

Better classroom engagement is the wave of the future with active learning classrooms

As educators struggle with classroom engagement and collaboration, active learning classrooms can help create engaging, collaborative spaces.



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Today's K-12 students are true digital natives. They are accustomed to technology and engaging through sophisticated, fast, consumer-friendly applications available anytime and anywhere. This makes it more challenging for teachers to catch and hold students' attention. And with increasing emphasis on the value of teamwork and collaborative learning, educators are looking for better ways to help students engage with each other and with their teachers in the classroom. Active learning classrooms are drawing increased interest because they can address these issues.

EDUCAUSE labeled active learning classrooms a top strategic technology for 2017 in higher education, but the concept is making inroads into K-12 classrooms as well. Many of today's discussions about appropriate technology tools for the classroom circle back to a central concept: developing student centered learning environments that use technology in cost-effective ways to create collaborative spaces for students.

For K-12 students, active learning classrooms typically include features such as moveable desks and tables, one or multiple display boards or touchscreens screens per classroom, several projectors, and flexible lighting zones, and even mats or rugs to create different areas for different learning purposes.

Understand Active Learning Classrooms

In the 2016 book, "A Guide to Teaching in the Active Learning Classroom," author Paul Baepler and his co-authors describe active learning classrooms a rich new environment for learning, but only if done well. By removing the traditional central focus point of the classroom—the teacher—an active learning space lets the class break into groups, fostering rapid feedback and student accountability.

Baepler and his co-authors emphasize the need for careful planning and forethought in implementing these concepts. He describes the typical active learning classroom as featuring round or curved tables with moveable seating that allows small-group work, with tables often paired with their own whiteboards or other large displays for brainstorming and diagramming. He also describes some of the technology involved. "Many tables are linked to large LCD displays so students can project their computer screens to the group, and the [teacher] can choose a table's work to share with the entire class," he states.

Most notably, what these classrooms no longer need is installed computers. Students bring their own devices in a rapidly growing trend known as one-to-one computing. This is being driven by the enormously popular Google Chromebooks. Today, more than 70 percent of K-12 school districts have a one-to-one laptop initiative using Chromebooks. With one-to-one computing, students are issued a laptop for the year (or more). That laptop is theirs alone. They carry the devices with them and connect to the Internet in the classroom, connect to their fellow students' devices, and to various learning devices.

Instead of a single, primary display, an active learning space accommodates BYOD with multiple opportunities for projection and large-format displays. An active learning classroom can expand a teacher's options in conducting the class. It also encourages collaborative learning by creating dynamic learning environments that take full advantage of the latest in display screens, sound systems, and other projection devices. By design and by the equipment offered to teachers and students, it promotes interaction among students. Teams of students can gather in one area or in front of a single large screen for collaborative content and discussion, then turn and share their information with the entire class. Using technologies like Skype, guest speakers can address the class on a large screen display.

"The [teacher] can choose a table's work to share with the entire class."

— Paul Baepler, author of "A Guide to Teaching in the Active Learning Classroom"

Tailored for the Classroom

For school districts considering a classroom-appropriate large format display device, capabilities such as display clarity, durability, multi-touch support, low power consumption, and price are all crucial considerations. Compatibility with Google Chromebooks, now the most common notebook device used in K-12 education, is also critical. The NEC 65-inch E651-T large-screen LCD display fits the bill, and includes a license to NEC DisplayNote, a new app that fosters sharing content on virtually any device in real time. With DisplayNote, teachers and students can present, share, and collaborate with multiple participants across many devices, including Chromebooks as well as devices running Windows, Apple, and Android operating systems. DisplayNote also works with both projectors and screens, so teachers can promote student engagement by patrolling the classroom while seamlessly displaying and annotating content.

The E651-T includes a list of classroom-friendly features, including:

- NEC's Multi-Touch technology, which supports up to 10 simultaneous touches.
- Anti-glare glass coating that protects the panel and minimizes fingerprints. The panel itself is tempered glass for safety and allows for higher brightness transmittance—ideal for classroom environments.
- A stylus for smooth on-screen editing and collaboration. Select either portrait or landscape installation when the device is mounted. An integrated USB media player and auto-input switching capabilities ensures zero content downtime on the display screen.
- Metal bezel edging and pull-down infrared receiver.
- Support for connecting HDMI video devices.
- Districts signing up for NEC's Star Student Program get access to extended warranties and discounted pricing.

Interactive Classrooms at Duvall County

Duvall County Public Schools in Jacksonville, Florida, is the 20th largest school district in the country. Duvall modernized its classrooms for active learning with a number of interactive technologies. The district did so in a carefully planned and cost-effective way that focused on bringing all core classroom equipment up to a single standard. The district needed to replace aging projectors whose bulbs were starting to dim so much, teachers sometimes turned off classroom lights to make displays visible. And updating their interactive whiteboard software was long overdue. Duvall County PS turned to NEC Display Solutions, choosing V Series displays with a touch overlay to encourage interactive learning.

The NEC models had several key features, including display software that uses native drivers within Windows. This eliminates the time, effort, and cost for the IT department to upgrade software. The displays are also portable. In Duvall County classrooms, for example, each display is part of a media cart moved around as needed. Groups of students with laptops gather around the interactive displays. They work at various stations, engaging with teachers and classmates in different ways.

While whiteboards were once portable devices on carts, they were easily knocked out of synch and had to be recalibrated. That doesn't happen with the new display monitors. The large-display monitors replaced both projectors and interactive whiteboards. They have already yielded great results, says Jim Culbert, executive director of IT for DCPS technology services. "The monitors were a good way to have one piece of equipment replace both projectors and interactive whiteboards," he says. "And the resolution is incredible."

The district now has 2,500 NEC displays installed and plans to soon have an interactive display in every core classroom in each of its 45 secondary schools. The initiative has tripled the number of interactive devices in student hands, creating excellent opportunities for student growth within the interactive classrooms. Active learning classrooms do more than just improve the overall classroom experience. They also help institutions and teachers to better serve individual students, using interactive and personal devices to form collaborative groups and customize learning on a one-to-one level. Using visual solutions to create multi-purpose spaces keeps students engaged, and helps educators continue working toward a robust 21st-century learning infrastructure.

Four Key Ways Technology is Transforming Education

Today's students live in a multi-screen world. They have become accustomed to full immersion in visual technology. As education evolves to meet the needs of these digital natives with concepts like active learning spaces, four key trends are driving visual learning technology in the classroom.

1. Emphasis on classroom collaboration: With the interest in collaboration on the rise, teachers need visual learning tools to link multiple students simultaneously via a single shared screen. Solutions like large screens and projection systems that connect to student devices help information flow in more than one direction—not just from teacher to student, but among the students and back to the teacher.

2. Use of large-screen displays: As the cost of the technology has dropped dramatically, large touch-screen displays are becoming more prevalent in the classroom. In fact, the increasing affordability of large screens is helping districts include multiple screens in a classroom. This helps educators divide the class into groups and further encourage teamwork via discussion groups. Large-screen displays also enable innovative approaches. For example, Charlottesville High School in Virginia partnered with the University of Virginia to create a new lab focused on science, technology, engineering and math (STEM). The school configured 46-inch displays in 2x2 and 2x6 arrays, creating two huge video walls in the lab. Students see a virtually uninterrupted image on the walls. Teachers use a program called Hiperwall to share a single high-resolution image across all panels.

3. Sophisticated touch screens to keep students engaged: Nothing enhances interactivity like touch screens. They let multiple students approach the screen and draw, drag, and otherwise interact. A protective touch overlay on a large screen display adds a hands-on element to visual learning. For a more cost effective alternative, teachers can use modern projectors. Teachers and students can annotate, save and share content projected onto any wall, dry erase board, chalkboard or other flat surface, without needing a computer.

4. Rise of collaborative classrooms and "huddle spaces:" Educators are spending less time at the front of the classroom. This drives the need for smaller, collaborative areas. This trend toward "huddle spaces" is growing as blended learning becomes more prevalent and as schools supplement their primary visual learning tool—often a large touchscreen display or interactive whiteboard—with additional smaller screens that students can share.

DisplayNote at a Glance

DisplayNote is an app from NEC to help teachers present and share any content in the classroom with any device, including notebooks, tablets, and smart phones. Content sharing happens in real-time, so it encourages collaboration among everyone. The app takes care of reformatting content for each device and platform, whether iOS, MAC, Android, or Windows. This makes it perfect for bring-your-own-devices and one-to-one initiatives. Students can also capture all displayed content.

If a teacher is marking up an illustration to make a point, for example, all students in the classroom see that in real time and also have a saved copy of the content for study later. Besides capturing content and annotations, students can also use an integrated whiteboard tool in DisplayNote to add their own notes, memos, and other content over any kind of media, software, or content. Anyone can share a single page, slide, or entire file. A student can deliver an entire presentation to the classroom from a tablet, allowing maximum freedom while allowing control the host device. Student can also take a picture with a laptop or tablet, then immediately present it to the room for discussion using DisplayNote—true collaboration in action.



NEC Display Solutions of America, Inc., a leading designer and provider of innovative displays, offers the widest range of products on the market, such as commercial- and professional-grade large-screen LCD displays, desktop LCD monitors, direct view LED displays, a diverse line of multimedia and digital cinema projectors, and integrated display solutions. Benefitting from the technologies of NEC Corporation and its own Research and Development, NEC produces leading-edge visual technology and customer-focused solutions for a wide variety of markets, including education, retail, transportation, broadcast, enterprise, healthcare, houses of worship, and many more. NEC is orchestrating a brighter world with the quality and reliability of its products and outstanding customer service.

For additional information about NEC Display Solutions of America products, call (866) NEC-MORE, or visit the website at www.necdisplay.com. Follow us on our social media channels: Facebook, YouTube, Google+, Twitter and LinkedIn.