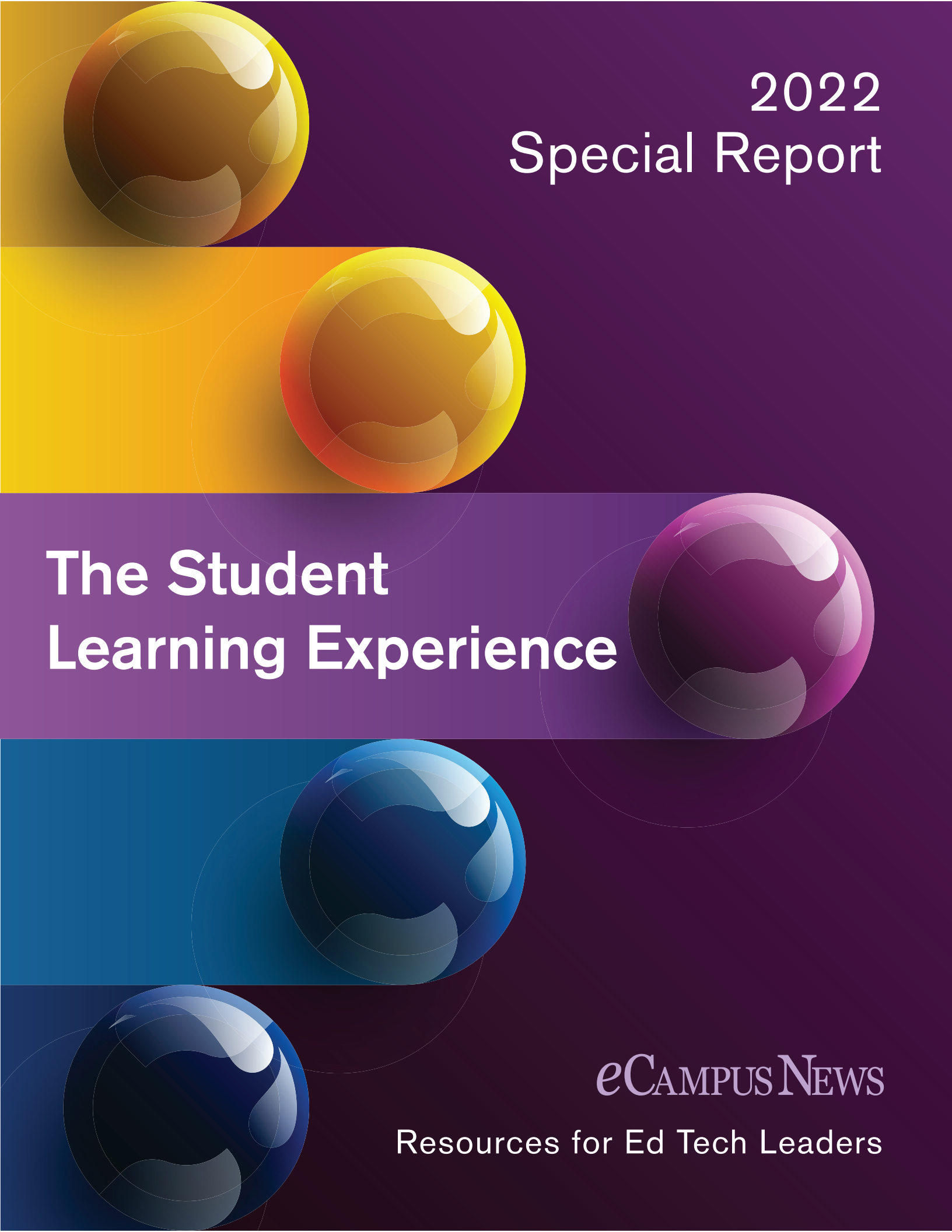
2022
Special Report

The Student Learning Experience



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Five strategies for student success

How US higher education institutions are achieving strong outcomes

A report from the Deloitte Center for Higher Education Excellence

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Understanding what drives student success

SUCCESS IN HIGHER education is a combination of affordable access, persistence, completion, and transition to the workforce. Moreover, for many low-income learners, a college degree can serve as their ticket out of poverty. Today, many colleges and universities across the United States are falling short at each of these milestones.

The challenges are especially acute for low-income and first-generation learners.[1] Dependent students who are both low-income and first-generation college learners have a 21% chance of completing a bachelor's degree in six years, compared to a 66% chance among other students.[2]

The same disparity can be seen in enrollment rates. In 2020, 29% of households with at least one student expected to start college canceled their students' fall enrollment—with Black, Hispanic, low- and middle-income, and first-generation households being the most likely to do so.[3]

Despite the dismal data, many colleges and universities *are* delivering strong outcomes for those most at risk and have continued to achieve strong results during the tumultuous past year.

To help students complete their education and thrive, institutions need to invest wisely in strategies that will deliver the best outcomes. While student success is a complex endeavor and no two institutions follow the exact same path, this report, through a series of interviews with senior leaders at seven leading colleges and universities, identifies five impactful strategies these institutions are deploying to help students succeed in their collegiate endeavors and beyond—from increased access and affordability through certificate/degree completion, to strong labor market outcomes and improved social mobility rates (see sidebar, "Methodology"). Those strategies include:

- Helping students develop resiliency
- Harnessing innovation to improve mental health
- Using analytics to identify obstacles to graduation
- Prioritizing inclusion for first-generation students
- Removing friction from the transfer process

METHODOLOGY

Drawing on data from multiple sources—Integrated Postsecondary Education Data System, College Scorecard, Raj Chetty et al's Income segregation and intergenerational mobility across colleges in the United States dataset, and Georgetown University Center on Education and the Workforce's College ROI dataset—we analyzed more than 1,500 four-year colleges and universities in the United States to understand which institutions do the best job of serving students across the student life cycle, from access and affordability through certificate/degree completion, to labor market outcomes and improved social mobility. Leading institutions are defined as those that outperform their Carnegie peers or other four-year institutions across multiple parameters, including:

- Access: enrollment of underrepresented minorities (URMs), Pell Grant recipients, and first-generation students
- Affordability: in-state average tuition for full-time students and in-state per-credit-hour charge for part-time undergraduates
- Completion: six-year graduation rates for URMs and Pell Grant recipients, and eight-year completion rates for non–first-time, part-time students
- Labor market outcomes: median earnings 10 years after entry, 10-year net present value (NPV) score,[4] and three-year cohort default rate
- Social mobility rate: joint probability of parents in the bottom quintile and child in the top quintile of the income distribution

Strategy no. 1: Help students develop resiliency

LEADING INSTITUTIONS THAT we interviewed made a point of intentionally developing resiliency—learning not to be discouraged by past failings and having the capacity to spring back from both the small, everyday stressors and challenges of life as well as the major hurdles—as part of their first-year experience. This type of resiliency helps students persist not only academically, but also in their post-collegiate endeavors.

"Failure is not fatal and it's never final."

— Lawrence Ward, vice president and dean of campus life, Babson College

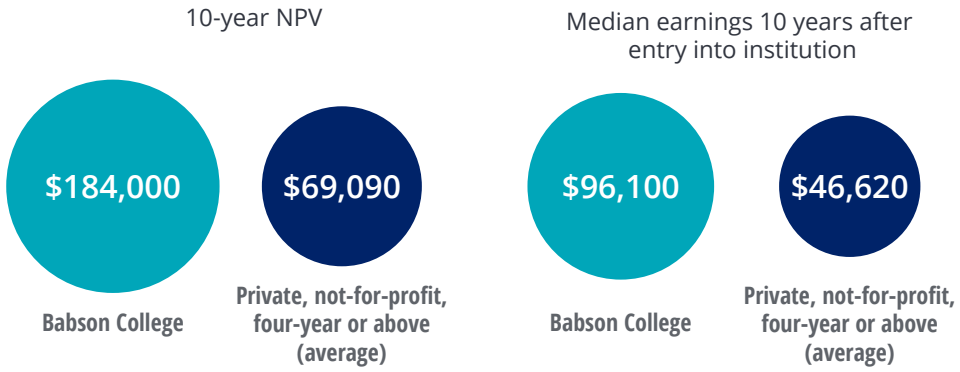
At Babson College, for instance, students learn to "fail again, fail forward." As part of its Foundations of Management and Entrepreneurship program, first-year student teams create a business. They then take the business through its entire life cycle—from initial concept to bringing the concept to market, to selling a product or service, and, finally, to shutting the business down.

"What students don't understand is that it's intentionally designed to be a lesson in failure," explains Lawrence Ward, vice president and dean of campus life at Babson College. "Students learn that they have no idea what they're doing in their first year. Then the second, third, and fourth years are about building students up and giving them a foundation, not only in business, but in principles of innovation."[5]

This process of learning to fail and then using that as a foundation for future innovation can help students cultivate professional resiliency, especially in the long term (figure 1). "Fewer than 10% of our students actually graduate and start their own business," says Ward, "but that the number jumps to 40%, 10 years after graduation."[6]

FIGURE 1

Babson College outperforms other four-year private, not-for-profit institutions in our sample in 10-year NPV and median earnings



Notes: Our research sample includes 1,585 institutions, of which 829 are private not-for-profit institutions. The 10-year NPV is an indicator of the value of a college credential. In very simple terms, NPV captures the return on investment of higher education, or its value after subtracting the cost. All amounts are in US dollars.

Sources: Deloitte analysis of the 2019 NPV data from Georgetown University Center on Education and the Workforce's webpage "Ranking ROI of 4,500 US colleges and universities"; Deloitte analysis of College Scorecard Data, accessed in July 2020.

Strategy no. 2: Harness innovation to improve mental health

MENTAL HEALTH AND well-being have become increasingly important to higher education leaders across the country. According to the most recent American Council on Education Pulse Survey, nearly three-fourths of over 240 presidents surveyed rated mental health as the most pressing issue.[7] "Like many other institutions, we've observed a real increase in the number of students reporting isolation, depression, anxiety," observes David Burge, vice president of enrollment management, George Mason University (GMU). "It puts a lot more demand on counseling and psychological services and coaching."[8]

> **"It's about connecting students as quickly as possible to people who can help."**
>
> — ***Darcy Van Patten, chief technology officer, University of Arizona (UArizona)***

One reason for growing anxiety and depression among college students is the pressure to succeed. Financial pressure, especially among minority and low-income students, is another.[9] COVID-19 has only accelerated this trend. In one study of 33,000 students in the fall of 2020, half of the students indicated that they experienced depression or anxiety;[10] in another study by the Healthy Minds Network, 60% of students said the pandemic made it harder to access mental health care.[11] Moreover, research from Salesforce.org shows that 76% of students say they have trouble maintaining their well-being, as do 73% of staff.[12]

The need for even more counseling services has put additional pressure on financially strained colleges. However, it's also spurred institutions to think creatively about how to meet the increased demand, including through technology tools. A case in point is UArizona. Because the university had previously recognized and heard from students that mental health was a huge need, it had already invested some strategic initiative funding in improving staffing and providing more counseling support for students. So, when the pandemic hit, the institution was quickly able to implement telehealth technology for remote counseling services.

"Technology can help students self-assess and reflect on their needs. When they're ready to reach out for support, we can connect them as quickly as possible to people who can help," says Darcy Van Patten, CTO at UArizona.[13]

SPECIALIZED PROGRAMS GIVE STUDENTS MORE OPTIONS FOR MENTAL HEALTH WELL-BEING

Growing counseling wait lists are pushing universities to pursue new approaches to delivering mental health services. A recent report on student well-being found that 34% of campus counseling centers have wait lists with an average of 51 students waiting for counseling appointments.[14]

Apart from using technology to scale support, some colleges are also implementing specialized programs that can augment professional counseling services. For example, UArizona is implementing apps and peer-to-peer networks, where students certified in psychological first aid can offer virtual support groups for other students.[15]

Strategy no. 3: Use analytics to identify obstacles to graduation

MANY INSTITUTIONS HAVE invested in developing their analytical capabilities as part of their student success strategy. Far fewer have put this data to meaningful use. However, if used properly, data can offer valuable insights to support student success.

> **"You would never think a C in psychology was going to be a gatekeeper."**
>
> — ***Anthony Allen, former senior vice president at Monroe College***

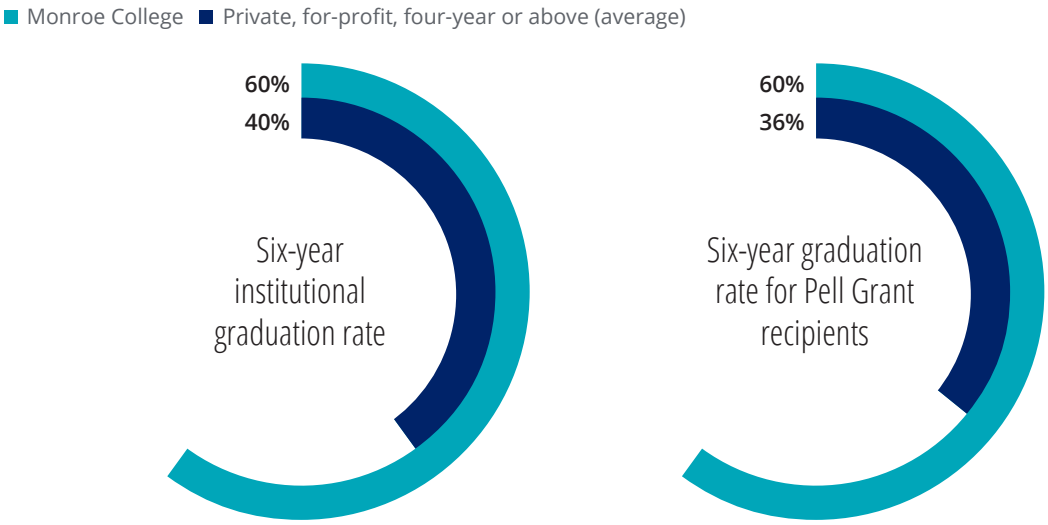
Monroe College is a good example of applying data to improve student outcomes (figure 2). Monroe serves an undergraduate student body of 5,500 and boasts a full-time retention rate of 82% (compared to the average of 63% for all private for-profit colleges).[16] Data analytics has yielded surprising new insights at Monroe by providing a more macro view of performance data. For example, data has shown that a less alarming indicator such as a student getting a C in psychology can be the red flag that they're not going to make it, according to Anthony Allen, former senior vice president at Monroe College: "You would never think a C in psychology was going to be a gatekeeper."[17]

With the pivot to remote learning during the pandemic, many institutions were forced to use the full functionality of their learning management systems (LMSs), which have proven to be a valuable source of data for understanding engagement and other student success metrics. The University of Central Florida (UCF), which enrolls over 58,000 undergraduates, uses real-time data insights from its LMS on students' performance in specific courses to scale intervention efforts.[18]

According to Thomas Cavanagh, vice provost of digital learning at UCF, what the university discovered was that neither logins nor frequent engagement in a course were predictive of success; however, how students did on assigned graded activities was highly predictive. "If we add course activity to the GPA data, we can get up to 90% accurate prediction of a student's likelihood for success," says Cavanagh. "What we're trying to do now is translate that into some actionable tactics," for instance, by displaying the data in a way that leads to actual interventions.[19]

FIGURE 2

Monroe College outperforms other four-year private, for-profit colleges in our sample in six-year graduation rates, both at the institutional level and for Pell Grant recipients



Notes: Our research sample includes 1,585 four-year institutions, of which 69 are private, for-profit colleges. Pell Grant is a US federal financial aid program.

Source: Deloitte analysis based on data from Integrated Postsecondary Education Data System, 2019.

Strategy no. 4: Prioritize inclusion for first-generation students

FIRST-GENERATION STUDENTS CURRENTLY make up a third (32%) of the student body at selective institutions, and just under a quarter (22%) at more selective institutions.[20] But they face formidable challenges in staying enrolled. One-third of first-generation students drop out of college after three years, compared to just 14% of students whose parents earned a degree.[21]

> **"We want students to understand that their feelings are normal and that they've earned their spot here."**
>
> — ***Monroe Gorden, vice chancellor of student affairs, University of California, Los Angeles (UCLA)***

One reason first-generation students struggle is that they are often low-income and minority students and are more apt to feel out of place.[22] However, institutions that have found ways to help their first-generation students feel they belong there have a higher graduation rate.

UCLA, for example, has an 80% completion rate for first-generation students, which is higher than the average for its Carnegie peers and other four-year public institutions (figure 3). Programs such as its Academic Advancement Program (AAP) provide an increasingly diverse population across the state better access to academic, personal, and professional development through academic advising, peer learning, and collaborative learning workshops. Underlying the program is the belief that all AAP students have earned their place at UCLA through their academic track record. About 80% of AAP students are the first in their family to pursue higher education.[23]

"The program creates an environment for underrepresented students where they feel part of the fabric of UCLA," notes Monroe Gorden, vice chancellor of student affairs at UCLA.[24]

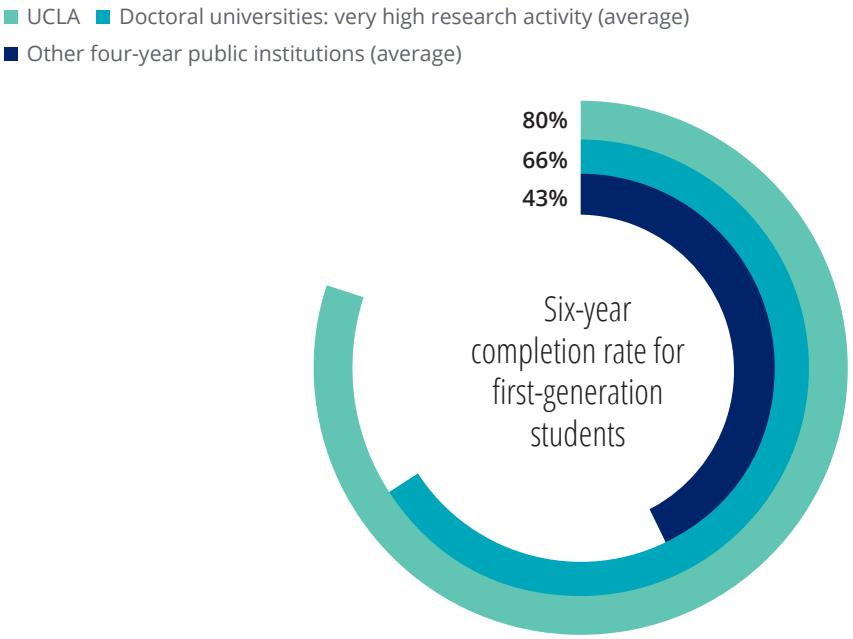
UCLA's First Year Experience office also offers several programs that provide URM students access to counseling and psychological services as well as resiliency programs.[25]

What it takes to close the first-generation graduation gap

At CSUF, designated as a Hispanic-serving institution and an Asian American and Native American Pacific Islander-serving institution, one of the objectives as part of its Graduation Initiative 2025 has been to increase the graduation rate for underrepresented students. The initiative lays out

FIGURE 3

Completion rates at UCLA are higher than average six-year completion rates at Carnegie peer institutions and other four-year public institutions in our sample—in part due to the institution's focus on inclusion efforts



Note: Our research sample includes 1,585 four-year institutions, of which 130 fall into Carnegie group 15 (doctoral universities: very high research activity) and 687 are public institutions.

Source: Deloitte analysis based on College Scorecard data, accessed in July 2020.

"We're making significant progress. We think the gap could be eliminated by the time we reach 2025."

— ***Berhanu Tadesse, associate vice president for IT and academic technology services, California State University, (CSUF)[26]***

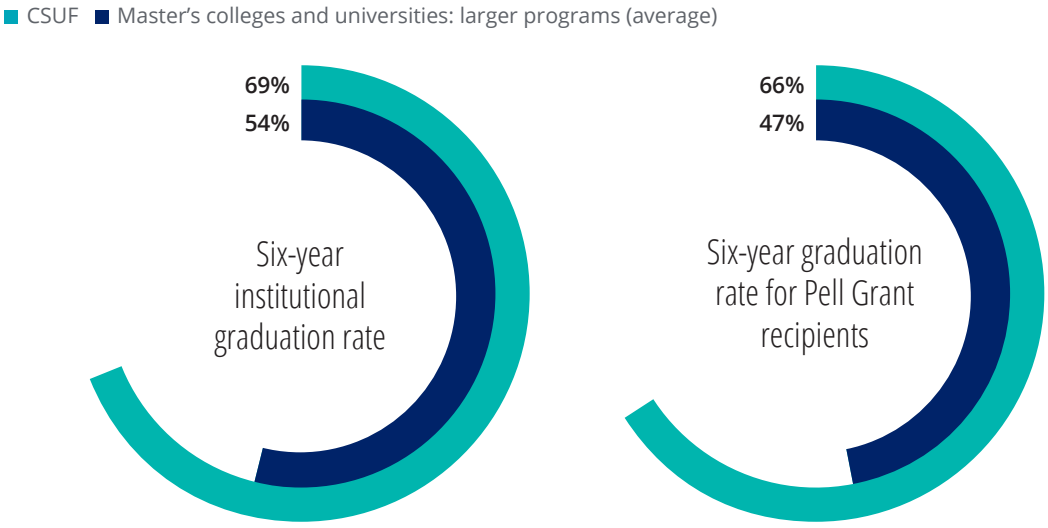
an ambitious plan to increase the first-time freshmen four-year graduation rate from 22% to 44% and transfer students' two-year graduation rate from 32% to 44%.[27]

CSUF has seen strong results from its First Year Experience program, which is designed to improve retention and graduation rates by quickly building students' sense of belonging, proficiency, and confidence through summer bridge programs, student mentorships, and orientation programs.[28] CSUF has also increased its investment in advising through cross-divisional collaboration between Academic Affairs and Student Affairs that has expanded "drive-through" advisement opportunities to counsel students on their transcripts and graduation requirements. In addition, all students with 75–89 units have holds placed on their registration until they attend a mandatory advising workshop.[29]

Finally, CSUF has deployed a Student Success Dashboard that pulls data from multiple sources into a single, cohesive, interactive tool. This dashboard is widely used by graduation and retention specialists to target students for active interventions and advising, with the goal of preventing attrition and graduation deferrals.[30] Figure 4 shows the impact of CSUF's efforts.

FIGURE 4

CSUF outperforms its Carnegie peers' average in six-year graduation rates in our sample, both at the institutional level and for Pell Grant recipients



Notes: Our research sample includes 1,585 four-year institutions, of which 319 fall into Carnegie group 18 (master's colleges and universities: larger programs). Pell Grant is a US federal financial aid program.

Source: Deloitte analysis based on data from Integrated Postsecondary Education Data System, 2019.

Strategy no. 5: Remove friction from the transfer process

WITH 40% OF undergraduate students enrolled at community colleges and a significant percentage of those seeking to eventually obtain a bachelor's degree, two-year institutions are an important focus area to increase bachelor's degree attainment.[31] Yet, the numbers are not promising: Not only will fewer than a third of community college students end up transferring to four-year institutions, but an even smaller percentage (14%) are successful in attaining a bachelor's degree within six years of entry.[32]

"The [ADVANCE] program is set up, so students have an existence at both institutions. Students have the same coach at both places to help them migrate through the system once they reach approximately 60 credit hours."

— ***David Burge, vice president for enrollment management, GMU***

To make the path from community college to a four-year degree more attainable, 19 states currently offer tuition-free community college to eligible residents.[33] Meanwhile, US President Joe Biden is seeking funding of US $109 billion for these two-year colleges, along with US $39 billion for two years' worth of free tuition at minority-serving institutions for most students.[34]

However, funding isn't the only issue. Lack of information and transfer shock—a phenomenon in which transfer students are left confused by the new landscape—also create friction during the transfer from community college to a four-year institution.[35] In response, some four-year colleges have begun partnering with two-year feeder schools to create guided and holistic pathways for transfer students.

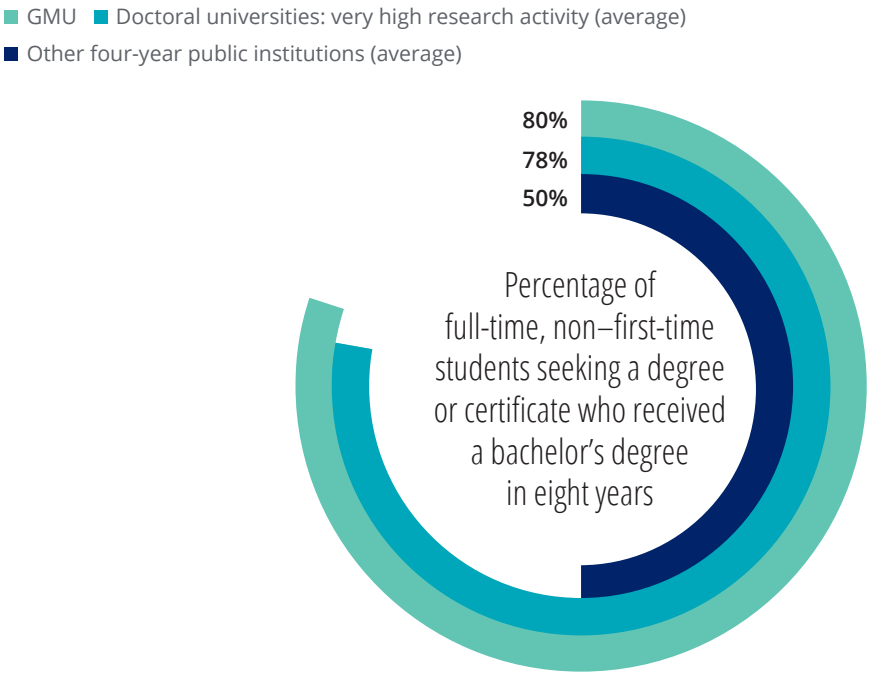
For its part, GMU launched ADVANCE, a pathway-based program for students at Northern Virginia Community College (NOVA). The program makes transferring from NOVA to GMU effortless by eliminating the application process.[36] Once students reach a specific credit milestone, they are migrated over to degree-seeking status at GMU with an automatic transfer of their NOVA credits.

"The program is set up, so students have an existence at both institutions," explains David Burge, vice president for enrollment management at GMU. "Students have the same coach at both places to help them migrate through the system once they reach approximately 60 credit hours."

GMU has had a long tradition of serving transfer students before the launch of the ADVANCE program. Almost 50% the undergraduate degrees awarded each year go to former transfer students. Figure 5 shows the impact of these efforts.

FIGURE 5

A smoother transfer process helps more non–first-time students at GMU graduate, as compared with the institution's Carnegie peers and other four-year public institutions in our sample



Note: Our research sample includes 1,585 four-year institutions, of which 130 fall into Carnegie group 15 (doctoral universities: very high research activity) and 687 are public institutions.

Source: Deloitte analysis based on data from Integrated Postsecondary Education Data System, 2019.

Looking ahead

THERE IS NO doubt that the last year has made it even more challenging for students to complete their four-year degrees. But it's also true that this past year has allowed many institutions to look for more creative and innovative solutions that can help students remain successfully enrolled.

The most successful institutions are those that provide students with added support and mentorship, help reduce friction or roadblocks (whether financial or administrative), and those that use data and analytics to pinpoint where those types of support services will be most valuable.

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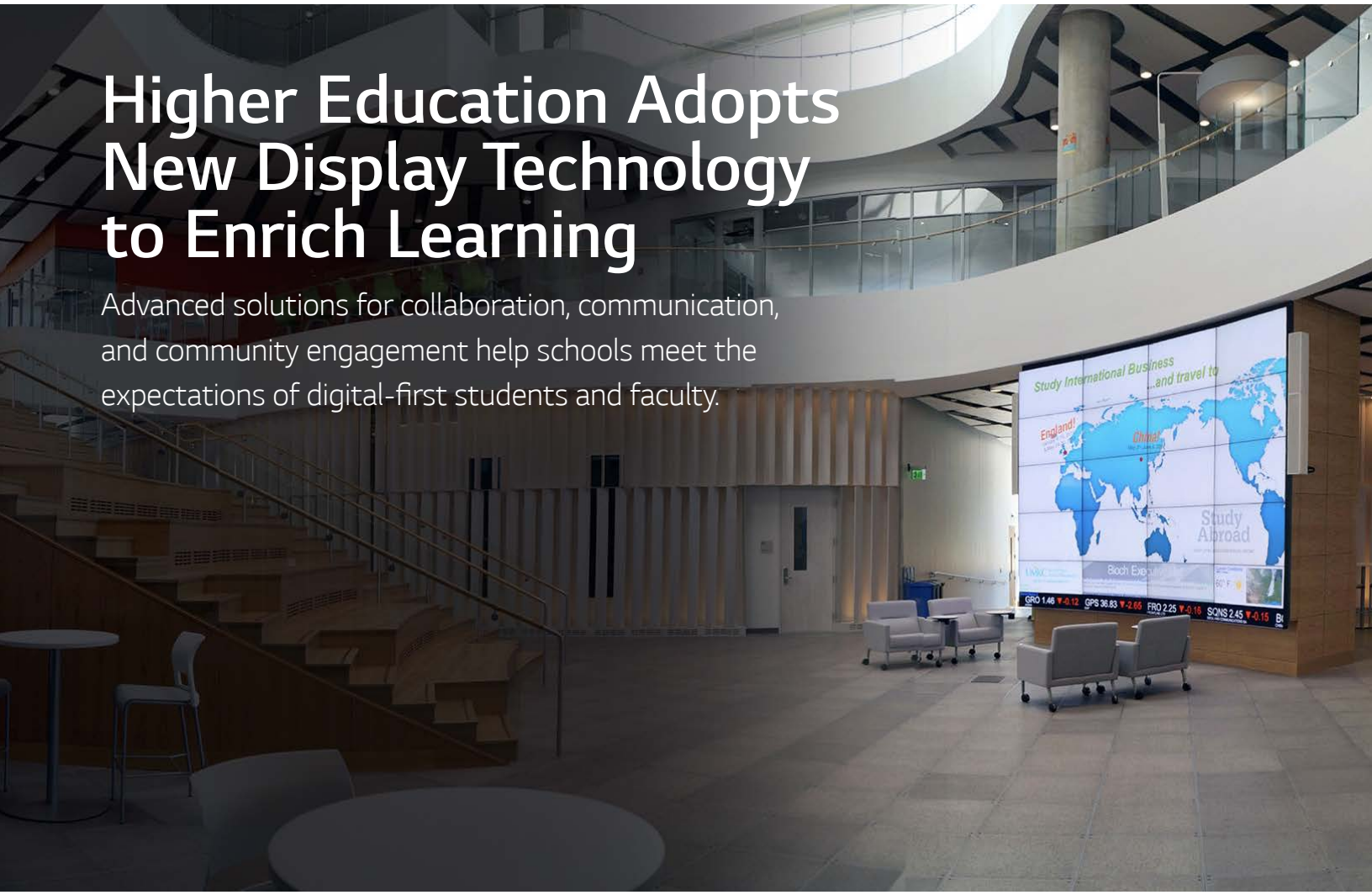


Higher Education Adopts New Display Technology to Enrich Learning

Advanced solutions for collaboration, communication, and community engagement help schools meet the expectations of digital-first students and faculty.

■ As digital technology permeates society, prospective college students prefer to learn and collaborate digitally, driving more higher education institutions to adopt advanced A/V solutions to better compete for digital-first scholars and expand their total offering.

According to the 2019 Educause ECAR Study of Undergraduate Students and Information Technology[1] , students "would like to be more engaged with the material, their instructors, and their peers in the classroom and they see technology as a vehicle for that engagement."

In higher education, even modest technology enhancements can have a major impact. The Florida State University (FSU) College of Business is designing and building a new facility on the school's Tallahassee campus, complete with audiovisual technology meant to better engage students and improve learning outcomes. And while the building is under construction, the technology team has been busy reinventing existing classrooms to understand what works.

"For example," says Aiden Sizemore, FSU College of Business Director of Academic Technology and Systems, "we've installed large confidence monitors into our podiums. It's a simple thing, but it has made a huge difference." Being able to see content on-screen right in front of them, rather than turning to see it projected behind them or to one side, allows faculty to better engage students and their subject matter.

Also, in light of a growing trend toward active-learning spaces, the FSU College of Business piloted a collaborative classroom with digital tools meant to foster project-based work.

"Our current building doesn't have a lot of collaboration space for students," explains Sizemore, "so we commandeered a room to test out our collaboration lab, outfitted it with a large presentation display and virtual 'pucks' that let students wirelessly share content on a pair of screens. We wanted to see how much use it would get, and I can tell you, it was booked every minute of every day."

At FSU's College of Business, that has meant including technologists in the design of its new building to ensure it can support everything needed to deliver the right learning experience — digital displays, electronic whiteboards, collaboration systems, video conferencing and more.

"We don't know where technology is going in the next five years, but we want to make sure we're able to change with the times," Sizemore says. "We're seeing increased demand for and usage of collaborative tools. Basically, we're boosting engagement and having a huge impact on how our students learn."

[1]https://library.educause.edu/resources/2019/10/2019-study-of-undergraduate-students-and-information-technology

Gaining Momentum

According to the 2019 Educause Horizon Report[2], the transition to tech-enabled, active-learning classrooms and spaces in higher education has gained considerable momentum. "Designing and evaluating spaces that facilitate active learning and collaboration require investments and strategic planning," said the report's authors. "Media-rich digital learning platforms, personalized or adaptive courseware and web conferencing tools capable of connecting students and their 1:1 devices are becoming common solutions for blended learning designs."

In fact, digital technology has come to pervade higher education through a variety of applications, whether it's classroom display technology to foster collaboration, digital signage for campus-wide health and safety communication, videowall installations for engaging visitors, and branding a school, or ever increasingly — a new genre of electronic sports (eSports) programs for attracting a growing legion of digital athletes and fans.

"You have this growing number of colleges and universities that have made a major commitment to integrating technology into more and more spaces," says Craig Park, Principal Consultant at The Sextant Group, a leading audiovisual technology consultancy recently acquired by global engineering firm NV5. "It tends to start in Engineering or STEM- oriented buildings, as well as business schools." Park's firm is also in the process of helping FSU's College of Business integrate technology into its new building. "Many put in technology to mimic the workplaces their students will eventually enter."

The Sextant Group helped the University of Texas (UT) Southwestern's medical school reimagine education delivery to large classes[3], creating what was, at the time, one of the largest active-learning spaces in higher education. "They realized that to be relevant in the 21st century, they needed to rethink education," Park says.

The school took a 250-seat lecture hall and created 42 six-student active-learning stations that include a 46-inch monitor, a microphone and a wireless collaboration system for sharing content from students' mobile devices. Three pairs of screens hang on the walls for facilitating team-based learning among various groups.

"It encourages interdisciplinary conversation so that the way they'd work together in the hospital is the same way they work together in the classroom," Park says.

In fact, collaborative audiovisual technology stands to benefit higher education departments of all types. It doesn't replace pedagogy, but rather enhances it.

According to Christopher Faulkner, Ph.D., Assistant Professor, Health Care Sciences/Research, Director of Educational Technology at the UT Southwestern Medical Center, "The Team-Based Learning Center fosters the type of organic conversation you can't create in a lecture environment, helping our students to learn to communicate more effectively – cross-discipline – as they will in the real world. The AV-over-IP/wireless collaboration technology has been a game-changer, helping our faculty and students to more effectively build and improve those interprofessional relationships."

"Technology has been changing how we think about teaching and learning," says Edward Maloney, Executive Director of Georgetown University's Center for New Designs in Learning and Scholarship (CNDLS). "That's going to continue to grow and evolve and we need to be reflective, responsible and responsive to those changes." (Read more in the section, "Georgetown University: Using Display Technology to Support Established Pedagogy.")

[2] https://library.educause.edu/resources/2019/4/2019-horizon-report
[3] https://thesextantgroup.com/portfolio-items/university-of-missouri-kansas-city-bloch-school-of-management/?portfolioID=4550

Collaborative Display Technology Enhances Learning Spaces

One of the most significant changes in higher education is the move from lecture-based teaching to team-based learning, and not only at the scale of the UT Southwestern medical school.

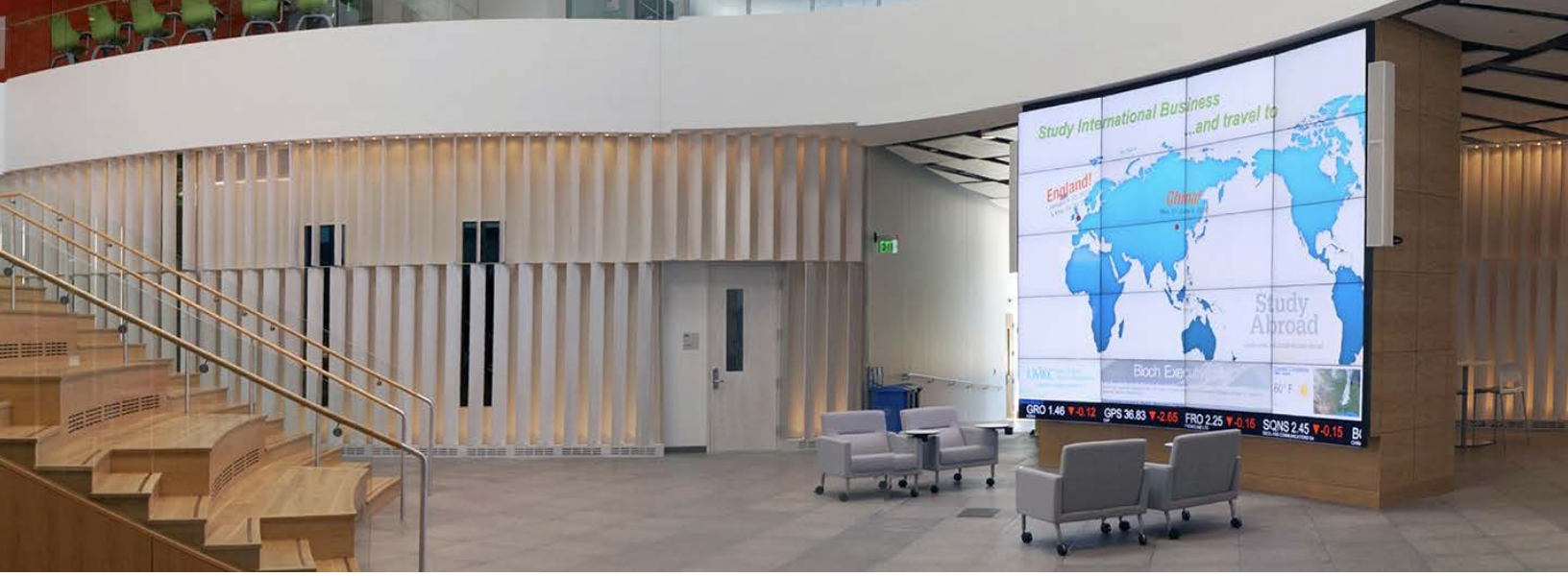
"Active-learning spaces are what we see most universities trying to make as their baseline, standard classrooms," says Jason Nast of technology integrator CTSI, which works with colleges to implement new systems and designs. The company has been outfitting 27 active-learning classrooms at George Mason University, near Washington, D.C.

"There is no front of the room," Nast explains. "The teacher station is mobile; there are display screens in different sections of the room; and portable microphones for voice reinforcement."

The furniture in those spaces is usually mobile and modular. Groups of students arrange themselves around a large, flat-screen display and either connect their laptops directly or through a wireless intermediary device. Some displays even have built-in support for "casting" content from a variety of mobile devices, allowing students to collaborate however they're most comfortable. And many have touch screens so students and faculty can annotate presentations on-screen and save the content for later use.

In addition, such active-learning spaces typically incorporate links to a university's preferred video conferencing platform in order to connect with remote students or lecturers from within the classroom. Especially in light of the recent pandemic, which temporarily shuttered learning spaces at higher education institutions, creating collaborative solutions that can combine physical and virtual modes of interacting is critical to maintaining a rich learning experience. The days of entire classes taking place in the same room are probably behind us. Audiovisual and collaborative technology form the foundation of this hybrid active learning.

"Investing in what can be complicated technology, but designed in a way that you don't really even notice, creates a seamless experience," says Molly Chehak, Managing Director of Georgetown University's CNDLS program. "Someone can easily bring remote speakers into a classroom and the experience is seamless. You can bring in learners who may be remote, but are still part of the class, in a way that is very personal. That makes a good class great."



Large-Format Video Makes a Big Impression

Beyond the classroom, modern audiovisual technology is helping schools communicate in new, impactful ways while also leaving a lasting impression on new and prospective students, university supporters and even members of the community. Increasingly, display solutions as impressive as those seen in malls, athletic arenas and other public spaces can support engaging experiences in higher education. Sometimes they're designed with large, thin TV-style displays; other times they're made of bright, LED signage displays, similar to the kind of display technology used outdoors.

At the University of Missouri, Kansas City, Henry W. Bloch Executive Hall for Entrepreneurship and Innovation, technologists at The Sextant Group designed a massive videowall[4] for the building's three-story atrium. Comprised of 20 flat-panel displays, the videowall not only communicates the hall's commitment to innovation through digital signage and messaging, but also offers a stunning backdrop for presentations and events.

"It's the university's school of business," says Park, "so there's a stock ticker running along the bottom with live video showing what's going on around campus and within the business school."

A large set of stairs facing the videowall provides a place for students and faculty to meet and socialize, but also serves as seating for guest lecturers and others who want to use the display as their presentation canvas.

"This type of 'wow' wall offers the kind of video showcase that you're seeing more and more of on college campuses. It's bright and visible from outside the building, attracting attention and engaging passersby with the school's mission," Park says.

Such 'wow' walls also show up in large lecture halls as an alternative to video projection systems. The University of Idaho, for example, built such a wall for one of its life sciences classrooms configured for 120 students. The wall consists of nine 55-inch flat-screen displays with very thin bezels, so it appears as one giant screen. In this case, the advantage of a large videowall is that the types of content it shows — detailed images of cells and organisms, CAD drawings, diagrams and more — are more easily readable by everyone in the room.

"Many institutions have an art budget for new buildings," says Park. "That's one way to fund a videowall, particularly in community engagement centers, with content moderated by student groups."

[4] https://thesextantgroup.com/portfolio-items/university-of-missouri-kansas-city-bloch-school-of-management/?portfolioID=4550

eSports Represents a New Frontier

It almost goes without saying that the stadiums and arenas hosting collegiate sports are incubators for technological innovation; from broadcast suites, to very high-definition scoreboards to ubiquitous digital signage. In fact, digital signage is quickly becoming omnipresent throughout campuses. Distributed digital displays, networked so they can be controlled and managed from a central location, have become one of the best ways to communicate information about activities, classes, and more. They're even effective as emergency notification systems.

But there's a new sport on campus drawing considerable technology investment. Esports is all about video gaming writ large. It started primarily as a professional gaming phenomenon, but now colleges and universities are getting in on the game. In 2019, the global esports market exceeded $1 billion[5], up more than 25 percent from the year before, and the global audience for esports was half a billion people. Today, more than 170 colleges and universities belong to the National Association of Collegiate Esports, offering more than $16 million a year in esports scholarships[6]. Some schools are even introducing esports-related coursework.

The collegiate esports experience runs the gamut. Some schools operate small esports spaces; others have built large-scale arenas in which competitors participate at individual workstations while spectators watch the action on giant video screens. The key technology ingredients include fast, responsive video monitors for gamers, computer workstations or gaming consoles and flat-screen displays so that coaches, teammates and fans can watch.

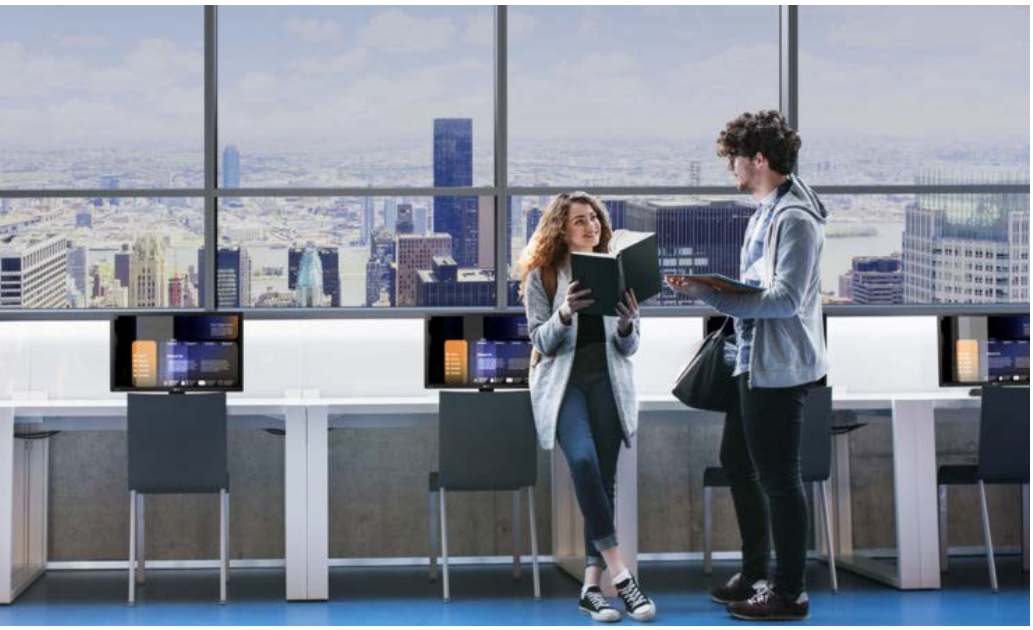
At the high end of the scale is Full Sail University, which created a purpose-built esports arena[7] that would also serve as an educational space for events and classes when the school's esports team is not competing. Full Sail's 11,200-square-foot arena can hold 500 onlookers, with rows of gaming stations and expansive LED displays so that there's not a bad seat in the house.

Other colleges have started smaller, but with the same intent of using audiovisual technology to engage a growing population of prospective students. "There are people out there who are extremely interested in not just playing but watching esports," says Anthony Yang, Assistant Vice President and Chief Information Officer at Caldwell University.

Yang says that recently, when the university's president Dr. Nancy Blattner attended a conference, esports was a hot topic, so Yang and his team began investigating how to make it viable. "Since then, our Overwatch team made it to the conference playoffs in their first semester ever," he says. (Read more in the section, "Caldwell University. Improving the Digital Experience. Embracing eSports."

[5] https://www.reuters.com/article/us-videogames-outlook/global-esports-revenues-to-top-1-billion-in-2019-report-idUSKCN1Q11XY
[6] https://nacesports.org/about/
[7] https://www.avixa.org/insight/CaseStudies/Details/full-sail-university-raises-the-bar-for-esports-venues/

Digital Experiences Lead to Better Learning Outcomes



As students and faculty begin to reassemble safely at institutions of higher education, an evolution toward new technology will continue. Reflecting the digital world from which their students come, colleges and universities are investing in experiences that meet expectations and create a higher level of engagement.

"For example," says The Sextant Group's Craig Park, "Students now are enamored with creating and streaming video. Schools are now using new audiovisual technology to create 'one-button' studio spaces that are easy to use."

Describing a project at the University of North Dakota, where the school is piloting a handful of active-learning classrooms, Park says students love them because they use technology to create a team experience.

"I happened to walk into one after hours and there were two groups of four students with their mobile devices working on a project together," Park says. "I asked, 'Why do you come here and not the library?' And they said it was because the tables and display screens were set up for them to easily use and collaborate."

Display technology continues to evolve and innovate. As it does, colleges and universities will find new applications and ways to enhance life on campus, whether that means more virtual learning that gathers together students from all over, or virtual reality technology that uses new display solutions to create safe, immersive education experiences. Research firm Futuresource Consulting recently estimated[8] that the education market would be the biggest buyer of cutting-edge, interactive flat-panel displays (IFPD), snapping up nearly 2 million of the all-in-one collaboration devices in 2020 and 2021.

All of this is in the service of a better learning experience, not technology adoption for technology's sake. Says Aiden Sizemore at FSU's College of Business, "Our biggest goal is to make sure we're not forcing anyone to use a certain technology. It's there to be assistive, make the process of learning easier and more engaging, and help faculty do their jobs even better."

[8] https://www.futuresource-consulting.com/reports/posts/2019/february/futuresource-interactive-displays-in-the-education-and-corporate-sectors-market-track-worldwide-q4-2018/?locale=e

Spotlight on Georgetown University:
Using Display Technology to Support Established Pedagogy

Georgetown University, in Washington, D.C., was founded in 1789 and is the oldest Jesuit Catholic institution of higher education in the United States[9]. It is also among the most forward-thinking universities when it comes to applying new technology to learning. Twenty years ago, Georgetown launched its Center for New Designs in Learning and Scholarship (CNDLS), one of the nation's first higher education programs aimed at bridging pedagogy and technological innovation.

"Georgetown has a long tradition of Ignation pedagogy, based on the 16th-century teachings of Saint Ignatius of Loyola," says Margaret Debelius, Director of Faculty Initiatives at CNDLS. "It's this five-step process of context, experience, action, reflection and evaluation. It still stands to this day, and technology allows us to do those things a little bit differently. It has expanded the ways in which we can engage in inquiry and reflection — things that are central to a Georgetown education."

In 2019, the CNDLS team wanted to reimagine learning spaces through collaborative technology. Working with LG Business Solutions and local technology integrator CTSI, Georgetown introduced to faculty and students a multidimensional classroom to support small- and large-group exploration, interactivity, distance-learning, and more.

"It's not a typical classroom," explains Andy Bukowski, systems designer at CTSI. "From a professor's perspective, they wanted to have a dual-display setup that could support remote participants on one screen and presentation material on the other. They also wanted a more typical single-display system you might see in a standard classroom. And they wanted to make it so smaller groups of students could gather around several different displays, connect and collaborate."

Flexible Technology for Multiple Teaching Modes

The final design, which first welcomed students and teachers in the fall of 2019, includes a pair of large (75-inch), 4K, interactive LG touch displays at one end of the room, a third 86-inch LG interactive 4K display at the other, and a fourth 86-inch LG 4K display on one side, opposite the classroom's bank of windows. There are Logitech® cameras installed on each wall for connecting directly to Georgetown's Zoom® video conferencing system; Biamp® ceiling speakers and microphone arrays for tracking speakers in the room and optimizing audio on other ends of a Zoom session; and four Mersive Solstice™ collaboration pods, which users can connect to wirelessly to share content on the room's displays.

"Many Georgetown classrooms have a big stage, a mothership of a desk and a screen that's very clearly a front of the room," says CNDLS Managing Director Molly Chehak. "We took out the stage and the desk so there is no front of the classroom. All the displays can be used by anybody in the room — instructors and students alike. They offer a collaborative space where students can work together on the same screen or multiple screens at one time, comparing, contrasting and collaborating. In a lecture-style situation, a professor can use one or more as a confidence display, or set them up as a gallery walk."

One anthropology professor would start each class in a unified, centralized formation, then students would rearrange the mobile furniture to be physically near one of the room's four displays. "They'd collaborate on a screen, then turn around and present to the rest of the class," Chehak says.

For Georgetown, it's a real-world application of new technology to an active-learning pedagogy. "The professor's presentation is about five or 10 minutes at the beginning of class," Chehak says. "The rest of the class is experiential; it's discovery and inquiry-based learning."

[9] https://www.georgetown.edu/who-we-are/our-history

Transparent, Intuitive Control

Everything in the room is managed through a Crestron® control system and touch panel, specially programmed to be as seamless as possible. According to CTSI, the biggest challenge may have been designing the system to include remote participants who would appear on the LG displays via video conferencing link.

"If you're familiar with most control systems, you basically need to leave that software to launch a Zoom session. That's not practical for the people using the room," says Bukowski. "We worked with Crestron and Zoom to modify the application programming interface and create intuitive buttons, so it felt seamless as the professor transitioned to conferences."

And with four different large-screen touch displays but only one classroom computer, the control system needed to manage which touch display was controlling the computer at any given time.

"We tried to make this transparent, too," says Bukowski. "On a graphical map showing the room's displays, a little thumb icon indicates which touch screen is in control."

When professors initiate a videoconference, they go to the touch panel, select Zoom, tell the system where they want the remote participants displayed and where they want the presentation displayed, pick the screen with the thumb and then they're actually controlling it through the LG touchscreen display.

"Typically, a higher education learning space might have one of these configurations in a room," says Bukowksi. "But we worked with the CNDLS team and our partners to make hopping in and out of different collaboration modes very intuitive."

Faculty has been quick to adopt the classroom technology. When the CTSI and LG teams visited to familiarize users with the installed system, such as the Mersive® wireless collaboration pods, found they were well received by staff members.. Because users can connect to the pods from their smartphones and begin sharing content on the room's LG displays, the learning curve was very minor.

Says Chehak, "The changes we made to the classroom reflect the deep shift in pedagogy and the experience of education. It's student-centered, collaboration-centered, it's multifaceted and needs to allow for the outside to come inside, and the inside to go outside. Technology can do that."

Spotlight on Caldwell University:

Improving the Digital Experience, Embracing eSports

Caldwell University has been on a roll. In recent years, the liberal arts school of 2,200 students in Caldwell, New Jersey, has seen enrollment increasing, invested $2 million in federal grants to help establish its Center for Excellence for Teaching, and made news by successfully launching a varsity eSports program[10]. At the heart of its recent success has been a commitment to using technology to enhance the higher education experience.

In the Summer, 2019, university officials surveyed their existing classrooms and determined that many of them were in need of an overhaul. With rising enrollment, they decided that the time was right to refresh its learning technologies with solutions that better engage today's digital-native students.

"We decided to invest in technological improvements to some of our classrooms that had aging hardware and software," explains Anthony Yang, Caldwell University Assistant Vice President and Chief Information Officer. "Many didn't have the right kind of environment for where classes are going today.

Some had computers connected to displays, but we wanted to upgrade all those displays and add new control systems. The goal was to create a one-touch process that's as seamless as possible for instructors who need to use technology in the room."

The university has also been in the process of modernizing its buildings through digital signage. With screens around campus, it's looking to implement new communications capabilities that support not only the digital dissemination of campus news, but also emergency notification and other real-time information.

"I want to make our hallways look less like a high school and more like a modern space for education," Yang says. "The next step is to find a solution that can leverage the placement of all of these digital displays and their network connectivity, so that if, for example, there's a weather closing or something worse, we can take over every digital display and instruct people to take action or not."

And then there is the new esports program, made successful in part by the school's commitment to creating a dedicated arena, with large screen displays on which students and faculty can watch the competition. Across the world, competitive video gaming has taken off at the professional — and now collegiate — level.

"Just like collegiate athletics, our program comes out of the demand from prospective students who want to continue to engage in any type of event or game or sport at a competitive level," says Yang. "And there are people out there who are extremely interested in not just playing, but also watching esports."

All told, Caldwell University's embrace of new technology has kept Yang and his staff busy — and they're pleased with the results.

-continued...

[10] https://www.caldwell.edu/about

A Standardized Visual Experience

To date, Caldwell University has reimagined learning technology in 19 classrooms — all modernized over a single summer. The school has standardized on Crestron controllers, typically installed in podiums, to drive various LG classroom displays, where appropriate, or laser-based projectors in larger spaces. Most rooms have built-in ceiling microphones picking up audio from the class itself and allowing students and faculty to communicate with remote participants through a video conferencing link. Like many universities today, Caldwell has adopted the Zoom platform to help video-enable its students, faculty and learning spaces.

"Whether it's another student or a guest lecturer who wants to communicate from outside the classroom, we wanted the supporting technology in our spaces, and we wanted it to be easy to use," says Yang. "Standardization has definitely helped. Now, with a single type of controller, it's easy for faculty to switch rooms and still have a familiar technology experience. Everything is available at their fingertips."

Outside the classrooms, Caldwell University is moving to standardize its digital signage experience for better communication and management. Today about 40 LCD screens around campus are used as information displays, but Yang and his team are looking to turn them into real-time communications devices. Each currently has some type of media player plugged into it, but Yang says a new fleet of signage displays with built-in computing devices could ease management. "We have network control over every digital display, so we can change them on the fly," Yang says.

Let the eSports Games Begin

In Caldwell University's Werner Hall, four 55-inch LG 4K digital signage screens serve a very particular purpose: to show passersby in ultra-high definition the eSports competition taking place in the hall's purpose-built eSports arena.

Inside the eSports space — a redesigned student lounge — there are 12 gaming stations with high-performance LG monitors and a pair of 43-inch 4K LG commercial displays so coaches can monitor matches or practice. The room is split into two sections, with sound isolation materials installed in between to accommodate multiple competitions without noise distracting players in one or the other.

The university learned quickly that to compete at a high level and engage current and prospective students, its eSports program required the right level of technology performance. eSports is just as competitive as physical sports, and in an eSports arena, fast responses and smooth graphics really matter," says Yang. "Our arena has the highest spec PCs available, but the raw processing power and graphics delivery only matter if it's connected to a top-flight gaming monitor."

Everywhere on Caldwell University's campus, investment in audiovisual technology — whether for learning, communication, or student engagement — supports the institution's larger goals. "These things draw students in," Yang says, "but even more importantly, they help retain them and make sure they graduate."

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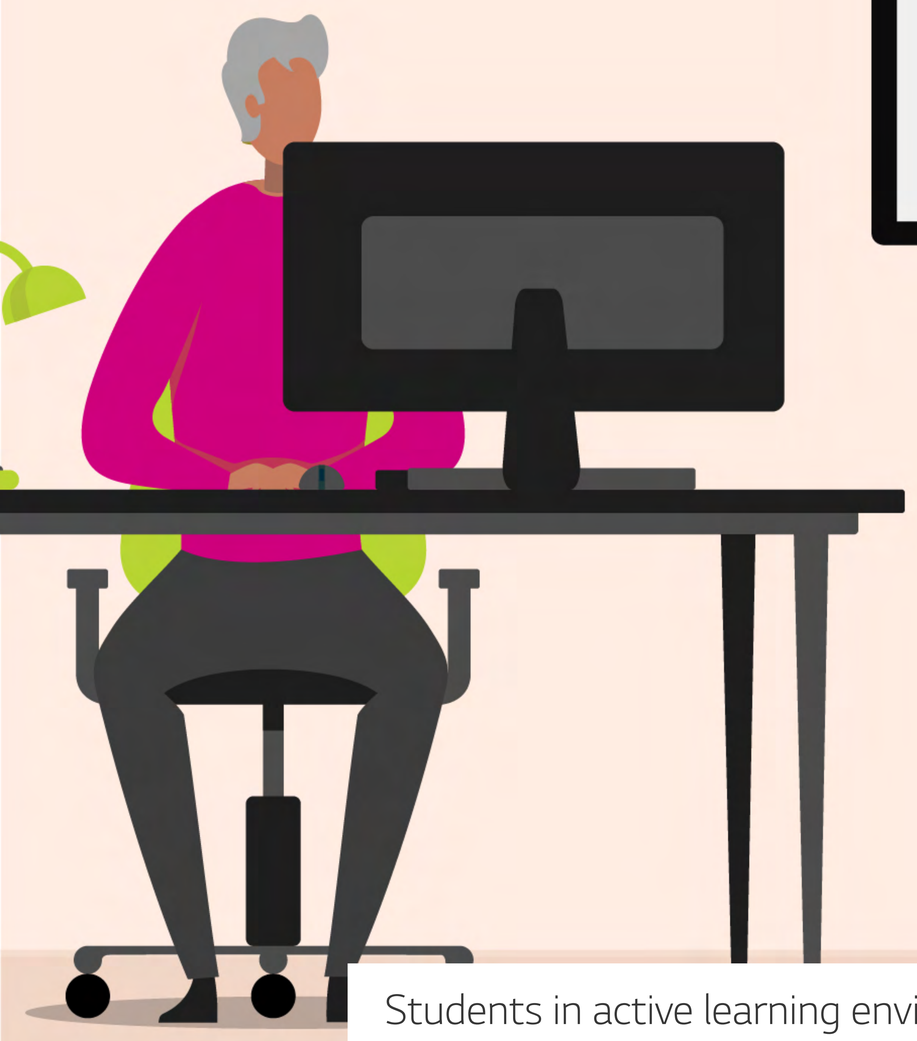
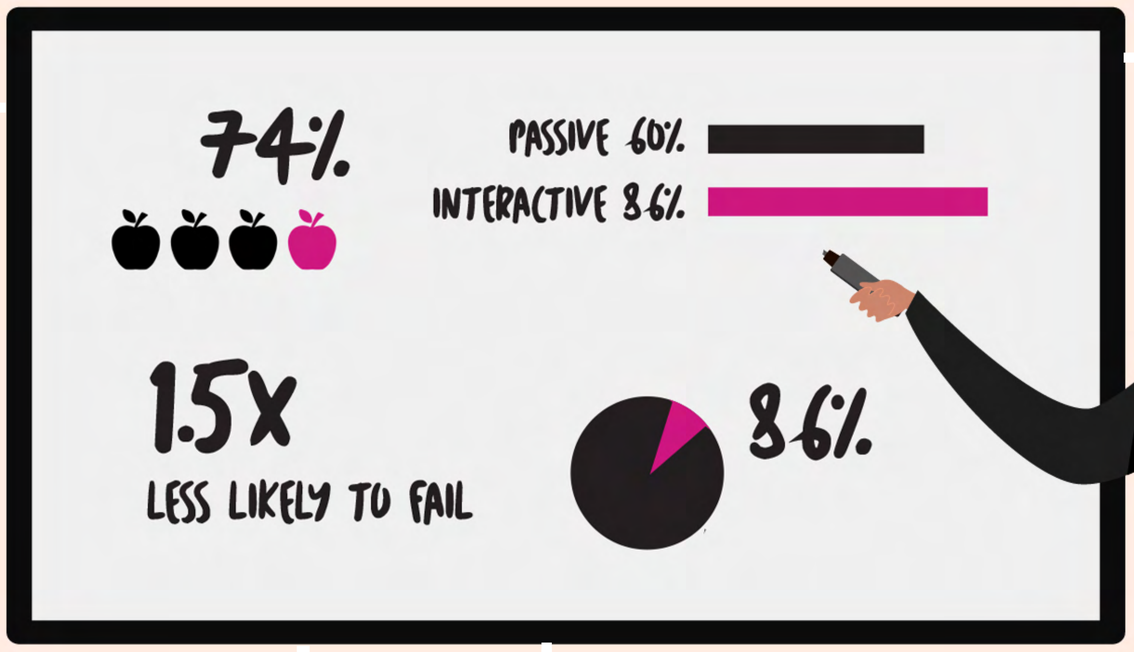
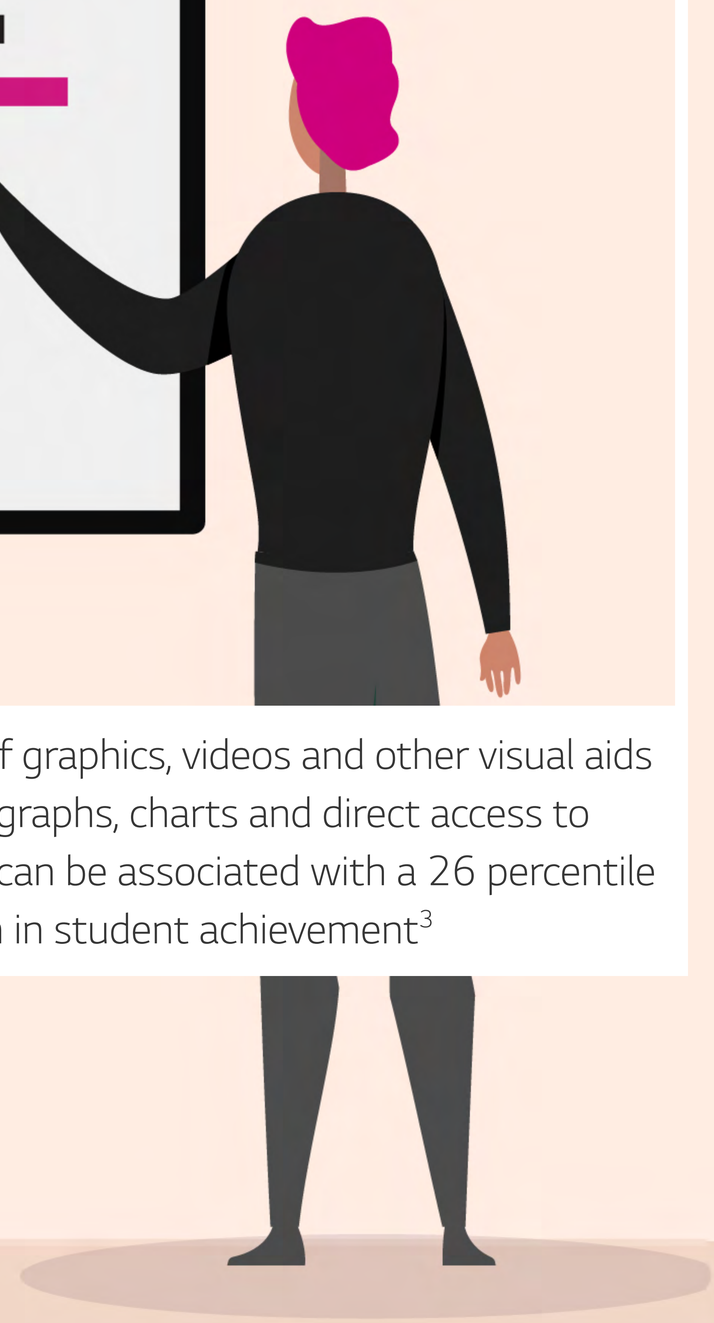
THE INTERACTIVE DIGITAL BOARD

74% of teachers use game-based learning to enhance their lessons[4]



Students in active learning environments are 1½ times less likely to fail than students in a passive learning environment[1]





The use of graphics, videos and other visual aids including graphs, charts and direct access to websites can be associated with a 26 percentile point gain in student achievement[3]

86% of surveyed students, faculty and administration believe that technology and engaging hands-on instruction heavily drives student success[2]

LG's Interactive Digital Board helps instructors engage students during lessons, enhancing learning, collaboration and retention.
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[1]https://www.pnas.org/content/111/23/8410
[2]https://campustechnology.com/articles/2020/10/08/report-points-to-negative-effects-of-covid-19-on-student-success.aspx
[3]https://www.google.com/url?q=http://www.ascd.org/publications/educational-leadership/nov09/vol67/num03/Teaching-with-Interactive-Whiteboards.aspx&sa=D&source=editors&ust=1614217497019000&usg=AOvVaw1nUAOcHqW-tXpwLP7j7FqD
[4]https://www.guide2research.com/research/interactive-learning-statistics

TRANSACT

Mobile Campus Cards: **A Necessity for Student Convenience and Safety**

As tech-savvy students flood campuses each fall, higher education institutions are reminded of the importance of a digitally proficient campus ecosystem. Technology and the student experience go hand-in-hand, driving institutions to meet students' expectations with services and amenities that center around mobile devices. But it is not just the students benefitting from enhanced campus technology. Through the use of mobile credentialing, higher education institutions are achieving greater security and accessibility standards, while improving their prospects in a competitive education environment.

Mobile credentialing has been a buzz in higher education for the past few years. With a singular mobile credential to go from dorm to cafeteria to library to class, students glide through campus uninterrupted and in a fashion that emmeshes with their everyday cadence. **According to a 2019 report from Snapchat, 64% of Gen Z smartphone users are constantly connected online.** Appealing to Gen Z and their desire for **continuous, barrier-free connectivity should be considered a primary goal for institutions**, as Gen Z is also the group most skeptical of higher education.

"When we talk to students, it's clearly a game-changer for them. Intuitively, they understand the benefits to having a mobile credential, and not only do they want it, they expect to have it."
- **Jeanine Brooks**, Director of the Action Card, University of Alabama

The leadership at University of Alabama (UA) knows firsthand the impact that cutting edge technology can make on student engagement. The oldest public university in the state, UA didn't let its 1831 heritage thwart it from embracing digital transformation. In 2018, they became one of three universities to first offer Transact's Mobile Credential for students and staff. Adoption of the NFC-enabled credential for iPhone, Apple Watches, and Android devices was swift, and continues to impress prospective students now that UA can focus on even deeper technology integrations.

With UA's 38,000+ student body, it was important that the mobile credential simplify, and not hamper their accessibility around campus. **With Transact's "one ID for everything" solution, UA students had access to all their campus-enabled amenities through their Campus ID, and the solution's cohesion also helped address silos among UA's divisions**. Just one year into Transact's mobile credentialing launch on the UA campus, over 23,000 iOS devices have been provisioned, with 50 percent of freshmen becoming active mobile credential users.

Duke University is an excellent model of the impact pioneering campus technology can make. A longtime Transact client, Duke was one of the earliest adopters of mobile credentials for its campus of 15,000+ students. With a reputation for trying the latest and greatest digital innovations, Duke was overwhelmed by the rapid buy-in of mobile credentials among students. W**ith a whopping 90 percent of freshmen accessing their mobile Campus ID**, Duke students throughout the campus could access facilities and resident halls, make payment for dining, laundry, vending, retail, and more. And as one of the premier research and sports institutions in the United States, Duke students appreciated the branded and tailored Campus ID interface from Transact, which reinforced the university's lauded standing.

"Mobile Credential took off! For the first week, we issued a mobile credential to almost 4,000 students right away. Then it jumped to 5,000. And then to 6,000. It's been growing ever since!"
- **Bart Lawyer**, Assistant Director of Information Technology, Duke University

The third of Transact's inaugural mobile credentialing partners, the University of Oklahoma (OU) utilized the solution to implement robust security and access controls, securing their campus of 25,000 students. **With the ability to remotely issue, update, or revoke mobile credentials and Campus IDs, OU had a reliable and emergency-ready system for campus threats**. OU students were also able to use their Campus ID on their iPhone and Apple Watch to access various campus resources. With more than half of on-campus residents using their Campus ID, the University has racked up over 2.2 million dining transactions through the Transact's mobile credentials.

"This is the technology of the future. It makes us feel good knowing that we delivered a solution that students expected and that they wanted."
- **Tyler Webb**, Director, Sooner Card, The University of Oklahoma

Achieving enhanced student engagement, streamlined operations, tighter security, and increased accessibility, mobile credentialing is an effort that pays for itself and benefits all campus stakeholders. Students, staff, and faculty will continue to rely on mobile for more tasks, which puts institutions on an advancing timeline to get in-step or get lost in the mix. When you partner with Transact, you get the modern solutions of today and beyond, ensuring your college is always ahead of the curve.