A GUIDE TO

When and Why to Upgrade Campus Video Projectors

Plus: Buying Tips & Key Features

HigherEdTechDecisions

When and Why to Upgrade Campus Video Projectors

The reasons higher education facilities should upgrade their video projection systems — and what to look for.

by Steven Castle

Projectors in higher education settings today are a must — and not just for classrooms. Projectors are often needed for lecture halls and even ballroom and reception areas where high-profile presentations take place. This makes upgrading to the latest in high-definition and digital technologies an important consideration.

There are several reasons to update your video projection systems. Video sources have dramatically improved. In many instances you'll want your display to match the resolutions available on today's sources. Embedded video and detailed imagery such as that for medical presentations require high resolutions and advanced color capability. And it's often a good idea to keep your school's video capabilities in one common digital domain.

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Upgrading from Standard Definition

If you're still using standard-definition (SD) video with squarish 4:3 screens, it's a clear sign that an update is in order.

The University of North Carolina's Eshelman School of Pharmacy at Chapel Hill and Asheville recently upgraded from a standard-definition projection systems for both easier maintenance and consistency. "The system was old enough and we were fixing a lot of different pieces in it. It was harder to find the pieces, and rather than have a hodgepodge of SD and HD, we put in stuff that will be here for at least 10 years," says Director of Education Technology Casey Emerson.

Standardizing Your System

UNC's upgrade was also forced when a satellite campus at Elizabeth City upgraded to HD, and

"Everything is going digital and you have to maintain with the technology of the day. When you bring different sources into the system, you want to standardize your backbone," says Casey Emerson, director of Education Technology for University of North Carolina's Eshelman School of Pharmacy.

the school wanted to keep all of its video projection systems in the same high-definition digital domain.

The campuses use videoconferencing with HD cameras so a class in Chapel Hill can be broadcast to Asheville and Elizabeth City. Four large classrooms in Chapel Hill each were equipped with four projection systems, two in the front and back. The two in the rear allow the professor to see students at each of the satellite campuses.

The Chapel Hill campus uses an HDMI over a fiber-optic backbone with a sophisticated switching and scaling system. "Everything is going digital and you have to maintain with the technology of the day," Emerson says. "When you bring different sources into the system, you want to standardize your backbone."

When Even Higher Definition is Needed

Stanford University's Paul Brest Hall, which serves as a conference facility where dignitaries and professors often unveil their latest research in a ballroom reception setting, was a good candidate for an upgrade even though the previous system supported HD. That system could provide for 720p resolution in a widescreen format, but not 1080p. And considering the detail some presentations contain, often with embedded video, scaling the images up to 1080p became a must.

Anderson Audio Visual of Berkeley, Calif., installed two Digital Projection (DP) Titan Quad 3D projectors that can run concurrently or show different content, in the same large ballroom or two spaces divided by moving walls.

The projector's native WUXGA resolution format (1920 x 1200 pixels) can display 1080p video and better, giving it ability match the video content of virtually any source available today — even the old, standard-definition 4:3 format. Using projectors with the best available resolution of source material — be it a laptop, Blu-ray player or HDTV content, helps safeguard against future expansion. A separate video processing system can also scale images to the best resolution possible, explains Andrew T. Kanik, senior account executive for Anderson Audio Visual.

Photograph by John Zhu,
UNC Eshelman School of Pharmacy

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Going Brighter

The Stanford facility also had a problem with lighting, as windows on either side of the hall looked out onto the campus, and the "crypt effect" of closing shades wasn't desired. The solution had to be super-bright projection with enough contrast to adequately display presentation details and video.

The 16,000-lumen Titan projectors solve the brightness problem and also provide enough contrast to see on-screen images clearly in the room's often-bright environment.

Different Needs for Different Rooms

Of course, not every educational facility needs a super-high-end solution like the Titan projectors at Stanford. Classrooms and lecture halls typically have much more modest needs.

There can be a hodge-podge of different projectors used at educational facilities — and that's okay, too, as different rooms have different needs. "You don't have an all-in one, one projector type for all solutions," says

5 Things to Look for in a New Projector

BRIGHTNESS
A 5,000-lumen projector should deliver content with enough contrast so it appears exactly as it does on a laptop source, says Andrew T. Kanik, senior account executive for Anderson Audio Visual in Berkeley, Calif.

HIGH CONTRAST RATIO
This is simply the difference between the brightest and darkest parts of the images produced, so higher the contrast ratio the better — and the punchier, snappier picture it will produce. Kanik advises seeking a minimum of 2,000:1 contrast ratio.

WUXGA or WXGA
These will produce high-definition images in 1920 x 1200 pixels (1080p-plus) and 1280 x 800 pixels (720p comparable), respectively. For better detail in presentations, opt for WUXGA.

SIMPLE INTERFACE
Whether it's a remote control or a touchpad, opt for a simple interface that's consistent and that anyone can use.

EDID and HDCP
These are digital "handshaking" protocols that a projector and your source material should have, because with digital, the signal either gets there or it doesn't. The projector and source material need to "handshake" so each knows what the other is using. HDCP will prevent recording of some copyright-protected media, such as Blu-ray Discs.

Kanik. The advantage to that strategy is simpler maintenance and the ability to leverage lamp costs, but each room has a different environment, and a small classroom will have a much different need than a large auditorium or well-lit ballroom like Stanford's.

UNC's Eshelman School of Pharmacy at Chapel Hill and Asheville, for example, uses 24 different Digital Projection projectors from the company's M-Vision, dVision and HIGHlite lines.

Key Features to Seek

A few of the key features you'll want look for are brightness, contrast ratio and simple operation.

Brightness is measured in lumens, and you'll want a projector bright enough for your environment. "It used to be that 3,000 lumens was adequate to see content in classrooms," says Kanik. You could make out forms and even lines on an Excel document well enough. But today, with higher resolutions and more detailed graphics from source materials, you may want something brighter. While 3,000 lumens is typical in K-12 applications, in colleges with high-definition and 1080p-resolution sources, Kanik advises seeking at least 4,000 to 5,000 lumens.

Higher HD formats will also match sources like Blu-ray, HDTV and many widescreen computers and laptops, and a resolution like WUXGA (1920 x 1200) will bring out more detail and help you future-proof. If you're only going to display large font content as with PowerPoint presentations and with no embedded HD video, the need jump from WXGA (1280 x 800) to WUXGA is not as great. However, if you are displaying small-font content from CAD drawings, molecular models or X-rays, then there would be a benefit to jumping to a higher-resolution projector, says Kanik.

Higher resolution isn't the only thing to look for. "Color accuracy, contrast, black levels, and scaling and processing all come before resolution in importance," says Kanik.

Also seek projectors with higher contrast ratios of at least 2000:1 if video is a part of presentations, or details in presentations like those for medical classes is vital. This is also where

better color representation comes into play. "With more embedded video, more resolution and color contrast, you want a display device that can support that," Kanik says.

Another important feature to consider is lens shift, which allows the ability to mount a projector off-center to the screen if an architectural element like a beam is in the way.

Finally, seek simplicity in operation. A wide range of people will be using the projection system, and you'll want a system that a non-technical person can easily hook up to and operate without any hand-holding.

Ken Eagle, training and consultant support manager at DP, advises that if you don't need special

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Photograph by Will Owens, UNC Eshelman School of Pharmacy

effects such as warping images to fit curved surfaces or edge-blending two projected images into one seamless image, spend more of your money on a brighter projector.

Finally, be sure to allow your system to incorporate many different types of sources, from laptops, PCs and other devices, says Kanik.

Photograph by Will Owens, UNC Eshelman School of Pharmacy

DP Projector Options: Good, Better Best

GOOD
M-Vision
> $6,995 - $13,995 + lens
> Single-chip DLP
> Up to 5500 lumens light output, which in some cases may not be enough
> Mechanical lens adjustments
> NOTE: You'll give up a few nice features.

GOOD to BETTER
iVision
> $8,995 - $18,995 + lens
> Up to 3900 lumens
> Single-chip DLP
> Very powerful, good light output
> NOTE: Portable and small enough to fit into soffit in back of a room.

BETTER
dVision
> $16,995 - $44,995 + lens
> Up to 8000 lumens
> Single-chip DLP or LED
> Versatile
> Dual lamps for lamp backup
> NOTE: Lens is proportionally large to give the projector a lot of flexibility for lens shift capability.

BEST
HIGHlite
> $22,995 - $31,995 + lens
> Three-chip DLP
> Up to 8000 lumens brightness
> Some dual-lamp models for lamp backup
> Better contrast and color, better lens optics
> NOTE: For when image quality and color accuracy are important.