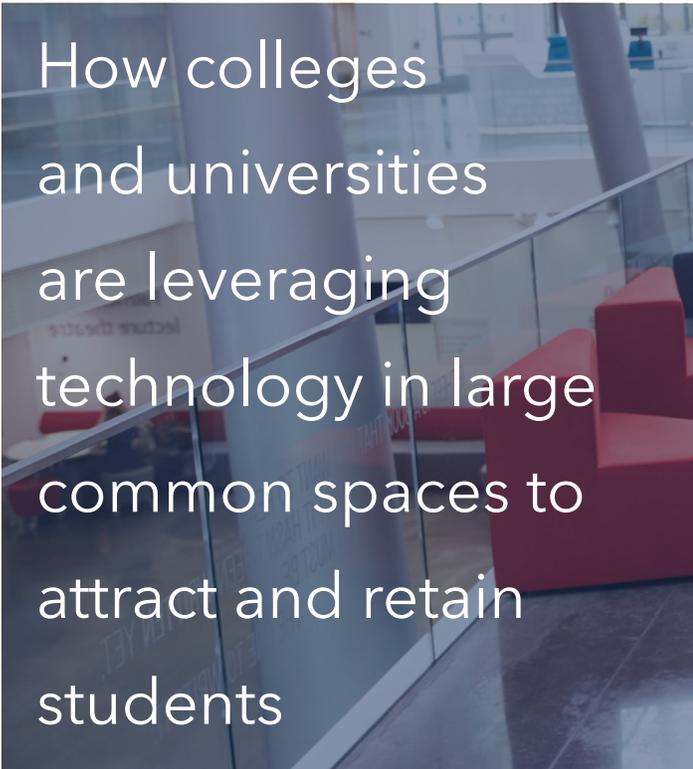


Engaging Students and Building Community with High-Impact Visual Communications



How colleges and universities are leveraging technology in large common spaces to attract and retain students

Engaging Students and Building Community with High-Impact Visual Communications

Colleges and universities are taking advantage of large common spaces to engage students with a variety of images and messaging. Here's how your institution can use powerful visual technologies to engage, teach, inform, and entertain—along with key considerations for choosing the right technology for your needs.

Large common areas where students gather on campus are ideal locations to reach students with a wide array of visual content, from news and information to campus branding or emergency alerts. Using powerful visual technologies in large spaces can capture students' attention, engage them more deeply in campus life, and enrich their college experience.

This white paper will explore some of the many ways that colleges and universities can use visual technologies to communicate with students in large common areas. It will look at the main options that are available for this purpose, and it will outline the key aspects to consider when planning your own solution.



Applications Are Nearly Limitless

Powerful visual technologies can transform nearly any large space into a canvas for grabbing students' attention, communicating important information, building school spirit, or even extending learning beyond the classroom.

Why is this important? According to the higher-education technology group EDUCAUSE, only 56 percent of students enrolled in a bachelor's degree program graduate within six years—and just 29 percent of students pursuing an associate's degree finish within three years.¹ Visual communication solutions that give students useful information and make them feel more connected to the campus community can play an important role in helping colleges and universities attract and retain students, engaging them more deeply in their college experience from enrollment through completion.

¹ See <https://library.educause.edu/topics/information-technology-management-and-leadership/student-success>.



In designing a visual communications strategy, higher-education leaders are limited only by their imagination. Here are just some of the spaces on campus that can be transformed with high-end projectors and/or large-format visual displays:

- Lecture halls
- Cafeterias
- Gymnasiums, stadiums, and athletic centers
- Student centers and campus unions
- Walkways, lobbies, atriums, and other common areas

Using powerful visual technologies in large spaces can capture students' attention, engage them more deeply in campus life, and enrich their college experience.

And here are some of the many applications for using visual technologies to engage students more effectively in these spaces.

Sharing news and information

As students are waiting in line, lounging in common areas, or passing from one area of campus to another, colleges and universities can capture their attention and engage or inform them with live or recorded news feeds, information about upcoming events, or even reminders that will help them to be more successful, such as how to take advantage of counselors or academic advisors.

Wayfinding

interactive maps and other digital signage can help students and visitors find their way around campus, helping to ensure that they arrive at their destination on time.

Delivering emergency alerts

When an emergency arises, colleges and universities need an easy way to get students' attention and give them instructions that could save their lives. Text-message alerts are an essential part of any communications strategy, but what if students don't have their phone with them—or what about visitors to your campus who aren't in your contact database? Large-format displays in common areas provide another way to reach people quickly in the event of an emergency.



Broadcasting events

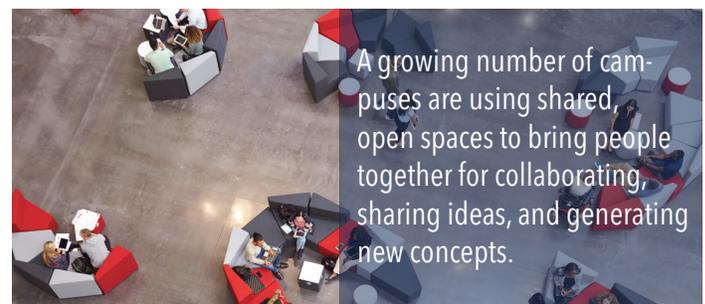
Watching live or recorded events such as concerts, speeches, guest lectures, or athletic contests around a shared screen can bring the campus community together in powerful ways. Colleges and universities can use large-format displays to broadcast events to common areas around campus, bringing these events to people who can't attend in person and creating a sense of community for those who are watching.

Enhancing presentations

With additional screens placed strategically around a large lecture hall, athletic arena, or other venue, colleges and universities can enhance a lecture, sporting event, or other presentation by giving people other angles from which to view it, as well as information to enrich their experience. For instance, supplemental information or data sets can bring additional context to a lecture, and team statistics or player information can enhance fans' enjoyment of a game.

Ideation

As the New York Times reports², many colleges and universities are thinking more intentionally about their use of space to encourage innovation. Inspired by the high-tech workplaces in Silicon Valley and elsewhere, a growing number of campuses are using shared, open spaces to bring people together for collaborating, sharing ideas, and generating new concepts. Large-format displays can facilitate this process, allowing students, faculty, and researchers to hash out their ideas on a shared, interactive screen.



² Lange, Alexandra. "The Innovation Campus: Building Better Ideas." New York Times, Aug. 4, 2016. Retrieved from <https://www.nytimes.com/2016/08/07/education/edlife/innovation-campus-entrepreneurship-engineering-arts.html>.

Visual Technology Options for Large Spaces

Colleges and universities have a few different options for displaying images and messaging in large common areas. Each technology has its own advantages and limitations and may be more appropriate for some settings than others. Here are some of the main options available.

Large-venue projectors

Large-venue projectors can project images of 200 inches or more diagonally at resolutions up to 4K. They generally include at least 7,000 ANSI lumens of brightness, ranging up to 35,000 lumens in NEC's brightest projectors.

A key advantage of large-venue projectors is that you can use them to create images of any shape and size. For instance, you can use multiple projectors with edge-blending software to create seamless, overlapping images that enhance the size of your display. You can also use projection mapping technology to project images onto irregularly shaped objects, such as curved or angular surfaces. However, in areas where there is a lot of ambient light, projectors generally cannot produce an image that is as bright as an LCD or LED display.

Traditionally, large-venue projectors have been expensive to maintain. Because they are often mounted at great heights, changing the lamps and filters has been challenging. But new solid-state laser projectors eliminate the need for replacement lamps, saving thousands of dollars per year and resulting in light sources that are good for as many as 30,000 hours of life.

What's more, NEC laser projectors also eliminate the need for dust filters, saving even more time and money for colleges and universities. Not all manufacturers can make the same claim.

LCD video walls

LCD video walls consist of a rectangular array of individual LCD screens, such as 2x3, 3x3, and even larger configurations.

LCD panels are made of liquid crystal inserted between two pieces of polarized glass.

When an electric current is applied to the crystals, they shift, allowing light to pass through to create an image. Liquid crystals don't produce their own light, so backlights (typically light-emitting diodes, or LEDs) are used to illuminate the display.

LCD panels are bright and affordable, and they allow for extremely high-resolution images. This means LCD video walls can display text, images, and video in very sharp detail. However, when the individual panels are tiled together to create a video wall, bezels (or seams) are visible between them, which could be seen as a disadvantage.

Direct View LED displays

In a Direct View LED display, thousands of tiny LEDs are mounted directly on a panel. Instead of serving as a backlight, the LEDs themselves produce the image, with each one serving as a pixel in the display. Each LED is basically a tiny light bulb that emits colored light when a particular voltage is applied to it.

Direct View LED was once a lower-resolution technology that mainly was used for giant outdoor displays, but the development of smaller LEDs in recent years has led to much higher resolutions. One advantage of the technology is that Direct View LED panels have no bezels, so they can be tiled together to form a completely seamless video wall. In addition, LED displays are extremely bright and energy-efficient, with vibrant colors that deliver high-impact visuals.

LED displays can be more expensive than LCD panels with a similar resolution, but they also last longer.

Video Wall Brings Data to Life in 'Idea Incubator' Space



campus to improve health sciences research and encourage collaboration across disciplines, administrators wanted something that was more than just another conference room.

They envisioned a large common workspace that would allow faculty, students, and researchers to visualize health sciences data and work together to find solutions. "They wanted it to be a high-impact space—a multipurpose collaboration and [data] visualization room that people from various departments could use," said Laurie Simon, a sales account executive for AV integration firm Diversified.

Administrators considered outfitting the space with visual technologies such as projectors or single large displays, but they wanted to have the flexibility of sending video and data from multiple sources to individual displays or the entire array. After consulting with Diversified, they chose to implement a 2x3 video wall made up of six NEC 55-inch LCD displays with ultra-narrow (3.5 mm) bezels.

Today, the video wall is supporting research and collaboration by allowing users to visualize data in very powerful ways.

"When you're collecting large data sets [to] have as many subjects as possible, ... it's helpful to have multiple screens to visualize and look at the data," said Sally Pine, special project librarian for UW's Health Sciences Library. "Having large-capacity screens to do analysis or produce charts, graphs, or 3D models is very helpful

Choosing the Right Solution for Your Needs

In choosing the right technology for your needs, there are many factors to think about. Here are four key considerations to begin with.

Application

As with any IT project, the first question to ask is how you plan to use the technology. For example, what types of content will you be displaying? Will you be showing mostly video, or still images, or text—or a combination of these? Will you be displaying research applications or other content that requires very fine attention to detail?

The answers to these questions will help you determine not only what type of technology is best for your needs, but also what resolution you'll want.

When you're evaluating Direct View LED technology, pixel pitch is also very important. This is the distance between each LED cluster, or pixel, in the display. The smaller the pixel pitch, the more pixels there are. This results in a better picture, but it comes at a higher cost. In general, if you are showing a lot of static images, you'll need a tighter pixel pitch. But if you are showing mostly video, then you can get away with a larger pixel pitch and a less expensive display, because motion tends to blur the pixels together.

Location

Another key factor is where the display will be located: indoors or outdoors? If the technology will be installed outdoors, then it requires a high IP rating (IP65 or higher) to ensure that dust, dirt, or moisture cannot get into the display. Outdoor displays also require more brightness: at least 5,000 candelas of luminance per square meter (also called "nits").

Because of their higher contrast in the presence of ambient light, Direct View LED displays are ideal for outdoor settings. LCD displays also can be used outside if they contain a very high TNi rating, which is the temperature at which the liquid crystals go into isotropic state. Without a high TNi, exposure to direct sunlight can cause the crystals to go isotropic, resulting in black spots on the screen. Any displays that are installed outdoors should also be able to adjust their brightness levels automatically, which will save on energy consumption.

When you're installing visual technologies indoors, pay attention to the amount of ambient light that is present. This will help you determine whether a large-venue projector can meet your needs or if you'll require a brighter solution.

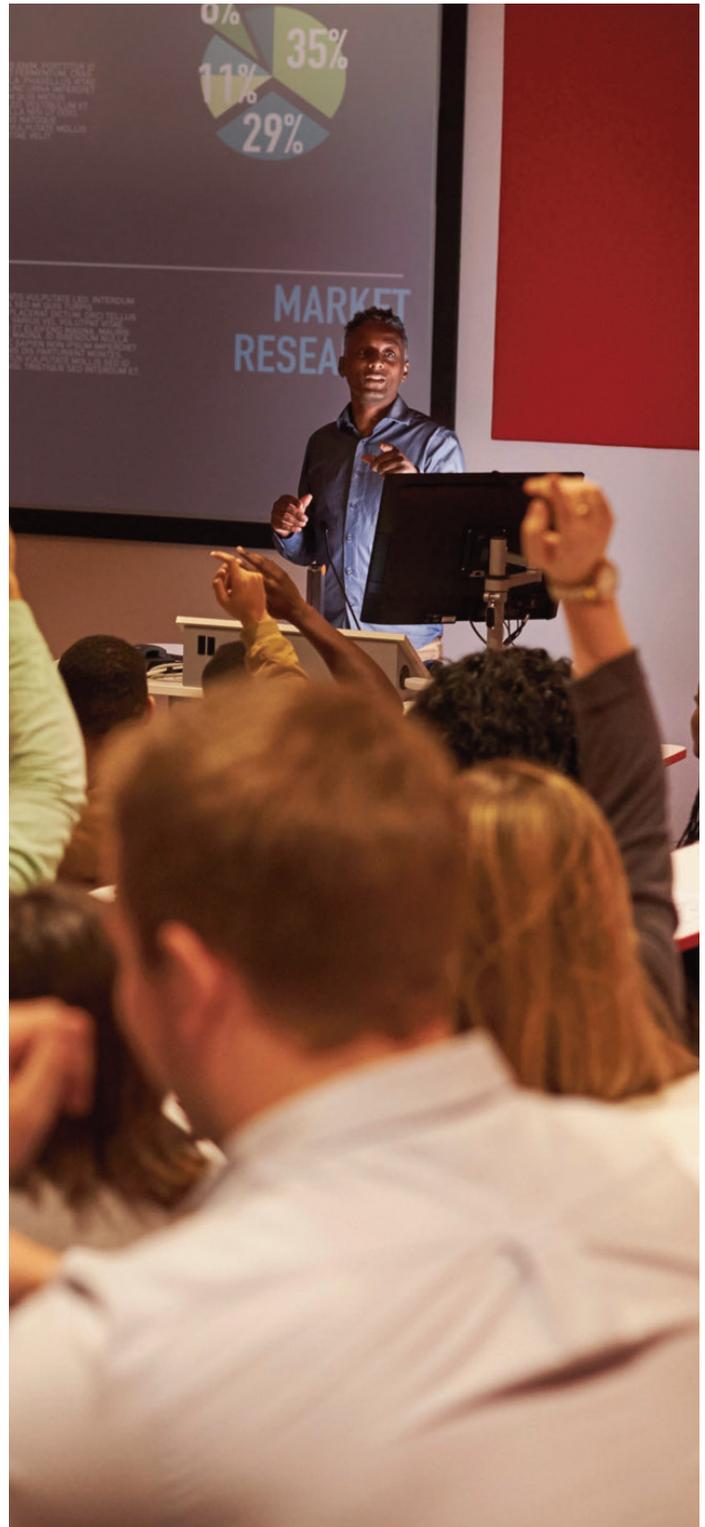
Viewing distance

How far away from the image will viewers be? The answer to this question will help you determine what resolution you need, and—in the case of Direct View LED displays—what the pixel pitch should be.

If viewers are too close to the screen, the image may seem pixelated instead of appearing as a cohesive image. For an acceptable image quality, viewers should be at least one to two meters away from the screen for every millimeter of pixel pitch.

Budget

If you can get a bright enough image to meet your needs, then a large-venue projector is often the most cost-effective way to display images of 100 inches or more. But other factors obviously come into play as well. Balancing factors such as how and where you'll use the technology with how much you can afford to spend will help you arrive at a solution that best meets your needs—and your budget.



Key Questions to Ask

When you're designing a visual communications solution for large spaces, the technology you use is only one aspect to consider. Here are four other questions to ask:



What is our content strategy? What messages are you going to push out, and who will update and manage this content? When and how often? Using the right technology can help you deliver eye-catching visuals that capture students' attention—but then it's up to you to provide content that will keep them engaged.



Where should screens be placed for optimum viewing? Consider not only the distance from viewers to the images, but also their viewing angle. Think about the patterns of foot traffic in the area, and where screens should be placed so they will have the greatest visibility. For outdoor displays, consider the angle of the sun when students will be viewing the displays most often. You don't want the sun shining directly on the display—but you also don't want it directly behind the display, either, because then students will be staring into the sun.



How will we get the power and signal to the display? You also need a strategy for delivering the content to the display in a cost-effective manner. Many displays offer Open Pluggable Specification (OPS) expansion slots and integrated media player and digital signage software to simplify this process.



How will displays be kept cool? Large video walls produce a lot of heat, so proper cooling and ventilation should be included in your project budget. Displays that offer integrated cooling fans will have a longer life.



Using powerful visual technologies in large common areas on campus can help you engage, attract, and even retain students. With so many factors to consider, and because each environment and use case is unique, consider partnering with a solutions provider that can help you design the right visual communications solutions for your institution.

NEC Display Solutions offers industry-leading options for all of these technologies: large-venue projectors, LCD video walls, and Direct View LED displays. In addition, NEC experts can help you design a solution that meets all of the needs of your college or university.

To learn how NEC can help you leverage large common areas to reach students more effectively using visual technologies, contact NEC today at 866-632-6673.

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.

