# Education That Pivots

Finding student success through technology takes a lot of factors lining up just right. But a good place to start is setting up classroom zones that fit the learning needs of the moment and letting students pivot through the day.



Walk into a classroom in your district and look around. You'll know instantly that a single mode of instruction dominates by the way the room is laid out. If all student seating is facing the same direction, the information is mainly flowing one way.

Thankfully, most educators have come to recognize the shortcomings of this stand-and-deliver approach and have reinvented their classrooms to support flexible learning. In these classrooms, there's no front. The space is designed to support "zones of learning" – areas in the room dedicated to a specific usage: whole class, small group and individual. Students pivot from one to the other as they go through their school day, depending on the needs of the moment.

## You can identify the unique zones by the use of technology that facilitates the learning.

- The zone dedicated to whole-class learning requires projection on a large scale that enables everybody in the room to view the same information at the same time. That could be images, movies, videos, text, presentations or live conferences.
- The zone for small group learning requires the use of a big display that can be viewed and shared by a handful of students at a time, working on the same lesson or project.
- And the zone for individual learning calls for desktop monitors in areas set off by privacy dividers that offer larger workspaces than the typical tablet or Chromebook these students are working from.

This whitepaper explores each zone more carefully, focusing specifically on how to evaluate technology choices and make the most of district or school investments.

## What about Lampless Projectors?

Laser – lamp-less – projectors are coming into their own, but not as quickly for K-12 applications. As NEC's Ryan Pitterle explains, for settings where brightness of 4,000 lumens is sufficient, lamp-based projectors "are still the most affordable option." Where the brightness needs to be above 4,500 lumens, laser models (which NEC also sells) make more sense. Why? "You're driving that lamp so much harder to get that level of brightness out of it," he says. That means the lamps in those high-lumen projectors may only last in the 4,000-hour range, and the bulbs for those projectors can cost up to $500 increasing the total cost of ownership. The alternative is to pay the premium for laser technology and eliminate the lamp quandary. However, he says, "For the classroom space, we think lamps are still viable."

## Product Highlight

The NEC ME series of projectors has found ready acceptance in K-12, in particular the NP-ME372W (3,700 lumens) and NP-ME402X (4,000 lumens) models. Both offer dual HDMI connections with built-in wired networking capability and optional wireless. The ME Series includes a broad zoom lens for flexible projector placement and a lamp life up to 15,000 hours. With NEC's "Star Student" education pricing, both models are listed at less than $600 each. In the rare event when a bulb goes bad, that costs less than $100.

## Delivering Whole Classroom Learning

There are times in the most active of classrooms when the teacher needs everybody's eyes up front, viewing the same content and allowing the educator to take control or command of the room and focus on a single topic. Ryan Pitterle, product manager for NEC Display Solutions, says there are two technology options for the classroom to accommodate this zone: a large format display or a projector. When you consider screen size and price most schools choose a projector for whole class learning.

The goal is to enable somebody who's sitting against the far wall to view what's on the big screen. For most classrooms that calls for a 90-inch or 100-inch display. But the price "goes up considerably" for displays larger than 86 inches, and the devices themselves can be challenging to handle at that size.

The alternative at that point is to consider projectors, for which 90 or 100 inches is no big deal – assuming the room layout, size and type of space can accommodate a screen, whiteboard or wall for a projection of that size.

As you're considering projector options, keep in mind these requirements.

- Brightness
- Networking capabilities
- Ideal installation location
- Maintenance including lamp replacement and filter cleaning

These days, Pitterle says, there are classroom projectors with lamp life ratings up to 15,000 hours that will greatly reduce maintenance requirements. A typical classroom that may use its projector off and on for a few hours a day, five days a week, 40 weeks per year is looking at a lifetime for that lamp of easily five to ten years. Since even the most conservative IT estimates place refreshment of technology at about four to six years, the chances of that projector needing any lamp replacement at all during its school use is almost nil.

The same is true with filters; they're now designed to last as long as the lamps. Or, in cases where the environment is especially dusty, a lot of projectors will send an alert to the user that the filter has gotten to a point where airflow is too restrictive and it needs replacement. No guesswork involved.

On the topic of brightness, Pitterle says most classrooms – especially those with a lot of windows – will want a projector with a lumens rating between 3,500 and 4,000.

Another important feature for projector selection is connectivity. While wireless is optimal, of course, any form of networking capability will enable the school or district to control all projectors from a single location, to monitor for possible maintenance situations, such as error messages, and to make sure they're turned off at the end of the day.

### Product Highlight

NEC's newest line of entry level collaborative boards, the CB series, is available in three sizes, 65-inch, 75-inch and 86-inch. Aside from meeting the "table-stakes" feature set, the CB series also includes Mosaic Canvas, which provides whiteboard functionality (tools for interacting with content on the board), and Mosaic Connect, which offers wireless screen sharing for up to four participants. While Connect is available as stand-alone hardware (the Mosaic Connect Box and works with NEC's other display technologies, including its interactive projectors), the software is also built into the NEC CB Series.

## Enabling Small Group Learning

When small groups of students congregate for project work, they can squeeze around the same tiny screen to share viewables – such as presentations and documents – or they can relay what's on their computers to a bigger display for interactive collaboration. Here's where mid-sized displays in the range of 65 or 75 inches are especially useful, according to Jami Milner, a former classroom teacher who is now an account manager for NEC Display Solutions.

Requirements that stand out are:

- Collaboration hardware
- Simple, non-proprietary software

The best of these products integrates the familiarity of digital whiteboards with the added ability to share content wirelessly, whether participants are sitting in front of the display or at remote locations.

On the hardware side, Milner says, the display needs to include a decent soundbar with a camera, microphone and speaker. The display itself should work with multiple touchpoints.

Regarding software, the display should integrate with student and teacher devices running the most prevalent operating systems, iOS, Windows and Google Chrome. And invitations – the ability to display what's on the small screens to the bigger display – should be easy to set up and send.

In addition, there should be built-ins – software that's commonly needed, such as a web browser, a PDF reader and viewer for Microsoft Office productivity files.

Finally, the display should be moveable. Not every school can afford large displays for every classroom. Where that's the case, there's no reason the display can't be set on a cart and moved from class to class as needed.

### Product Highlight

NEC's EA Series work especially well in classroom settings and district budgetary constraints. While delivering the basic requirements for desktop monitors, they also include special features, such as a "human" sensor, which detects when nobody is sitting in front of the monitor for a configurable amount of time and turns it off, and integrated ports for USB 2.0, HDMI, DVI-D and VGA-D to allow for connecting myriad peripherals. "ControlSync" allows for multi-screen configuration of settings for up to six EA monitors.

## Serving the Individual Learner

There are times when students need independent learning. And that often requires them to be able to plug their devices into monitors bigger than the 13- or 15-inch ones built into their computers. They may be taking an assessment that requires accommodations best suited for a desktop display or using an application that needs a larger workspace. Optimal display sizes for these purposes run between 22- and 27-inches.

Features to look for during the evaluation include:

- LED backlit technology
- Built-in speakers and headphone jack
- An ergonomic stand
- Remote management software

The use of LED tech reduces power usage and makes for a slimmer, lighter chassis. Ergonomic stands let students of every size pivot, tilt, swivel and adjust the height of the display for best viewing. Built-ins, such as speakers and a headphone jack, eliminate the need for separate docking devices to accommodate cabling. And remote management software gives the IT organization control over displays for tasks such as multi-monitor set-up and troubleshooting.

## Smart Back-to-School Shopping

It's a rare school or district that can afford to waste money on classroom technology that won't be used or that won't hold up. Any evaluation of potential display products needs to focus on simplicity, according to Milner. "Schools don't want technology to be a burden on teachers or force them to learn a lot of different things. So, anything you put in the classroom has to be very simple for them to use."

But beyond that, in a competitive world filled with multiple companies vying for district dollars, how do you maximize your spending? Milner and Pitterle, who have worked with literally hundreds of schools through NEC's resellers, offer this buying guidance.

## Choose commercial over consumer

You'll get better warranties, better support and a sturdier product. For example, a display bought at a popular retail store might come with a 90-day warranty and be built out of plastic. The best commercial warranties last for two to five years, depending on the type of product. And with learning time being the precious commodity it is, you want to minimize downtime. That means you need to be able to count on a tech support team being a quick phone call away and accustomed to working with the education segment.

## Try before you buy

Any legitimate vendor will make free units available for at least a month – including shipping both ways – to allow your teachers to do test-runs of the technology you're considering. This can't be a decision made by IT alone. Those who use the gear need to be able to try it out.

Buy in volume. That means thinking long-term and cross-school. Furnishing a brand-new school building is one kind of purchase. But what about all the others? Even if you're just outfitting two schools in the district for more active learning, total up all of the classroom needs for the whole refresh and request a quote for the entire project. Vendors are more likely to respond to your request and work harder for your business. Even if the district can't take delivery of every unit at once, it will lock you into a more favorable deal up front.

## Get creative on funding

Display technology can touch a lot of different budgets: Title I, Title II, Title III, general technology and Perkins funds. In addition, there are often grant programs offered by the vendors themselves to help bring the cost of new technology down for educational organizations.



## Be upfront about the size of your budget

Don't hesitate to share how much you have to spend. But along with that, share your goals. It may be that companies are steering you in one direction that'll give you 80 percent of the equipment that you need, when, with a little knowledge, they'd be able to send you in a different direction with products that'll supply 100 percent of your needs for the same budget.

## Look for special discounts that'll help your dollars go further

As an example, as part of its education pricing program, Star Student, NEC runs a recycling program, called "Trade In-Trade Up." That allows schools to bundle up their legacy display gear – not just from NEC but from any vendor – ship it off and get a $50 voucher for every unit towards new NEC products they purchase. As Milner explains, "I've had districts put all their old projectors on a pallet and send it to us. A hundred of those takes an extra $5,000 off the bill."

"Students are digital natives," Milner points out. "They're expecting technology, whether it's 1-to-1, onscreen collaboration or something else. By using displays for delivering education in multiple formats, you're making learning more active, engaging them and helping them interact with the content and each other more effectively. That leads to better learning and motivates them to want to come to school every day."

For more information on NEC products specifically for K-12 classrooms, contact NEC today at 866-NEC-MORE - option 2 or at sales.specialist@necdisplay.com.

*About NEC Display Solutions of America, Inc.*

*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.*

*To learn more about NEC solutions that foster creative and collaborative problem solving in schools, go to https://www.necdisplay.com/solutions/education-k-12/11.*