a compound annual growth rate of 7 percent through 2020, rising from a recent $1.42 billion to $1.97 billion by the end of the decade. Drivers of that growth include an increase in blended learning in the pre-K–12 segment to technological advancements to a rise in the bring-your-own-device culture.

But while most people think of interactive whiteboards in terms of classroom instruction, their value extends far beyond that. In addition to being a tool for teachers, those whiteboards are being used for tasks ranging from wayfinding to coaching to campus administration.

A technological evolution

The first interactive whiteboards appeared in the marketplace in 1990 and were designed to be used for small meetings and roundtable discussions. Those early boards were modeled after the board-and-marker setups common in classrooms around the country, and consisted of a computer, a projector and a dry erase whiteboard. The projector displayed content on the whiteboard, with the user controlling the content.

By the end of the millennium, the technology behind those electronic boards had advanced significantly to include the addition of an eraser, colored markers and back-lighted projection. The market for whiteboards underwent a major shift as well, with the educational market far outpacing the traditional office customers.

The benefits of whiteboards in education has been the subject of a number of academic reports. A 2009 study conducted by Bloomington, Indiana-based Marzano Research involving 85 teachers and 170 classrooms compared the results when the teachers used interactive whiteboards to teach a set of lessons with results they achieved when teaching the same lessons to a different group of students without using the technology.

The study found that in general, using interactive whiteboards was associated with a 16-percentile point gain in student achievement. In other words, a student at the 50th percentile in a classroom without the technology would be expected to increase to the 66th percentile in a classroom using whiteboards.

Today's whiteboards include features only dreamt about when those first boards hit the market. Gone are the projectors and dry-erase boards, replaced by touchscreens on which the user interacts directly. Notations made on the board can be recorded and stored for reuse. In addition, some displays offer handwriting recognition, Web search and the ability to annotate content appearing on the board. Many boards feature built-in wireless connectivity and are portable enough to be mounted on a cart and wheeled from room to room as needed.

An example of how whiteboards are being used to reshape classroom instruction can be seen at Caldwell University. Located in Caldwell, New Jersey, Caldwell University offers a wide variety of undergraduate and graduate degrees to its 2,200 full-time, part-time and graduate students.

In 2016, the university installed 35 Sharp AQUOS BOARD® interactive display systems and more than 30 Sharp professional displays and monitors across its campus as part of an effort to enhance collaboration among students and faculty. Locations included the library, athletics department, board room, conference rooms, nursing departments and select classrooms. The systems replaced old screen projector technology, which needed about 15 minutes of prep time whenever a presentation was planned.

Interactive display systems are now being used in all parts of the campus and are quickly replacing traditional blackboards, whiteboards, projectors and flip charts.

Caldwell recently unveiled a 4,000-square-foot nursing skills laboratory, which includes a state-of-the-art simulation laboratory and a digitally-enhanced classroom. The lab is outfitted with high-fidelity educational training mannequins, a control room with tinted one-way glass and the capability to record video simulations. The 960-square-foot lecture classroom includes a 60-inch central AQUOS BOARD interactive display and six satellite monitors.

"The AQUOS BOARD interactive displays are dramatically improving our educational experience and business productivity on campus," said Caldwell University's Chief Information Officer Don O'Hagan. "The new nursing lab has enhanced the university's nursing program, and this is evidenced by strong interest and enrollment in the program."

Creating collaborative learning

The experience of Caldwell University is being duplicated at school systems around the country.

Peters Township School District in McMurray, Pennsylvania, for example, was looking to improve the quality of education for the district's 4,400 students by updating the learning technology used in its classrooms. At the time, Peters Township had a mix of whiteboards and projectors unevenly distributed throughout the five district schools. Adam Swinchock, the district's director of educational & informational technology, felt that more enhanced learning could be achieved by revamping the classroom technology.

"Despite having smartboards and projectors scattered throughout the district, these technologies didn't support collaborative learning between teachers and students, or even between students and students," Swinchock said. "We needed a solution that would move away from passive learning and make the students more engaged. The technology was a predominant element in creating this change."

Swinchock encouraged the school district to consider large screen technology, accompanied by improved Internet connectivity, and to standardize the solution across all classrooms. Such a configuration would offer more flexible teaching for faculty, and more interactive learning opportunities for students. The desired solution would also establish more equitable learning by providing every classroom with the same technologies and accessibility.

With the help of local dealer The Wilson Group, Peters Township decided on a solution that would include placing 70" Class (69.5" diagonal) AQUOS BOARD interactive displays

in each classroom with a variety of additional features including high-speed wireless Internet connectivity, rear-mounted DVD players, soundboards wireless keyboards and wireless mouse technology. The initial installation project took place in 46 classrooms in August 2015, with one screen in each classroom, for grades four, five and six.

Innovative results

The Sharp solution completely changed the teaching culture in the initial 46 classrooms. Each classroom now has the same technologies and accessibility, creating an equitable learning scenario for students in those respective grade levels. In addition, the standardization simplified faculty movement between classrooms by ensuring that all classrooms are uniformly equipped with the same technologies and tools.

Teachers can directly connect to, and control, the Sharp AQUOS BOARD interactive displays via their preferred device. Students also have the potential to connect to the displays via multiple input ports for new and interactive learning opportunities.

For example, the interactive displays are used during independent work times as a classroom hub. Up to four students can connect and work on teacher-created math activities together. It also supports the online quiz and testing options of the district's math program, including tools and games that can be leveraged in small groups or class activities.

Mounted to rolling mobile carts, the displays can be moved throughout the classroom and between classrooms if necessary. While recently undergoing structural renovations, Peters Township found they could easily move the display screens into temporary classrooms without compromising the available teaching tools.

Ultimately, the students benefit from more creative and real-world learning applications. Rather than simply looking at textbooks and whiteboards, the students now have endless possibilities through the screens and Internet connectivity, such as viewing national events as they happen or interacting with field experts via video conferencing.

"Not only was the initial installation fast and easy, the reception from teachers was very positive," Swinchock said. "Combined with the high-speed wireless connectivity, the AQUOS BOARD interactive displays have allowed for much greater use of Internet resources and tools in the classroom. And, the ability to connect multiple devices at once has created a universally collaborative learning environment that we are very happy with."

Peters Township plans to roll out the solution to its remaining classrooms, according to the needs of each school and grade level. Some enhancements made following the initial deployment include adjustable heights.

Beyond the classroom

Although there's a clear case to be made for the use of interactive whiteboards in education, the benefits don't stop at the classroom door.

As universities seek ways to serve non-traditional students and compete with for-profit colleges, many are expanding their online offerings. Another Technavio study predicts the online education market to increase at a compound annual growth rate of 20 percent over the next several years.

The ability of today's whiteboards to record content displayed and written on those boards makes them a perfect fit for scenarios including asynchronous online instruction. Notations made on the boards can be pushed out to other devices in real time, opening the door to multi-location lectures and remote collaboration.

The boards can also be used in sports, with literally dozens of sports-based whiteboard applications on the market, with names such as CoachNote and Basketball Clipboard.

At Caldwell University, for example, the athletics department uses their AQUOS BOARD interactive displays to get an edge on the competition. The coaches use them to show video to their teams and to highlight key plays, using the technology to break down video and get a closer look at the opposing teams. The department is also using the displays to show traditional X and O-style strategy.

"We think of the displays as providing us with a competitive advantage over our league opponents," said Mark Corino, head men's basketball coach and assistant vice president and director of athletics.

To accommodate ad hoc and temporary use, the university keeps a number of AQUOS BOARD interactive displays mobile, wheeled to different areas of the campus as needed. In addition, more than 30 displays and monitors are being used as digital signage across campus, providing event schedules, advertising, information and wayfinding services.

The displays have also allowed the boardroom above the athletic facility to be used as a tailgating area during game time. A large AQUOS BOARD interactive display is simply wheeled into the room and the game is streamed directly onto it.

Other uses for the display include traditional conference room sessions, presentations by guest speakers on campus and as a supplement to Caldwell's online offerings. On any given day, Caldwell's IT department might receive 20 to 30 requests to turn on the displays, O'Hagan said.

"Implementing the AQUOS BOARD interactive displays has been an exciting project because of their impact on everyone across campus," O'Hagan said. "From the President's Board Room to the classroom, the conference room, the athletic teams and facilities and even to the university's distance learning centers there isn't a student, faculty or staff member that doesn't have a fingerprint, literally, on these boards."

Features of Sharp's PN-L401C AQUOS BOARD interactive display

- 40" Class (39.5" diagonal) interactive display system
- 10-point capacitive multi-touch screen
- Intel® Mini-OPS expansion slot supports the optional PN-ZB03H HDBaseT™ 2.0 and PN-ZB03W wireless expansion boards
- SHARP Display Connect™ software included for easy connectivity with mobile devices
- SHARP Touch Viewer™ software provides easy manipulation of multiple file types
- Enhanced writing surface with improved fingerprint and glare resistance
- Crestron Connected™ compatibility
- Brilliant high definition (1,920 x 1,080) edge lit LED display
- 3-Year limited warranty
- Built-In 10W per channel stereo audio system
- Bundled stand for desktop set-up

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