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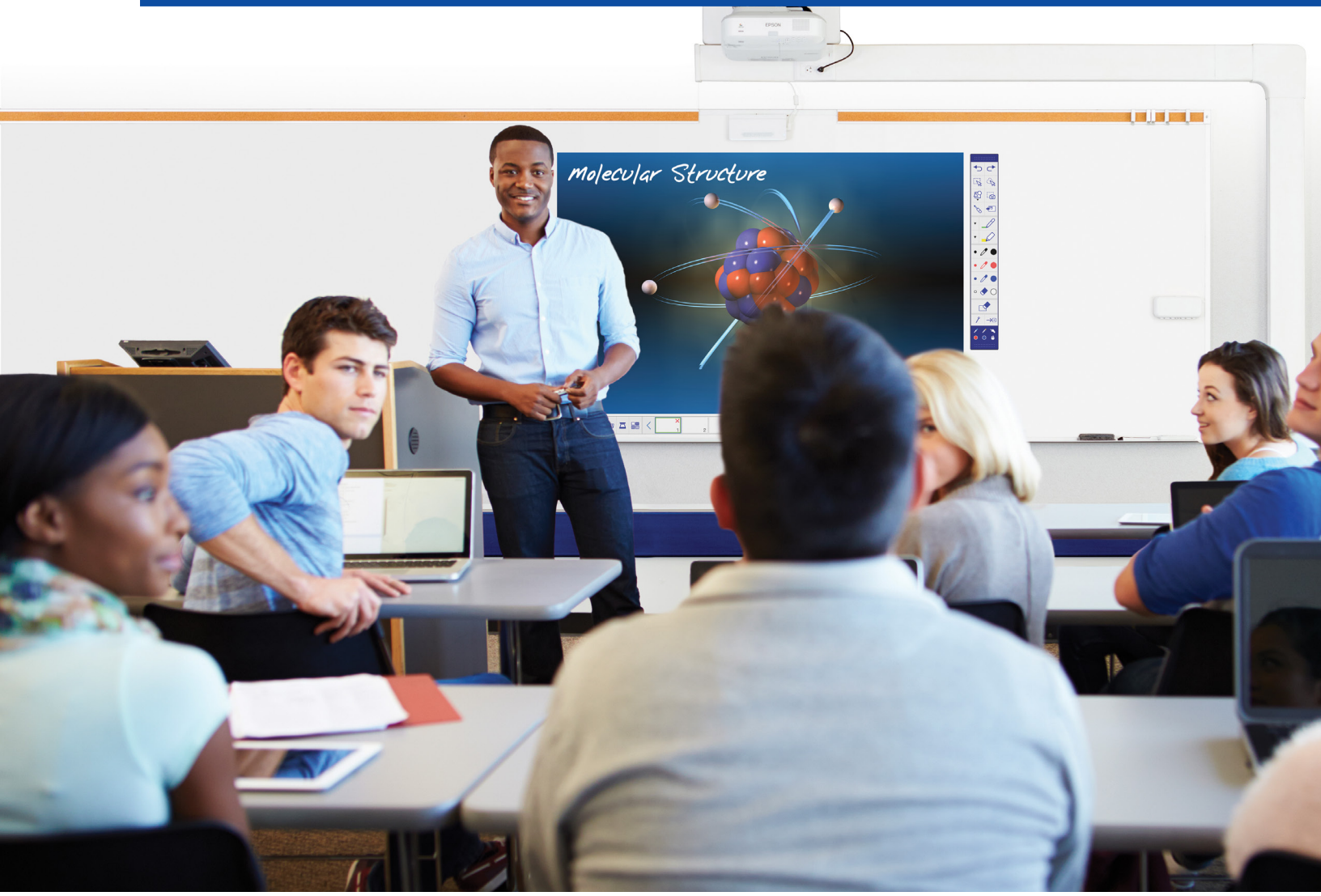

Technology and the Changing Mission of Projectors in Higher Education

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As part of an evolving, forward-thinking campus mission, educators and technology providers are seeking to position students for success in the workplace of the future. Next-generation tech tools—including laser projectors—are supporting this mission in top schools nationwide, while making it easier for faculty, IT, and AV staff to manage tech platforms.

INTERACTIVE DISPLAYS ANCHOR A LARGER DIGITAL ECOSYSTEM

Educators and technology providers are increasingly shifting away from yesterday's higher education challenges and toward a new campus mission: positioning students for success in the workplace of the future. Next-generation collaboration and display technology is part of this mission, allowing classroom and meeting spaces to be redesigned to support more peer-to-peer learning and collaborative teaching.

How are next-generation projection tools helping IT managers, as well as AV staff and end users, achieve this mission? And what tech tools are driving success in real-world classroom collaboration today? This ebook examines these issues and highlights the key questions to ask your vendor when choosing projectors for higher education classrooms and meeting spaces—solutions that will aid in your new campus mission.

THE DIGITAL TRANSFORMATION OF THE COLLEGE CLASSROOM

As high-quality digital display, connectivity, and collaboration products become more affordable and more accessible to schools and universities, the "technology gap"—the gap between schools' technology wish lists and their budgets—is closing. We already see that better projectors, larger displays, improved networking and connectivity solutions, and leading-edge teaching software are now more accessible to almost any school; and that makes increased student engagement an achievable goal for many more schools.

"The educational literature is very clear. If you use the information you're trying to learn, you will remember it at a deeper level than if you just hear it in a lecture," says Linda Vorvick, director of academic affairs for the MEDEX Northwest physician assistant program in the Department of Family Medicine at the University of Washington School of Medicine. Explaining the basic concepts behind active-learning classrooms operating on campuses across the country, Vorvick adds, "These classrooms allow us to move to teaching methods where students are more engaged, use more neural connections, and thus enhance their ability to recall what they learn."

Key to the new mission: tech tools—including projectors— that faculty, IT, and AV staff can "set and forget," so everyone can focus on teaching and learning, not maintenance.

Last year, Vorvick worked with the Seattle office of CompView Audio Visual to design a lower cost, yet sophisticated, active-learning classroom at the UW School of Medicine. It uses seven electronic whiteboards plus an input matrix to switch between seven student laptops, a sound system, podium, and two Epson® projectors. In the space, faculty use a method called "jigsawing," where they break the class into groups with an equal number of students, say seven groups of seven. Each group learns one variation of a skill or knowledge set, then breaks apart to teach the others what they've learned—one student teaching one other group.

"In higher ed, there is a new narrative for technology solutions, one based on results in the classroom. Case in point: look at what is evolving around what has always been the core classroom technology—video projection," says Ted Bollinger of TVS Pro, a top AV integration company based in Salt Lake City, Utah, who recently installed laser projectors at the University of Utah, BYU, Utah State, and Weber State, among other schools. "The cost/feature equations of laser projection have changed, moving higher lumen projectors from wish list to must-have list," says Bollinger. "Just a few years ago, a lot of universities were reluctant to move, say, from 3,500 lumens to the 6,000 lumens they needed in many classrooms. It was too expensive. But today, for example, with the new Epson line of 4,500, 5,500, and 6,000 lumen projectors that we often spec, they have smaller form factors, so they're not only affordable but they're lighter in weight, to the point where one person can install them. Beyond all the tech specs, it's really a story about getting more, better collaboration and data and video display tools in more users' hands. And getting results through a better teaching and learning regime."

BETTER CLASSROOM COLLABORATION, AND BETTER TCO: A WIN-WIN FOR STUDENTS, FACULTY, AND IT AND AV STAFF

As these new teaching methods take hold in schools and universities, the most sophisticated users are drilling down into tech platform specifics, searching for solutions that will stand the test of time and offer a clear return on investment. Nowhere is this exercise more widely seen than in the realm of projectors. The logic of replacing traditional lamp-based projectors with those that use solid-state illumination engines easily reveals itself, as they offer brighter images and incredible positioning flexibility. Also, there are no lamps to buy, stockpile, and replace. These new projectors also eliminate the classroom downtime users experienced when a projector's lamp burned out. So new tech tools, plus a new teaching mission, are adding up to a new narrative for college classrooms and meeting spaces.

As the TCO "math" of replacing lamp-based projectors with lamp-free products becomes increasingly clear, AV and IT managers now understand not only the savings they can realize with their entire projector fleets, but also the other features that are important to staff, teachers, and students. When it comes to wish lists and future technology needs, universities are looking for brighter displays and better user interfaces, more collaboration-friendly setup, improved color reproduction, and ultra short-throw options. And most of all? A "set it and forget it" solution that makes everyone—students, faculty, IT and AV staff—happy.

At Rutgers University, the AV and IT staff were recently tasked with something that the university had never before attempted. To connect students studying at multiple locations, the team needed to

create “truly immersive lecture halls that make students on different campuses feel that they’re all in the same room,” explains Matt Wilk, associate director, Digital Classroom Services. The challenge was to use technology to help students across different campuses share the same connected lecture and instructional experience. What kind of solution did Wilk and his team design? One that supports the Rutgers’ Immersive Synchronous Lecture Initiative, with multiple wide-screen, high-definition projectors, using Epson Pro L1505UH projectors in lecture halls across the university’s multiple campuses. To advance that single-room feeling, Wilk and his team designed spaces where, if the professor was not physically present, students would see a life-sized image of him or her projected onto a screen in the spot they would normally stand. Students would also be able to see classmates at other campuses clearly and hear them as if they were in the same room. If a professor pointed to the video image of someone in a far-end room, the cameras and screens would be positioned in such a way that the student felt the professor was really pointing at him.

The goal was to support shared classes with the Camden campus, located 30 miles away from the main campus. Wilk, working with Assistant Chancellor Paul Hammond, sought to design lecture halls that allow audio and video content to travel, rather than people. All the while, they remained aware of the fact that, in many distance-learning setups, students do not feel connected to their instructor or their classmates. “They might as well be watching television,” Wilk says.

To create a better lecture hall, Wilk and Hammond worked closely with Sennah Loftus of Voith & Mactavish Architects, Joseph Latessa of collaboration specialists IVCi, and Frost Schroeder of IT integrator Aspire Technology Partners. The team took several key steps.

First, they made sure the rooms themselves were very similar, using the same physical layouts, the same colors, wall treatments, lighting, seating, flooring, and design. “We wanted to create highly effective learning spaces that were beautiful, durable, and comfortable rooms,” Loftus explains.

Second, the screens they chose are very large, and the images are very crisp. “If you have someone in the back row wearing a Rutgers T-shirt, you can read it clearly,” Wilk says. There are seven high-definition images in each room, each ten feet wide, produced by seven Epson Pro L1505UH projectors. Students in the near-end, or “throw” room, see the professor live at the podium and, above the podium, three screens. The professor controls what goes on those screens, but in a two-room connection, the outer screens most often show his or her presentation and the center an image of the far-end class. In a class connecting three rooms, the center screen shows the presentation and the outer screens show each of the other student groups.

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Longer term, Wilk says the university is working to develop relationships with other Big Ten universities to share coursework and teach shared classes. The immersive nature of the new lecture halls makes the project that much more appealing. "In a perfect world, we would design a basic room and share it as a package with other schools," Wilk says. "Actually, we're not that far removed from making that happen now."

HOW PICKING THE RIGHT LASER PROJECTION PLATFORM WILL BENEFIT THE TEACHING/LEARNING EXPERIENCE AND ENABLE SCHOOL IT AND AV STAFF TO REACH A "SET IT AND FORGET IT" EASE FOR PROJECTORS

So the logic of laser is clear for higher education. But what are the key questions to ask in seeking out a laser solution? How can you purchase an uncompromising solution with superior imaging for your demanding higher-education applications? And what about TCO? Here's what to ask:

- Are all laser projectors based on essentially the same technology? What technology is at the core of the best laser projection platforms, and why?
- Are the color reproduction and image stability of the projector line the best and most state-of-the-art that the industry offers?
- Does the projector manufacturer offer a complete line, for all applications? In other words, multiple projector options for normal or short-throw/ultra short-throw applications, high-lumen projectors with a small footprint, and more?
- Does the projector line offer the most advanced connectivity and interactive and programming capabilities?

The answers are becoming apparent to top AV integrators and educators.

ALL LASER PROJECTORS ARE NOT THE SAME

Are all laser projectors based on essentially the same technology? The answer is an emphatic no. The technology at the core of the competing laser projection platforms tells the story. The vast majority of laser projectors—and projectors generally—are either LCD-based or DLP-based. Since virtually all manufacturers of both LCD and DLP projectors now advertise a 20,000-hour life for the light engine, it's a good opportunity to look at the differences between 3LCD and DLP—for projectors in general and for laser projectors in particular.

DLP (Digital Light Processing) uses a chip made of micromirrors and a spinning color wheel (for single-chip DLP) to create an image. The term "3LCD" distinguishes the specific implementation of LCD technology found in digital projectors from the more common direct LCD displays found in consumer products. In LCD projectors, there are always three LCD panels, and they are always light transmissive devices rather than reflective.

THE LASER LIGHT ENGINE IN THE NEW LASER PROJECTORS DOES NOT CHANGE

Unlike LCD, instead of having glass panels through which light is passed, the DLP chip is a reflective surface made up of millions of tiny mirrors. Each mirror represents a single pixel. In the most expensive DLP projectors, there are three separate DLP chips—one each for the red, green, and blue channels. However, in most DLP projectors—including those affordable for schools and universities—there is only one chip.

Collin McGinley of the M3 Technology Group, a top AV integrator that provides

services to universities including the University of Tennessee and Tennessee Tech, says that they are now seeing other benefits to 3LCD laser projection for universities. “We are now seeing, in a university classroom setting, for example, that there are many more projector/screen combinations to consider. In past years, projection onto a matte white screen was the norm. But now there are many more options, such as pairing a laser projector with a parallax screen that rejects ambient light. We are starting to change the screen approach: if you can give the customer a better experience than matte white for everything, you have more options—every projector, and every room, is going to be different, and 3LCD laser projection is making new approaches possible.”

McGinley also sees the new-generation ultra short-throw laser projectors becoming much more attractive for universities in particular. “Over the past year,” says McGinley, “the new laser short-throw projectors have gone way beyond the limitations of the previous generation of 2,500-lumen options. A lot of schools are moving to short throw—the quality is so much better. And the projected image does not have to pass through the fluorescent lighting in the room.”

CONCLUSION

As better-quality digital display, connectivity, and collaboration products become more affordable and more accessible to schools and universities, the “technology gap”—the gap between schools’ technology wish lists and their budgets—is closing. Better projectors, larger displays, improved networking/connectivity solutions, and leading-edge teaching software are now more accessible to almost any school; and that makes increased student engagement an achievable goal for many more schools.

Next-generation, lamp-free laser projection technology is key to the educational mission. It not only improves collaborative education but also breaks the old cycle of constant lamp replacement and the high ongoing costs associated with lamp-based models. But in choosing laser projector solutions, the discussion has now moved beyond the TCO issues of the lamp-based versus lamp-free debate. When choosing the right laser projectors for higher education applications, top professionals seek out campus-wide (not just individual projector) TCO benefits and no-compromise projectors with advantages including higher-lumen capability, improved color reproduction and image stability, ultra short-throw options, and interactive features. ■