THE TECHNOLOGY MANAGER'S GUIDE TO
DISTANCE LEARING AND STREAMING

Featuring

▶ **BU GOES REMOTE IN RESPONSE TO COVID-19**
▶ **UNIVERSITY TECH MANAGERS IMPLEMENT DISTANCE LEARNING**
▶ **ADDING AUTOMATION TO ONLINE EDUCATION**
▶ **UPGRADING YOUR LIVE STREAMING CAPABILITIES**

[**by Cindy Davis**]

AT A DISTANCE

Gasp. When I began my outreach to colleges and universities for this guide in early February, it was titled "Guide to Higher Ed Streaming." On March 6, 2020, the University of Washington announced it was cancelling in-person classes and moving to remote learning for all of its 50,000 students. As the coronavirus (COVID-19) continues to spread across the U.S., more colleges and universities are making the transition to remote learning—some more abruptly than others because of confirmed cases of the virus on campus.

"Beware the Ides of March" couldn't have been more foreboding, as the 15th marked the date that a landslide of colleges and universities made the difficult decision to send students home. Many were told not to return until after spring break, while others were made aware of the possibility that they might not be allowed to return until the fall.

This guide focuses on remote teaching and learning in higher education as of March 19. We don't know what the landscape will look like in two days, let alone two months, but we will be posting online as events unfold.

Good news came out of China, though, that no new domestic cases of COVID-19 have been reported since it started recording them in January.

Writing in this month of March and looking for light at the end of the tunnel, we know you'll be needing to plan for actual distance learning and streaming for 2021 academic year, so we are including those features.

May you and yours be healthy.
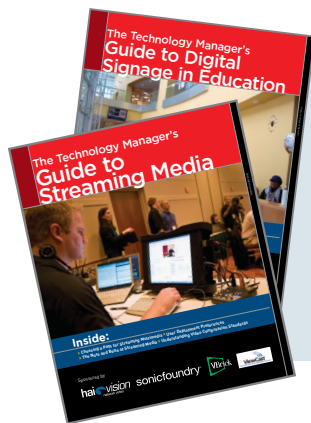
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March Madness

Boston University's

By Cindy Davis

==According to educationdata.org, there were approximately 18.2 million students in the U.S.== enrolled in colleges and universities for the fall 2019 semester, with more than 1 million of them being international.

Now think about all 18 million students learning remotely. It might be about to happen, if not already mandated by the time this article goes to print. As I spoke with many directors of learning technology, educational technology, or AV/IT, their stories were fluid by the hour.

My first interview with Boston University was conducted during the brief period when some instructors were able to present their courses from their classrooms, but to an audience of remote students.

READING THE SIGNS

Key teams at BU who support 35,000 students and 4,000 faculty started planning for the possibility that the COVID-19 pandemic could completely upend how classes would be taught soon after the first case was announced in the U.S., more than 3,000 miles away in Seattle. "We started planning when we were watching it rolling through other global areas," said Linda Jerrett, director of Learning and Event Technology Services at BU. "Before we really knew what we were dealing with, we spent weeks in a room thinking about what this could look like and what we were handling."

Jerrett is part of BU's Client Services and Support team, which is responsible for business relationship management with the academic and administrative groups that are supported by Information Services and Technology (IS&T). The team also provides support for classrooms, live events, operations, and several service desks. "We take everything from the client service perspective, so it was time to take a hard look at our continuity planning," she said.

Part of the detailed and robust continuity plan is about understanding what support staff can handle under various circumstances. "We know what our thresholds are for switching from one phase to another," Jerrett said. "If 75 percent of our staff is well, we can function 'this way,' but if we drop to 50 percent of our staff, then on campus we adjust to another level of service." And then, there's a plan if the campus closes to faculty and staff as well as students, and remote support is needed.

Ernie Perez, director of Educational Technology, Digital Learning and Innovation, and his team at BU work on the instructional design and production of programs to get them online. When it came to planning for dealing with the unknown from the pandemic, "Early on, we had a conversation about how we were going to triage this campus-wide—right across our 17 schools and colleges," Perez said, "and we came up with the idea of a triage system."

REMOTE TEACHING AND LEARNING TRAINING

Perez's team ramped up a remote teaching preparedness plan. One of the first things done in combination with IS&T, IT Partners, and the Digital Learning Innovation team was to create a "working and teaching remotely" page on the BU site for staff and for faculty.

Then, working with deans from each of the schools and colleges, they designated one or more remote teaching coordinators (RTCs) to be the first line of defense. "My group conducted the training for the RTCs, and their names and colleges were listed as the first point of contact when the letter was to be sent to the faculty from the provost announcing the transition to remote teaching," Perez said. Questions were escalated to Ask EdTech or IT Help, which moves it into ServiceNow, and from there, each team could determine where they needed to go. "Then we created and trained a remote teaching group with teaching coordinators and started scaling up our Blackboard and Zoom training for faculty," Perez
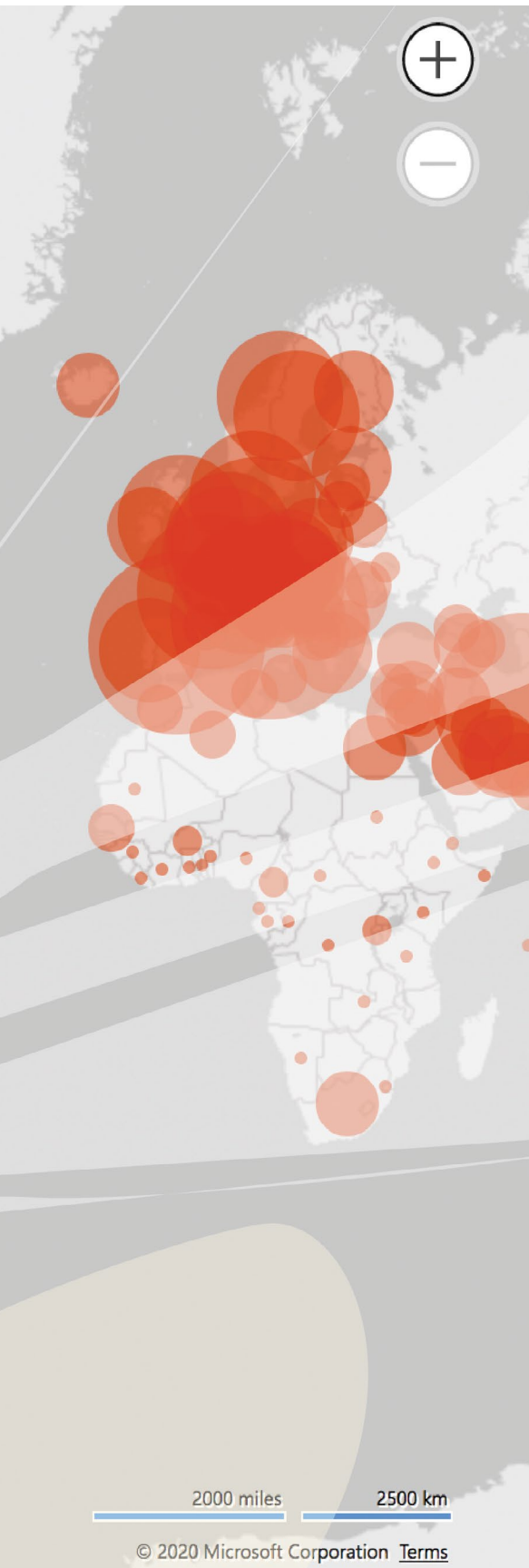
Institutions of higher education are in the midst of dealing with an unprecedented shift to remote learning.

2000 miles   2500 km

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On March 17, Boston University mandated that students must leave campus, forcing the remainder of the spring semester to be held remotely.

Remote Triage Best Practices

PEREZ

1. Start small. Make sure that all your courses are in your LMS so that you can flip them on if needed. You need to have an LMS to be able to give information out, and a platform to be able to communicate.
2. Make sure faculty know Zoom so they can teach class synchronously.
3. Start training as early as possible and offer a wide range of time slots.
4. The faculty and student teaching and learning pages on the site should be a collaborative and living for important updates.

JERRETT

1. Start early enough that you can address challenges across groups.
2. A detailed and robust continuity plan should have a phased approach.
3. Think about how your phones will work remotely. What are your fallbacks?
4. Set expectations by helping faculty identify the key elements in the course to tighten the focus.

said. This level of training was done via Zoom.

In a letter sent on March 9, Jean Morrison, BU provost and chief academic officer, outlined the precautionary steps to faculty describing the development of a new remote teaching plan that would allow students to continue taking their courses online if regular classes are canceled because of the spread of the virus.

It can be a challenge to get faculty at any college or university to make time for training on new technology in normal circumstances. "That week of March 9, we did trainings several times during the day and over the weekend to get folks ready," Perez said. "We were getting about 200-plus faculty in these training sessions."

On March 11, the decision was made to officially begin remote teaching. Students were no longer allowed in the classroom and were encouraged to vacate their dorms and return home. Support staff and some faculty members remained on campus. Some instructors still wanted to teach from their classrooms. Jerrett named this scenario "a hollow event." Someone from BU's Learning and Event Technology Services team was in the back of the classroom zooming in on the instructor teaching from the front of the room using standard lecture capture and scheduled recordings. "We're pretending like there's a 100 people between us," Jerrett said.

"We recommended that faculty host their class times synchronously," Perez said. They should not change the day or time from when the course was already scheduled. "If it was Monday, they hold it at the same time, synchronously via Zoom." The recommendation is also to record the class. "After they record, they post into Blackboard in Kaltura, which we call My Media." This maintains rights management, so only the students in that class have access to the recordings, and there is no access to download. "We can also do accessibility through Kaltura," Perez said. "We can do machine capturing for all the videos and for accommodation requests, we can do 'person captioning,' which is has a 99-percent accuracy. "

Jerrett's client services and support team is located in its own building called the IT Help Center. In the lobby, drop-in hours were set up for the team to provide guidance. "Respecting social distancing, we had a staff member from our Client Technology Services (CTS) team, which does desktop engineering and field support," Jerrett said. "We also had someone from our operations team, our service desk, and from my Learning & Event Technology Services team to be there to help with in-person support, and now we have moved that to a virtual format." Support never ends with a job description. "We've had other local support people come in just for guidance with questions like, 'What do I tell them?' or 'How do I handle this?'" Jerrett said.

The significant difference is that this is not online learning—it's remote teaching. "You look at online learning objectives and you design the course that way," Perez said. "Whereas remote is literally tomorrow we have to go remote teaching."

The same is true with a fast switch to remote technology support. "Faculty are going through this themselves so they have been able to realize that we aren't going to be able to recreate the remote classroom technology experience at the same excellent level they are used to on campus," Jerrett said.

One challenge the teams faced was getting all BU's classes into the learning management system (LMS) to be able to be presented online. "There had not been a mandate for instructors to use the LMS, so some classes had not been set up in there by faculty choice," Jerrett said. Perez's team, along with help from the IS&T Service Desk had to create 600 "shells" for classes that weren't in the LMS.

BU has had an online learning component for many years, and most students have had some experience with the platform. But again, this is still is not online learning. Students are directed to a "remote learners" page that was created on the BU site.

PHASE THREE

March 17, 2020, 8:51 pm ET: In a message from BU's president Robert Brown, "Boston University has canceled in-person classes and moved to remote teaching and learning for the balance of the spring semester and final exams." Students were directed to leave BU residences and return home by Sunday, March 22, or sooner. Exceptions were made for international students and others who were unable to return home.

"The whole world understands that we're in this situation together," Jerrett said. "We're trying to create a connection while we're disconnecting physically."

When I last corresponded with Jerrett and Perez on March 18 they reported that they successfully hosted 620 concurrent Zoom classes and a chemistry class with 280 students.

Jerrett and Perez are eager to share what they have learned during this process, as well as what comes next. Reach out to them through Twitter @ljerrett and @ernperez or via email at askedtech@bu.edu or letshelp@bu.edu.

The following link takes you to all BU's Remote Teaching & Learning pages and COVID-19 notices: digital.bu.edu/remote-teaching-resources-at-bu/

BU's Ernie Perez and Linda Jerrett share their remote learning strategy via Zoom. As of March 18, they have hosted 620 concurrent Zoom classes and a chemistry class with 280 students.

From the Trenches

Higher education pros share how they're handling the shift to remote learning

By Cindy Davis

<mark>We asked higher education professionals how they have prepared, or are preparing, for COVID-19.</mark> Keep in mind that everything could have changed from the date of our last correspondence (interviews were conducted between March 10–14).

UC BERKELEY: COLLEGE OF ENVIRONMENTAL DESIGN
PATTY MEAD, ASSISTANT DEAN, INFRASTRUCTURE & INFORMATION TECHNOLOGIES

Software/Platforms: For video and web conferencing and webinars, the campus has made Zoom available to all faculty. Additionally, the campus has a Leaning Management System called bCourses (which uses the open-sourced Canvas platform). For the College of Environmental Design (CED), the backend, networking platform we use is Microsoft Windows. Some of our other platforms, like those that utilize remote 3D printing, are cloud based such as MakersFleet.

Instructors: The campus is providing Zoom and Hangouts Meet. CED primarily uses Zoom for instruction, as it has the recording features we prefer. That said, we appreciate Hangouts Meet, as it has closed captioning built into the service. The campus and CED have been working with faculty to make sure that they have direct assistance or written guides for setting up their classes, inviting students, and recording their lectures/presentations. We also assist, when required, to help them upload these recordings to bCourses for student access.

Students: Primarily, this is a hardware, software, and communications tool issue. Most students these days have laptops, but we have several on hand to loan out if required. In short, all the pieces for online learning have been put in place as a normal byproduct of maintaining current technology standards. The pandemic is just pushing us to utilize all these tools in a unified way to support instruction and research activities.

Best Practices: Get familiar with the tools. We had already built a mobile videoconferencing cart that utilized a variety of communication software and tools (cameras, mics, monitors, etc.) and thus were already familiar with the techniques, hardware, and software required to jump into online meetings.

> **"The pandemic is pushing us to utilize all these tools in a unified way to support instruction and research activities."**
>
> —Patty Mead, UC Berkeley

Plan and test before panic. Our College and the Campus IT Emergency Operations Committee have all been planning to meet various risks. In California we have experienced, earthquakes, fires, power outages and the like. These actions have already shut down the campus at various times. As a result, we have had planning discussions and time to test out what-if scenarios.

Go for simple and work to complex. We started with a one-day notice that all classes were to move to online. So, we focused on supporting faculty, to assist where we could. At the same time, the campus is not yet closed, so we also had to institute cleaning protocols for equipment in case students or faculty did show up to teach and learn. Now, there is time to turn to longer term and harder issues such as how do we make access to our computers (that contain all the expensive software) available so students do not have to come in and log into our machines.

SUNY FASHION INSTITUTE OF TECHNOLOGY
RICHARD J. HOAR, CTS, EXECUTIVE DIRECTOR, MEDIA & EVENT TECHNOLOGY SERVICES

Software/Platforms: SUNY hosts Blackboard for asynchronous online learning in which FIT has Collaborate Ultra and VoiceThread for our faculty to extend multimedia content to online learners. The campus is a Google G Suite for Education customer with rich integrations for online document creation, storage, and group collaboration. We also provide faculty and staff with Cisco Webex hosting accounts to engage industry guests and partners around the world on demand.

Instructors: Many professors can run their online courses from their offices with standard computers and peripherals. We also have a limited number of integrated group video suites throughout the campus to extend live classes and meetings from FIT to virtual audiences in lieu of requiring expensive manual video production resources for these applications.

Students: FIT offers over 600 online course sections per year, including two online degree programs. Online courses run asynchronously on the same semester schedule as face-to-face courses. Activities in online courses are the same as in a traditional class: students read course materials, write papers, do research, take exams, and communicate with their instructor and fellow students. Students and faculty use technology as a tool in accom-

plishing these tasks. Students leverage the wealth of resources available through the internet to support their learning.

Best Practices: For us, media accessibility is a key factor. Highly accurate (often AI-aided) closed captioning is our standard for new and live online video. That often lends benefit to the entire FIT community, as media becomes searchable by text and more relevantly archived with the rich meta data that standards-based "sidecar" files afford.

COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK

RUDY R. RODRIGUEZ, ASSOCIATE DIRECTOR, TECHNOLOGY, OFFICE OF THE PRESIDENT

Software/Platforms: Zoom is the first choice for online learning; however, we always leverage G Suite (Hangouts/Meet).

Instructors: Admini–strators and professors are getting accounts set up by our admins. However, since there isn't time to train or teach, our tech writers are busy spinning up documentation and having the web folks post it publicly as quickly as possible.

Students: The majority of students were already set with some sort of online conferencing capability. Leveraging our Zoom Business account, our central IT department was able to add users in batches over the course of a week to get students and professors set up.

> *"Consider your most needy end users and how you will support them."*
> *—Rudy Rodriguez, Columbia University*

Best Practices: Get ahead of the game in any way possible. Look at hardware and ease of use. Consider your most needy end users and how you will support them. Some professors and administrators don't have functional home computers. Make sure your severs can handle the loads and that you have enough licenses to support your organization. Do all that research ahead of time. This is such an odd situation that I don't think conventional rules apply here. The only rule that

always applies is no matter what, we must provide that white-glove customer service to all our end users.

UNIVERSITY OF MASSACHUSETTS LOWELL

MIKE LUCAS, SENIOR DIRECTOR OF INSTRUCTIONAL TECHNOLOGY SERVICES

Software/Platforms: All of our providers—MediaSite, Blackboard, Echo360, and Zoom—have indicated their readiness during this extreme event; however, next week will see unprecedented usage of these cloud-based tools and the performance may not meet the demand. Positioning these resources in the cloud gives us a better chance for success than depending on in-house servers that are more difficult to scale in a short period of time.

Instructors: We are providing webinar training to get faculty oriented who normally do not use Blackboard. Thankfully, a good percentage already use it for supplemental material delivery. Those new to the LMS are being fast-tracked and is significantly impacting the Academic and Instructional technology teams. Luckily, we have an enterprise-wide deployment of lecture capture (Mediasite and Echo360) and we are leveraging this technology to continue with synchronous delivery in the classroom, but without the students. Many faculty members will be teaching live to an empty classroom with either Zoom or one of the LC platforms. This will be the easiest lift for the faculty, as they already are used to presenting their content in the classroom. This will not require them to transfer their curriculum into a medium they are new to—just lecture as before and have the content streamed. Should the university deem that all faculty and staff should work remotely, faculty will use one of the tools listed above on their laptop.

Students: We have about 70 percent of our face-to-face courses already set up with a course shell, so UML students are very comfortable with the LMS and using it for supplemental materials and testing. Every student has at least one course with an online component, most several, and some all.

Best Practices: We created a Continuity of Learning website early in the process, vetted by the provost and his team to act as a clearinghouse

for information on addressing the campus closure before the announcement was made public. This helped to route questions to the proper resource. We have also merged faculty support via Blackboard with the online team and the face-to-face team working together for the first time to train faculty and provide support to move materials into the LMS. This is allowing us to react quickly to an ever-changing situation. This is a fluid point of information for faculty who are quickly being brought up to speed on delivering their curriculum in an online environment.

UNIVERSITY OF SOUTHERN CALIFORNIA

JOE WAY, PHD, CTS, DIRECTOR, LEARNING ENVIRONMENTS

Software/Platforms: Zoom, Blackboard, Office 365, Slack

Instructors: This is the biggest challenge: Tenured faculty who have taught in the classroom for their entire career are not used to delivering their content in an online format. We are offering both online group sessions and in-person, one-on-one instruction on using the Zoom tools and best practices. We created a new website to help faculty transition their courses and teaching methodologies. We procured new laptops with webcams and microphones for faculty who did not have ones equipped with cameras and mics.

Students: At USC, we are a Zoom-enabled campus and utilize Blackboard for LMS integration. The biggest issue with a pandemic is not actually teaching online, but converting courses not initially intended to be taught online to an online format and having faculty who are not trained in the intricacies of online education learn how to present their content through a different medium. Today's generation is used to FaceTime and group chatting. They aren't necessarily equipped to do so in a way that requires 100-percent attention and network connectivity. If a FaceTime call drops or has a bad connection, there's no loss. If a livestreaming lecture has dropout, there is an impact to the educational experience for the student. For those students who don't have laptops, we have procured extras as long-term loaners. We will provide webcams

"Tenured faculty who have taught in the classroom for their entire career are not used to delivering their content in an online format."

—*Joe Way, University of Southern California*

and microphone-enabled earbuds for students who do not have their own.

Best Practices: The best practice we've learned is to have patience and give grace. This is a tense time. The students are scared and the faculty are entering new territory. Be OK that training on new tools might take longer than normal. Know that we are going to these measures for the safety of our students.

WENTWORTH INSTITUTE OF TECHNOLOGY
JOHANNA PIERSON, MEDIA SUPPORT SPECIALIST, DIVISION OF TECHNOLOGY SERVICES
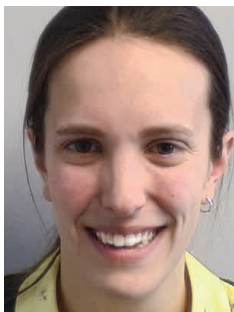
Software/Platforms: Panopto, GoToMeeting, Microsoft Teams, and Zoom

Instructors: We are suggesting they use Panopto, GoToMeeting, and Zoom to create content and connect with their students. We also use Microsoft Teams as a collaboration tool. Our Learning, Innovation and Technology team are hosting a series of training sessions early next week.

Students: Our university has a laptop program, so all students and faculty members are assigned a Wentworth laptop. All class sections were already required to have course information posted on Blackboard. This should make it possible for all students who are able to connect to the internet to have access to required systems and information.

Challenges: Wentworth Institute of Technology has moved all classes online until April 30. We definitely anticipate some challenges, especially with users who don't have reliable internet access, or who are part of non-traditional courses or programs. We are still exploring additional solutions!

PTZ OPTICS SIMPLTRACK 2

The SimplTrack 2 is the latest auto-tracking camera from HuddleCamHD. The camera features improved automatic presenter tracking accuracy with a built-in 4K reference camera that steers a 20X optical zoom camera. The camera outputs 1080p60 video via SDI, USB 3.0 and DVI/HDMI simultaneously. An updated remote management software allows IT professionals the ability to set and forget camera operations with advanced functionalities to optimize auto-tracking in any room. The management software also allows IT managers to view multiple cameras on the same screen, take manual control as needed, and record locally to a micro-SD card. This camera is ideal for integration with lecture capture systems that support SDI or cloud-based distance learning solutions such as Zoom Video Conferencing. Use it for automated lecture capture and cloud-based video conferencing at the same time. The SimplTrack2 makes classroom lecture capture available 24/7 in classrooms around the world. **ptzoptics.com**

VITEC EZ TV

VITEC's EZ TV IPTV & Digital Signage Solution is a customizable solution for any higher education institution. From football stadiums to smaller, multi-complex collegiate deployments, EZ TV is engineered to scale to any facility while offering a flexible, open architecture that meets the ever-changing video, marketing, and sales requirements of today's collegiate sports venues and athletic departments. It distributes live video content from various sources including cable and locally generated private video. Utilizing VITEC's hardware-based IPTV and signage endpoints, schools benefit from low-latency playback, real-time updating of electronic program guides, video on demand, time-shifted TV, real-time analytics, and user-defined channel lineups. Network agnostic, the platform is easy to deploy as part of a new construction project or in existing venues without modifying or upgrading the existing network infrastructure. Finally, EZ TV allows users to introduce new capabilities season after season and revamp or refresh the fan experience without adding additional operational overhead. **www.vitec.com**

ECHO360

Echo360 is a video platform that helps instructors record and extend great moments in the classroom to improve learner engagement through accessible, video-based learning. According to the company, Echo360 is the only video solution that combines recording and streaming, video management, video learning and engagement, robust accessibility tools, and rich learning analytics into a single platform to provide all students with a high-quality video learning experience. With Echo360, instructors can seamlessly record and live-stream classes, embed videos in LMS content, transcribe video content, engage their students with polls and class discussions, and understand how their students are learning and who is struggling before it is too late. Students can review class videos, respond to polls, and ask and answer questions—creating the active, engaging learning experiences that research shows improves student outcomes. Today, Echo360 technologies reach more than two million learners at approximately 1,200 schools and organizations. **echo360.com**
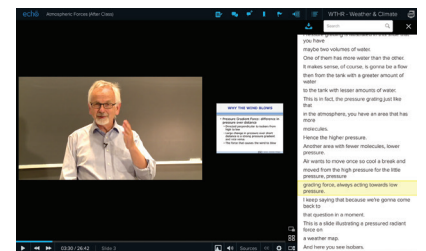
Tech in Action

By Cindy Davis

PTZ CAMERA AUTOMATES LECTURE WORKFLOWS

IUP's College of Education and Communications uses a PTZOptics HuddleCamHD SimplTrack camera to automatically professors at the front of the room.

The College of Education and Communications at the Indiana University of Pennsylvania (IUP) uses the PTZOptics HuddleCamHD SimplTrack as part of its cloud-based lecture capture system that provides its learning management system with engaging video content. The university is using Zoom videoconferencing software to connect its classrooms, allowing professors to bring in remote guests and participants. The room has multiple cameras available as video sources in a Zoom call, with the main camera being the SimplTrack, which automatically follows the professor at the front of the room, eliminating the need for a camera operator.

"The Zoom room functions flawlessly, and the professor doesn't have to do anything," said Chris Barber, AV system specialist for the College of Education and Communications. "All they have to do is fire up the computer, log in, open up a Zoom session, and choose which camera to use."

The university no longer has to manage a schedule of students to manually operate cameras from the back of the room. Zoom videoconferencing is used as the cloud-based recording solution, and it can distribute the content to IUP's learning management system. An additional PTZOptics

12X-SDI camera connected using an SDI-to-USB capture card is used to capture zoomed-in views of objects in the classroom. An Inogenie Share2 is used to provide a simple button interface for teachers who want to mix their laptop presentation video with the auto-tracking camera feed. The Inogenie share two is able to mix together two HD video sources and output them via USB for the zoom videoconference.

"We can control the style the professor wants, whether they want the tracking camera only, whether they want the typical Zoom camera, or both," Barber said. "It's a really flexible system."

Xiamen University Malaysia acted quickly to move its classes online because of the Coronavirus outbreak.

ASIAN UNIVERSITIES GO REMOTE IN RESPONSE TO COVID–19

In early February 2020, Xiamen University Malaysia (XMU) acted quickly to keep its classes going as the Coronavirus (COVID-19) outbreak increased, choosing Mediasite as its blended learning solution. Approximately 2,000 XMU students were unable to return to Malaysia from China. Its 200 professors created online lectures with My Mediasite from their home offices and streamed them to students in Malaysia. The videos are uploaded to Mediasite and also streamed to Chinese students in China.

Xi'an Jiaotong-Liverpool University (XJTLU) in China turned to online lectures with Mediasite to avoid the spread of the infection between and beyond campuses. The university is one of many in the region avoiding long shutdowns by opening virtual doors with Mediasite for the foreseeable future amid quarantines and travel bans.

The university, which began using Mediasite in 2017 for lecture capture, fast-tracked a massive expansion that gives all faculty access to My Mediasite personal capture software. In less than a week, XJTLU converted to an online campus making available 70 percent of the 450 courses. The university worked closely with Mediasite's professional services to reconfigure its deployment and accelerate its desktop video capture

> ## *"The epidemic simply sped up the timeline of our plans to move toward a new learning ecosystem we envision for XJTLU's future."*
>
> *— Youmin Xi, Xi'an Jiaotong-Liverpool University*

strategy.

XJTLU professors within China and around the world now use My Mediasite to create or upload lecture videos from home for 14,000 students. During the first two days of the semester faculty created more than 2,000 lecture videos, which students viewed nearly 100,000 times in the university's Moodle learning management system.

It is a development which XJTLU considers progressive and far reaching, according to the university's executive president, professor Youmin Xi. "We decided to conduct our education fully online, including support from Mediasite, until campus reopens because of concern for the health of students and staff members," Xi said. "However, increasing our online education capabilities to complement onsite education, or education provided by an educator physically present with students, has long been part of our path forward. The epidemic simply sped up the timeline of our plans to move toward a new learning ecosystem we envision for XJTLU's future that blends the best of online and onsite education methodologies."

The current global pandemic has quickly proven the worth and scalability of distance learning.

(There) to Stay

Remote learning is poised to remain a prominent fixture of higher education

By Cindy Davis

Colleges and universities have been on board with implementing distance learning and online education programs for several years, as institutions look to augment their campus enrollment and attract more diverse students across the globe.

The recent *2020 EDUCAUSE Horizon Report-Teaching and Learning Edition* stated that, "online education is increasingly seen as a scalable means to provide courses to an increasingly nontraditional student population." The current global COVID-19 pandemic has quickly proven the worth and fast scalability of learning management systems (LMS) such as Canvas, Kaltura, or Moodle combined with conferencing solutions such as Zoom, WebEx, or Poly. It is likely that once this crisis is behind us, online and distance learning will remain a prominentt fixture of the educational landscape.

"The promises of online or distance learning are many," said Rony Sebok, vice president at 1 Beyond. For one, there's reach: An excellent professor who normally teaches 200 students in a class can now reach an audience of hundreds of thousands. For people with day jobs, an online education enables them to learn at times that are convenient. Lastly, it enables customization: Technology can adapt the course to suit the particular needs of students.

MAKE IT EASY AND ENGAGING

In recent years, hardware and software have come together to create easier-to-deploy and use solutions. "The use of interactive videoconferencing and automated camera-tracking solutions provide the benefit of full interactivity and the video qual-

ity of a 'manned' production crew without the expense or need for personnel," Sebok said.

A recent example is four schools in the Bahamas, where the teacher is located in Nassau. Students on three other islands can see and interact with the professor in real time via Polycom conference. A 1 Beyond AutoTracker camera follows professors as they move about, and Automate VX systems in all four locations switch the camera to the students asking questions. "Opportunities for real-time interactivity with close-up camera views of participants enhances the learning experience," Sebok said.

As the demand for online and distant learning programs increases, higher education technology teams and faculty are going to need more automated systems. "By integrating lecture capture systems with the school's learning management system, teachers only need to schedule their classes in the LMS," said Paul Richards, HuddleCamHD business development at PTZ Optics.

Having the ability for presentations to be automatically captured and uploaded directly into course files online are a game-changer. "Having an auto-tracking camera system makes sure that the video always has the teacher in frame and the notes are clearly visible," Richards said. "Students benefit from auto-tracking cameras because the video recorded is engaging and the notes on whiteboards are much easier to read with the camera zoomed in to the predefined levels."

INTELLIGENT ZS

"There is massive potential in higher education for artificial intelligence to offer Generation Z the 'Netflix model' for learning, a la using AI to suggest relevant videos and build personalized playlists," said Rob Lipps, EVP of sales, Sonic Foundry, maker of Mediasite. A recent survey by Mediasite found that 66 percent of higher education leaders think about using AI to leverage student data (video viewing, grades, study habits, course enrollment, etc.) to personalize learning. Forty-four percent think about using AI for recommending videos based on student interests. "Using AI and the Netflix model, students can watch more lectures in a shorter amount of time, reducing search time and growing the opportunity for them to learn more, faster," Lipps said.

Whether it's recording and posting lectures to keep isolated students up to date, fully automating and livestreaming classes, or using AI to leverage student data, we're pretty bullish about what's to come for distant learning.

Higher Streaming

Upgrading systems to reach students everywhere with live feeds of sports, seminars, and more

By Cindy Davis

==Whether on campus or streaming across the world, nothing can replace the engagement of watching big events unfold live.== One of the challenges many colleges and universities face is extending the live feed of sometimes high-stakes collegiate sporting events throughout a stadium and campus, and into the mobile devices of fans.

Universities have unique challenges because facility upgrades are often done based on funding availability and rarely include all venues across a campus. "With the growing need to provide video streams including live content, the best IPTV option that fits this mode is one that can scale across an entire campus as IT network upgrades are completed," said Andy Wagner, sales manager, collegiate sports market, VITEC. A cost-effective IPTV solution should be capable of controlling multiple venues across the campus, but from just a single headend. "The solution should also feature capabilities that are interoperable with other systems they're already using, such as distributing live video streams that can be integrated with an emergency notification system to quickly alert audiences when required," Wagner said.

Some solutions enable the creation of a private IPTV content distribution network (CDN) and deliver live content to mobile devices using the enterprise Wi-Fi network and to remote users' TVs, PCs, and mobile devices over VPN/WAN connections.

Infrastructure needs for IPTV and digital signage are similar, so delivery over the same system is not complicated. "In most instances, the IPTV system can run over an installed LAN network, or planned for upgrade, across the campus," Wagner said.

Robust IPTV platforms like EZ TV from VITEC feature capabilities that are interoperable with other systems, such as distributing live video streams that can be integrated with an emergency notification system.

Oklahoma State University official video portal OStateTV is home to over 1,000 videos and more than 100 live streams in a year.

VIDEO MANAGEMENT SOLUTIONS

While video platforms for education are designed to enhance and support the educational process, looking for one that supports live streaming will greatly enhance the connection between leaners and instructors. Video platforms such as Echo360, Kaltura, Mediasite, Panopto, and YuJa all offer live streaming as a feature set.

Even if you are just setting out knowing that you want to live stream lectures and campus events, take the time to look at the robust solutions specifically designed for higher education that can integrate with your learning management system (LMS). These video platforms are designed to enable comprehensive video workflows including lecture capture, video management, live streaming, flipped class, blended learning with video, video analytics, and much more.

WELL ROUNDED

Oklahoma State University (OSU) official video portal OStateTV is home to over 1,000 videos and more than 100 live streams in a year. The live streams range from broadcasts of convocations to pageants (Miss OSU), cultural nights, and sports, as well as coverage of the variety of seminars and speakers hosted on campus.

Deploying several Sony cameras and camcorders and a variety of portable video production switchers, the university uses a mix of both HDMI and SDI inputs, with the selection dictated by the event. Depending on the event, the setup could be a rudimentary one-camera stream of a speaker, or multi-camera livestreamed production for bigger occasions such as pageants and convocations.

Using the Matrox Monarch HDX encoder, OSU streams convocations simultaneously to Facebook Live and OStateTV. Monarch HDX encoders are also used in outside broadcast trucks for live streaming of college sports.

At the university, the Monarch HDX is connected to a gigabit Ethernet switch and the LAN. Taking inputs from the video production switcher, the Monarch HDX is the principal encoder that enables simultaneous streaming to different platforms such as Facebook Live and YouTube, as well as their own video portal at 720p resolution, and at a bitrate between 1 to 5 Mbps.

"The Monarch HDX encoder appliance gives us several options when it comes to streaming," said Andy Wallace, associate director of OStateTV. "It provides the flexibility to harness the power of social media and seamlessly webcast our unique content. For events where we just want to take a camera, laptop, and microphone, and do a simple stream—that process is now way easier."