

2021 and Beyond: Hybrid Learning Trends in Higher Education





Seismic Change

Approximately 18.2 million students were enrolled in colleges and universities in the United States for the Fall 2019 semester, according to [educationdata.org](https://nces.ed/ipeds/datacenter/ipedsdatacenter/ipedsdatacenter/ipedsdatacenter/), with more than 1 million of those being international students. By the end of March 2020, all 18 million-plus students had been sent home to learn remotely. Institutions went into overdrive to create a bridge between instructors and students using existing conferencing technologies and began to plan for a hybrid of in-class and remote learning.

Depending on the day, throughout 2020 and continuing into 2021, college students have been moving between in-class and remote learning experiences. The current consensus is that even post-pandemic, there will continue to be a significant contingent of hybrid and HyFlex learning. With this in mind, educational technologists and AV/IT managers have been working together with faculty to optimize pedagogies for online learning, as well as to provide technology solutions needed to fully engage students and help ensure positive learning experiences and outcomes.

For more than 40 years, Panasonic has been at the forefront of collaborating with education experts and innovating AV technology solutions for the classroom, with the endgame always focused on improving student outcomes. Recognizing the challenges that educational institutions were beginning to face as COVID-19 took hold, Panasonic was there to help them quickly transition to remote learning with Panasonic Virtual Experience (PVE) packages.

With a focus on the education market, Darryl Krall, National Sales Manager at Panasonic, has seen and

has been part of many evolutionary and revolutionary changes. "Today, we're seeing a seismic change in academia, where they're saying, 'We have the additional tools now, and we're not just going to throw them away. Can we utilize these as the new modality in teaching?'"

Panasonic continues to set its sights on the future of education at a level most manufacturers don't venture to. "If you're just competing on technology or products, nobody wins that game," Krall says. He was excited to share some insight into Project Moonshot, Panasonic's collaboration with Oxford Research Scholar Dr. Sonny Magana. "It is an opportunity to transform classroom conversations from monologues to dialogues in academia," he says. Dr. Magana's T3 Framework for Innovation and his strategies and tools for Cyber Learning in Higher Education have been shown to quadruple student learning. "Our intention is to package AV tools with the T3 Framework's concrete strategies, protocols and resources so that our AV equipment is not just used but used in the most reliable way possible to improve learning outcomes. It's not just about the AV; it's about reliably and consistently improving remote and hybrid learning based on the research evidence on what works," Krall says.

Panasonic offers the education community a comprehensive portfolio of professional imaging and visual systems products and solutions for all types of learning environments. Solutions range from projectors and professional displays to pan-tilt-zoom (PTZ) cameras and wireless microphones to collaborative wireless presentation systems, remote learning solutions and content delivery.

Supporting Interactive Collaboration

Today's learning environments are placing an increased emphasis on flexible and interactive technology. Information sharing and collaboration have always been essential to creating productive learning scenarios.

From purely remote learning to hybrid learning and HyFlex learning, the pandemic has accelerated all modes of online teaching and learning. As instructors and students have become more comfortable switching between in-class and remote learning experiences on an almost daily basis, institutions are grappling with which models and technology solutions will provide scalability and flexibility.

CASE IN POINT 1

Enhancing Student Engagement

Like many colleges looking to communicate more effectively with students, Gettysburg College in Gettysburg, PA, needed the tools to share course materials and school updates with students in an engaging way.

The college also wanted to ensure any AV technology investment it made would be cost-effective in the long term, while meeting the needs for both in-person and remote learning situations. With the previous lamp-based projectors in place, the college's IT budget dedicated \$10,000 to \$15,000 each year on projector lamps alone just to ensure projector maintenance. Moving forward, Gettysburg's IT department needed to find a new solution to effectively disseminate information while requiring minimum upkeep and prudent ongoing investment.



The IT department at Gettysburg College in Gettysburg, PA turned to Panasonic's laser projectors to enhance the learning environment for students and professors.

After evaluating the best ways to share critical information with students, whether it be class material, dining hall menus or pertinent information regarding new safety procedures and extracurricular activities, Gettysburg College's IT team selected Panasonic's laser projectors and professional display technology. This technology investment was made with the college's short- and long-term goals for student engagement, safety and budget in mind. Now, Gettysburg College is able to support remote learning, facilitate information sharing throughout the campus and create socially distant events, bringing the campus community together safely.



Wireless Presentation

Panasonic's PressIT Wireless Presentation System is a plug-and-play system designed to eliminate the need for cables and to facilitate the sharing of content between PCs. By simply connecting the receiver to the projector or professional display in the classroom and plugging the transmitter into the presenting devices, students can press a button and instantly share content. This takes the guesswork out of dealing with uncooperative, unreliable and complicated technology—allowing educators and students to focus on efficiently and quickly sharing content. Additionally, the system allows for simultaneous collaboration, as four presenters are able to display visual and audio content at one time. No network setup, software or driver installation is required.

The PressIT Wireless Presentation System makes collaboration easier than ever, allowing students to quickly share their ideas with intuitive and easy-to-use technology. "You can package PressIT with an interactive display—and that gives a lot of flexibility for collaboration with wireless connectivity," Krall says. "It's very easy to set up. It's pretty much plug and play."



"Not only do Panasonic's laser projectors reduce our lamp budgets drastically, but they also have versatile throw distances and enable a fairly close proximity zoom, enabling content to be crisp and clear for our students," said Travis Mathna, AV integration and support at Gettysburg College. "With the addition of new, permanent projectors for individual classrooms, we no longer need to move the projectors between classrooms and recalibrate them each time, saving us significant energy and manpower that can be used for other purposes."

"By leveraging projectors from Panasonic, we've been able to offer our students the opportunity to watch TV together in a socially distanced space outside on our campus. With so much going on, it's been great to use technology to not only support student learning, but also to give them the sense of community they so often look for when coming to campus."

Gettysburg College also deployed 40 Panasonic 4K professional displays throughout its athletic center, student union, dining halls and meeting rooms. With these powerful displays, Gettysburg College can easily share important information throughout the campus—including upcoming student events and dining menus—while students can use the displays for group work projects or entertainment such as video games. In preparation for having students on campus during the COVID-19 pandemic, Gettysburg developed 12 new teaching spaces to further enhance social distancing and equipped those spaces with a variety of Panasonic's 4K professional displays.

CASE IN POINT 2

Flexible Audio Enables Hybrid and Virtual Learning Experience

Christopher Visel, Director of A/V Infrastructure for the University of Michigan's Ross School of Business, was already looking to upgrade the wireless microphones in the school's classrooms before the COVID-19 pandemic. "Our microphone system was about 10 years old, and the RF spectrum it operated on was phased out by the FCC, so it was time for an upgrade. I was looking for a wireless mic solution that used a frequency spectrum that would be a better long-term solution. Our classrooms, particularly in our Ross Building, are adjacent to each other and on top of each other. Because the building is several stories, we were concerned about cross-talk and interference, which was a problem with our old system. It also had to be easy for faculty to use and for our IT department to support. After testing Panasonic's Digital Wireless Microphone System at our facility for several months, it was clear the Panasonic system was the right choice."



The University of Michigan Ross School of Business installed Panasonic's Digital Wireless Microphone System to ensure stable and secure communication from each wireless microphone to the receiver.

Paul Eiswerth, Vice President for TEL Systems, the commercial integration company that was selected to do the installation, said, "Panasonic's Digital Wireless Microphone System uses DECT 1.9 GHz technology to ensure a stable and secure communication from each wireless microphone to the receiver. This is important, particularly since each classroom is adjacent to one another and there are multiple floors of classrooms at Ross, so we didn't want to have any cross-talk. The system features a distributed architecture, allowing us to rack-mount the receivers in locked cabinets outside of the classroom. This leaves just the wireless microphones, wireless bodypacks and the antennas inside the room. It is incredibly easy to install, and the wireless microphones are pair-registered to the Panasonic receivers, so there is no need to manually channel plan and assign."

Visel said, "Our professors like to use the wireless bodypacks and lavalier microphones because it keeps their hands free to use the computer, whiteboards and document cameras. Panasonic's wireless bodypacks are among the lightest in the industry (less than ¼ lb. with the battery inserted), so they liked that when we tested Panasonic versus other competitive offerings." Each Panasonic wireless handheld microphone or wireless bodypack takes only one AA battery (standard or rechargeable Ni-MH). Desktop charging consoles are in each room to recharge the handheld mics and wireless bodypacks when not in use.

Flexible Learning Models

Active Learning Classrooms (ALCs) are defined as "student-centered, interactive, integrated, flexible, active learning spaces" (University of Minnesota, 2009). Typical ALCs include movable chairs and tables or tables configured into groupings, multiple projection/viewing systems and multiple whiteboards.

Hybrid learning, also referred to as blended learning, combines traditional face-to-face (FTF) classroom instruction with online learning.

HyFlex, or hybrid flexible, is an instructional approach that combines F2F and online learning. Each class session and learning activity is offered in person, synchronously online and asynchronously online. Students can decide how to participate. The flexibility of the HyFlex model demonstrates a commitment to student success, and that flexibility can also enable institutions to maintain educational and research activities during a disruption. (EDUCAUSE)



"Since we were not quite sure what would happen with Fall semester due to COVID-19, it was important to redesign the classrooms so that they could support a variety of educational options. From 100% in-person to hybrid in-person/virtual to 100% virtual instruction, we can be very flexible in providing faculty and students with the best learning environment," added Visel. "We had to design a system that would meet the specific challenges of pretty much any scenario. We were also constrained on budget, and Panasonic's Digital Wireless Microphone System met our budgetary needs."

Holistic Solutions for Today and the Future

Regardless of whether classes are fully remote or hybrid, it is critical that each learning space is approached holistically and with new modalities in mind. While it was good enough for instructors to use their own laptops with the onboard webcams and microphones for the short term, the experience was miserable for both the instructor and students. Instructors couldn't see many students at one time, and students often couldn't hear or see the instructor.

As universities are quickly outfitting classrooms and even instructor homes for a truly engaging and interactive learning experience for the long term, integrated systems are now offered to enhance the learning experience for both instructors and students.

Flexible Solutions for Remote Learning

With the migration of classroom learning to remote learning, the PVE configurations offer a solutions-based architecture that simplifies the adoption of remote learning and creates interactive and collaborative solutions to encourage remote engagement between educators and students while replicating an in-classroom experience.

"Universities need to quickly implement solutions for remote and hybrid learning in many classroom environments to deliver the best interactive and collaborative experience," Krall says. "The PVE configurations provide a great deal of flexibility and customization. And with these bundles, we've extended our typical three-year warranty to five years."

The Panasonic Virtual Experience is offered in configurations to meet every budget requirement and various environmental scenarios. Configurations include Panasonic's professional-grade displays, pan-tilt-zoom (PTZ) cameras, wireless microphones and mounting accessories. Combine any package with your preferred cloud-based software platform to effectively stream lectures, lessons and other activities that previously



occurred in the classroom. Use of Panasonic AV tools provides one standard, whether on campus or across multiple remote locations. All configurations include an extended warranty and support for easy, flexible installation, and custom solutions are available upon request.

PVE1: Entry Configuration

Designed for remote learning. Perfect for educators providing lessons and presentations to students engaging with coursework from home. Includes a 43" EQ1 Series Display and AW-UE4 PTZ Camera with built-in microphone.

PVE2: Standard Configuration

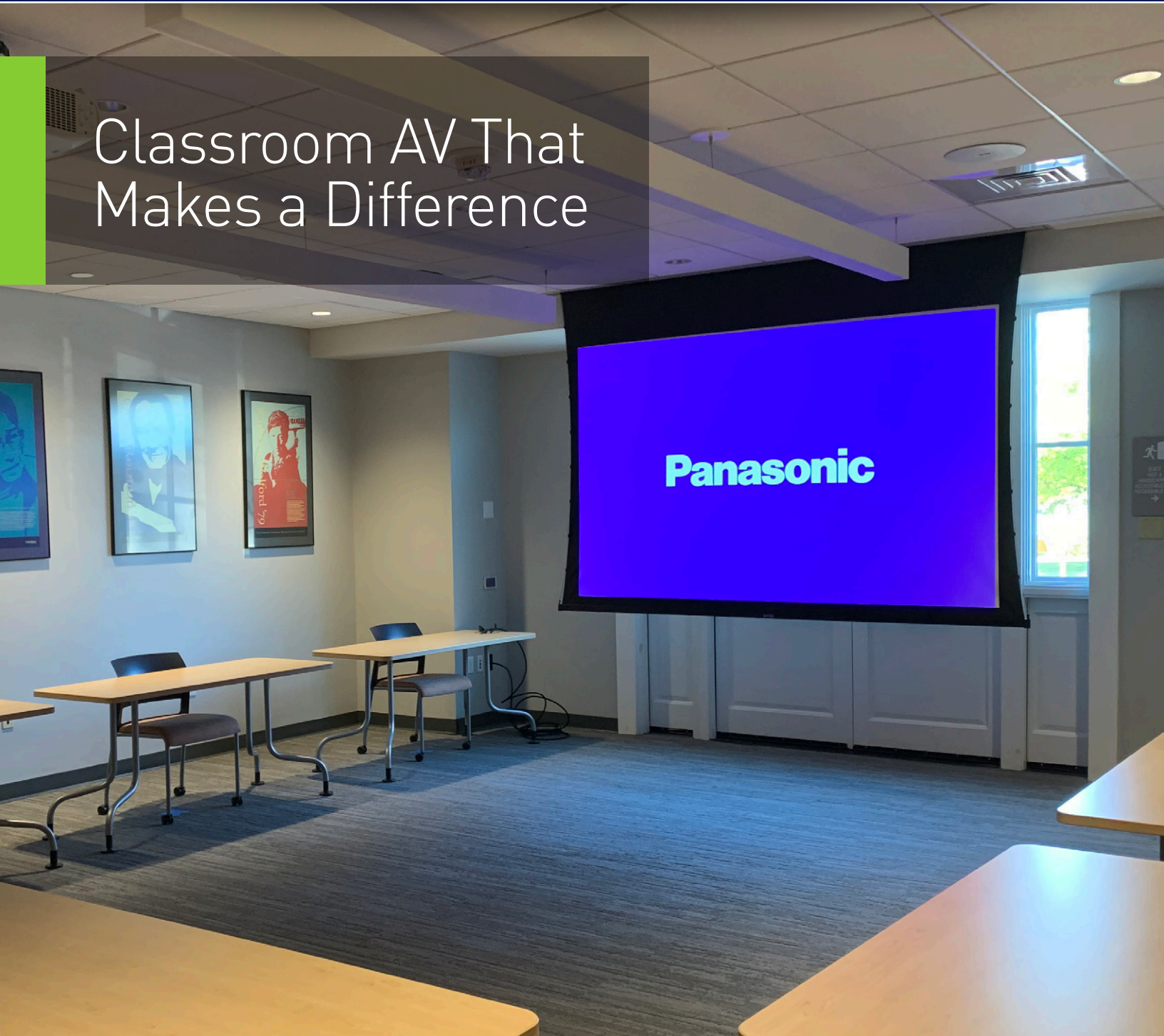
Designed for hybrid in-class and remote learning. Enables educators to view students on a larger display and students to multitask while presenting. Includes two (2) 55" EQ1 Series Displays, one (1) AW-HE38 PTZ Camera and Wireless Microphone System.

PVE3: Custom Configuration

Designed for interactive, hands-on environments. No matter what the school year brings, configurations are customized to meet many learning scenarios.

All configurations include mounting hardware and offer Technical Support options.

Classroom AV That Makes a Difference



Throughout its classrooms, the Gettysburg College team deployed 12 Panasonic PT-VMZ50U 3LCD portable laser projectors, as well as 14 PT-RZ570U 1-Chip DLP® SOLID SHINE laser projectors to ensure engaging visuals were possible during each lesson, whether they were in-person or streamed from the classroom to remote students.

Panasonic offers the education community a comprehensive portfolio of professional imaging and visual systems products, solutions and professional services, whether it be on campus or for remote learning environments.

Panasonic professional imaging and visual system products are flexible for a wide range of campus venues, from small huddle rooms to midsize classrooms to large auditoriums, as well as common areas, providing clear, crisp and ultra-bright 4K visuals to effectively share information throughout the campus. In addition to outstanding picture quality, flexible installation and long-lasting reliability, Panasonic's entire AV portfolio is engineered with features that minimize maintenance and maximize uptime.

Award-Winning Projectors

PT-FRZ60 Series 1-Chip DLP SOLID SHINE laser projectors—Easy to manage and offer clear pictures in bright rooms, with flexible integration in the classroom. Understanding the need to create productive and information-sharing classroom environments, the PT-FRZ60 Series projectors are engineered for these purposes, providing highly visible, bright images in well-lit rooms with minimal noise operation. Available in 5,000lm to 6,000lm, the projectors are compact, lightweight and feature a 2.0x optical zoom (2) to increase throw-distance range for easy, flexible 360-degree installation. To assist collaborative and group work conditions, the PT-FRZ60 projectors support a 4K signal input via DIGITAL LINK and HDMI terminals with CEC compatibility.



PT-MZ16KL Series 3LCD Laser Projectors—Perfect for large lecture halls and auditoriums and provide clear, crisp and ultra-bright visuals that are essential to effectively sharing information with an audience that may be spread out and seated far from the screen. Designed with large-scale education venues in mind, the compact and lightweight (less than 50 lbs.) 16,000lm PT-MZ16KL harnesses innovation, design and engineering to deliver quiet yet powerful, vivid large-screen projection. Audiences will experience exceptional levels of viewing clarity with 4K/60p signal input via HDMI or DIGITAL LINK. To round out the MZ16KL Series, additional projectors offer 13,000lm (PT-MZ13K) and 10,000lm (PT-MZ10K).



PT-LRZ35 Series 1-Chip DLP RGB LED Projectors—Made for solving unnecessary distractions in smaller classrooms, offering whisper-quiet operation (as low as 24 dB) without sacrificing image quality. These small and lightweight RGB LED DLP projectors are Panasonic's first portable projectors to use a discrete RGB LED light source. This provides superior color reproduction and enhanced picture quality, which is ideal for art or science classrooms and any application requiring precise color accuracy, such as presentations or artistic renderings.





Professional Displays

BQ1W Series Professional Displays are a perfect fit for unique classroom spaces looking to incorporate collaboration technology. These 75" and 65" displays can be leveraged as a screen and whiteboard. They are simple to use and encourage collaboration with the option to switch effortlessly between display and whiteboard mode. All touch and writing capabilities are built directly into the display for easy annotation, so there is no need to load software or have additional components. The BQ1W displays include a blue-light reduction feature to ease eye fatigue, while also supporting universal color design to relay correct information to viewers with various color viewing conditions. Integrated with the Intel® Smart Display Module (SDM), the displays can be enhanced with third-party applications for additional interactive capabilities.

CQE1W Series Professional Displays offer numerous versatile connection points for multi-device ecosystems with four HDMI connections for CEC-compatible devices, as well as a standard USB-C terminal for mobile connectivity. Available in seven models, from 43" to 98" sizes, the displays offer 4K picture quality for highly legible images to meet the viewing needs of various educational scenarios. Their continuous operational capability of up to 16 hours a day makes them reliable and ideal for everyday use in higher education institutions. The displays are built to VESA standards, and suspension from the ceiling or mounting on a wall is simple using a standard mounting bracket.



An optional slim wall-mounting bracket (less than .5") ensures American Disabilities Act (ADA) compliance.*

*CQE1W 43" to 65" models only



Professional Audio Wireless Microphone Systems

Panasonic's WX-SR200P Digital Wireless Microphone System uses DECT to transmit audio over a 1.9 GHz spectrum—enabling a solid, secure connection that is likely to protect against mandated frequency spectrum changes. Optimized for presentations, the system delivers excellent sound quality in small to large spaces with an internal low-cut filter switch to enhance speech. Panasonic's wireless microphones, bodypacks and receivers are easy to set up, making the system a best-in-class solution for in-room or remote presentations for many education scenarios.

With mask mandates, teachers and students are now wearing masks in most classrooms. Masks act as a low-pass filter, attenuating high frequencies (2,000 to 7,000 Hz) with the decibel (dB) level of attenuation differing by mask type. Panasonic research found surgical masks performed better than homemade cloth masks with the PM 2.1 filter inserted, while N95 masks were the hardest to hear frequencies above 2 kHz by 12 to 14 dB. Students are more likely to hear and understand teachers wearing a lavalier microphone with a three-layer mask. To counteract the effect masks have on speech intelligibility, deploying audio technology focused on optimizing sound quality for speaking is key to meeting these challenges.

Top of the Class Program

Striving to provide custom professional services to meet education institution needs, Panasonic is not just an equipment company but is also focused on creating value-added services for our customers. Its Top of the Class Program provides competitive and exclusive pricing, special promotions and offers, exceptional service, warranty and repair programs, and personalized, customized attention for every education need.





Pepperdine University installed EduFLEX, a hybrid classroom technology solution inclusive of Panasonic's AW-HE38H HD Pan-Tilt-Zoom (PTZ) camera for remote virtual learning and HyFlex distance classrooms.

CASE IN POINT 3

Pan/Tilt/Zoom Cameras Enable Remote Learning Instruction

To provide a fully remote learning environment for the Fall 2020 semester that would support faculty and students, Pepperdine University installed EduFLEX, a hybrid classroom technology solution inclusive of Panasonic's AW-HE38H HD Pan-Tilt-Zoom (PTZ) camera. The private Southern California university sought simple, consistent and flexible technology that would help it shift its classes online while providing an engaging environment and accommodating any combination of synchronous and asynchronous learning.

Together with ClearTech of Altadena, CA, one of the university's preferred AV technology providers, Pepperdine deployed the hybrid IP-based solution with Panasonic's PTZ cameras in 166 classrooms across its five Southern California campuses to support distance learning for its graduate and undergraduate community.

Professional video technology played a big part in the university's solution to ensure its professors had the tools needed to teach online. Pepperdine's faculty and students use the Zoom videoconferencing platform for virtual classrooms and hybrid online courses.

"We didn't want our faculty to feel like they had to relearn the technology, depending on where they taught. We needed a solution that would be turnkey and completely location agnostic, so that no matter where you're teaching, you could walk into the room and it was going to feel the same as every other space," said Jared Mukai, Ph.D., manager of AV technologies and special projects at Pepperdine.



Professional Video: Pan/Tilt/Zoom Cameras

Panasonic's top-selling 4K and HD PTZ cameras offer exceptional image quality, versatility, reliability and innovation. From the classroom to lecture halls, from live event broadcasts to video streaming from a professor's home, our best-in-class PTZ cameras offer all the capabilities for these assignments and more.

Panasonic's Auto Tracking Software for our PTZ cameras supports automated lecture and presentation capture with high-precision tracking using motion detection, facial recognition and new body detection powered by deep learning algorithms. The AW-SF100 is available for single-camera operation, and the AW-SF200 supports multi-camera operation. With the ability to track a person and manage multiple PTZ cameras independently, this software is perfect for classrooms, lecture halls, auditoriums, conference rooms and stage environments.



In addition to using Panasonic PTZ cameras, Pepperdine has standardized on Panasonic projectors throughout its campuses—providing an invaluable tool to engage students visually and improve student participation and learning retention. The reliable, easy-to-install Panasonic PT-RZ570 1-Chip projectors are used in a large number of the school's classrooms, and the PT-RZ12K and PT-RZ21K 3-Chip DLP laser projectors have been installed in lecture halls such as Elkins Auditorium.



The Rise of Esports

In her book *Leveraging Esports in Higher Education*, Karen McGrath reports there are more than 1,600 Esports clubs across 600 universities in the United States. For universities that rely on sports as a revenue generator, Esports is certainly poised to deliver.

“A lot of higher-ed institutions are either dipping their toe in the water, starting a program or trying to expand on what they have,” Krall says. “And at Panasonic, we’ve been doing this for a number of years.” As the online education market is growing, Esports is following suit and is becoming a competitive recruiting tool. “In addition, a lot of institutions are starting to use Esports as part of their way to build a sense of community,” he says.

Professional AV solutions, including cameras, projectors and professional displays, are critical in bringing Esports to life, whether in a virtual or live format. Video solutions such as point-of-view cameras make the virtual world of Esports possible, enabling viewers to watch the game and the player within one production—creating a fully immersive experience.

“From small to large, we’ve got a lot of great scalable solutions,” Krall says. Panasonic’s three Level Up Esports Combinations provide an extensive “one-stop” portfolio of laser and LCD projectors; professional displays; 4K and HD production switchers; 4K and HD PTZ, studio and cinema cameras, all creating high-quality, engaging and immersive gaming experiences.

USC's Joe Way: Perspective on Panasonic

Q: HOW IMPORTANT IS A PARTNERSHIP WITH A VENDOR?

A: I've done business with Panasonic for my five years in higher education and 20-plus years in the live-events and house-of-worship verticals. Quality, price, etc., aside, I won't purchase a product if I can't trust the company or my sales rep. That's my point of contact, and my reputation is at stake. It's my job on the line when things go south, so I need to know that they have my back. Panasonic has always been more than just a channel partner—they love taking my feedback to improve their products and support models. They truly invest in the higher-ed vertical, which gives me confidence in my choice.



DR. JOE WAY IS THE DIRECTOR OF LEARNING ENVIRONMENTS AT THE UNIVERSITY OF SOUTHERN CALIFORNIA.

He has spent more than 25 years in education, technical production and the arts, and has experience in organizational leadership and management. Way hosts the Higher Ed AV podcast and is the co-founder of the Higher Education Technology Managers Alliance (HETMA.org), aimed at connecting the higher-ed tech manager community and advocating for their common audiovisual needs.

Q: WHAT PANASONIC SOLUTIONS ARE CURRENTLY, OR SOON TO BE, USED AT USC?

A: Panasonic is our go-to projector solution for every one of our general classroom, auditorium and computer lab space. We have recently standardized on the PT-VMZ60, which is the 6,000-lumen WUXGA laser model—we're in a 16-month plan to swap out more than 300. Our previous standard was the RZ laser series—either the 3,500- or 5,500-lumen models. We also utilize Panasonic PTZ cameras in our large auditoriums where higher-quality live streaming or video production capabilities are required.

Q: WHY DID YOU CHOOSE THESE PANASONIC SOLUTIONS OVER OTHERS?

A: I have been a huge fan of Panasonic for years. It's been my standard at both schools I've worked at. The image quality, customer service, warranty, relationships with my reps, price point and ease of use make it a no-brainer for me. But most of all, the last thing I want to do is worry about classroom downtime. That's why I trust Panasonic so much.

Q: WHAT IMPACT HAVE THE PANASONIC PRODUCTS HAD IN THE CLASSROOM?

A: When we first received our demo of the 6,000-lumen PT-VMZ60, I was astounded at the compact form factor, how quiet it was and how bright it was. When I saw the educational pricing was in line with other manufacturers' 3,000- to 5,000-lumen models, the first thing I did was draft a plan to swap out every single space to these. They work great for classroom spaces that have a lot of ambient lighting from either windows or lights shining on the whiteboard area. There is no longer a need to dim the room lights for people to see the image. When we upgraded our spaces for hybrid learning, we were also astonished at the detail that we would see of remote participants. Our faculty have commented how much easier it is to teach, because students can now make out every detail.

For more information on Panasonic Connect's Professional Imaging and Visual Systems products and solutions for education, please visit:

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