INSIGHTS REPORT

Adapting to a New Tech Era

Three Challenges Facing Higher Education

iStock

sponsored by verizon

THE CHRONICLE OF HIGHER EDUCATION®

Verizon on how adapting to the new era can strengthen higher education.

The pandemic may have faded, but higher education institutions are still dealing with its many repercussions. The options? Return to business as usual and hope for the best. Or adapt to the current realities and focus on new opportunities.

Navigating change is never easy. But it's more important than ever given the undeniable impact of these technology-driven trends:

- **The evolving workplace.**
  The traditional workplace is being challenged by the remote workplace, a more flexible way to work – and learn. Preparing students for this new vision of work means empowering them with the skills necessary to thrive in a less structured, more mobile world.
- **Escalating cybersecurity threats.**
  Higher education remains a favorite target for cybersecurity threats, including decimating ransomware attacks. Countering these threats and keeping the technology infrastructure safe requires ongoing vigilance and a commitment to online security.
- **The hybrid classroom.**
  Born of necessity during the pandemic, the hybrid classroom isn't going away anytime soon. Savvy institutions recognize the hybrid classroom as an opportunity to enhance and expand learning and attract new types of students.

These latest technology-driven developments can be seen as threats to the status quo or opportunities to grow and evolve – depending on an institution's readiness and aptitude for change.

For more than two decades, Verizon has worked closely with our higher education customers to navigate change – empowering educators, students, and educational communities. To help turn challenges into opportunities, Verizon is pleased to support this special Insights Report from *The Chronicle of Higher Education,* "Adapting to a New Era: Three Challenges Facing Higher Education." The report explores the issues and proposes models that can help colleges and universities address challenges – and maximize potential benefits.

For more information about Verizon solutions for higher education, visit our website.

Patty Roze
Vice President, Public Sector Sales, Verizon

verizon

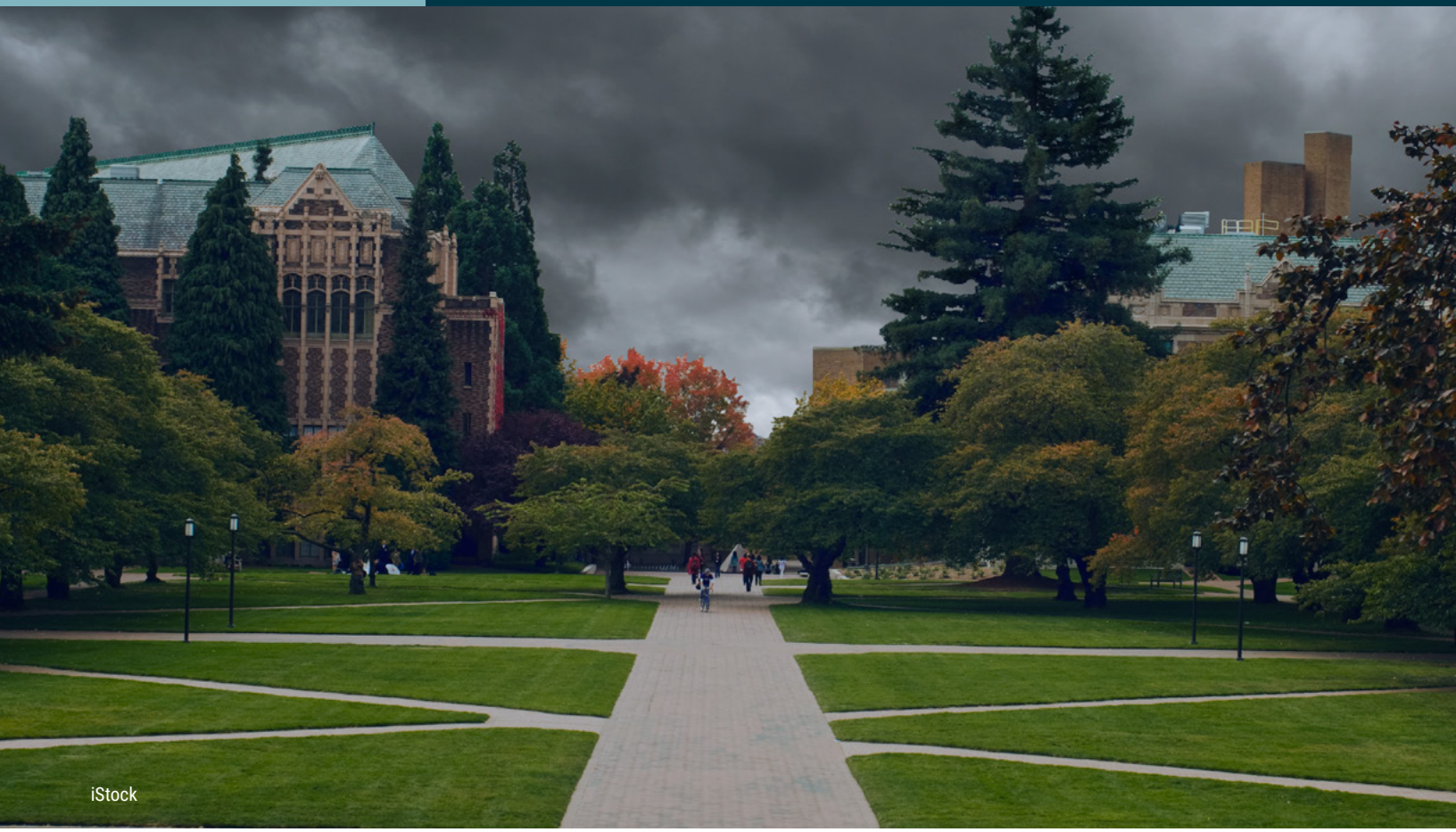
TABLE OF CONTENTS

Adapting to a New Tech Era

Three Challenges Facing Higher Education

Contact CI@chronicle.com with questions or comments.

INTRODUCTION



iStock

In late April, seven members of the Montana National Guard deployed to the campus of Montana State University in Bozeman. They weren't responding to a natural disaster or a civil disturbance but rather to another kind of emergency: a cyberattack that forced the university to shut down its internet and Wi-Fi for days. Classes were disrupted. Some exams were derailed.

The Guard later said in a statement that its Defensive Cyber Operations Element had helped "identify and mitigate additional vulnerabilities," trying not just to assess what had happened but to prevent it from happening again. The team "was able to isolate the threat to prevent further spread of the attack to other systems and identify the source of the attack which will help to reduce future vulnerability."

Calling on the National Guard for help may not be an everyday occurrence for colleges, or a typical method for dealing with breaks in cybersecurity. Yet the incident highlights sectorwide fears.

The threat of cyberattacks, including a rising risk of malware, is just one of the technology-related challenges higher education is facing as it emerges from the pandemic, reshaped by new norms about flexible-workplace culture and "hybrid" classes with in-person instruction as well as distance learning through screens. Covid-19 and its consequences precipitated academe's greatest transformation in recent memory, forcing many institutions to demonstrate — or at least attempt to demonstrate — a nimbleness for which they're not typically known.

Now the legacy of this recent past is shaping the future of colleges in a new era for education and technology, one that will be defined by a new set of concerns. This report examines challenges for the hybrid classroom, the higher-ed work force, and cybersecurity, looking at how these issues are evolving and influencing institutions.

With regard to the hybrid classroom, which encompasses a variety of different balances between in-person and online education, academe is obviously more focused now on traditional-classroom instruction than in 2020, but also more committed to extending remote options than in 2019. Institutions are navigating the reality that certain forms of flexibility — such as allowing students to choose whether to be physically present for a class on any given day — can be valuable but also create unpredictability and a less-than-ideal teaching environment for professors. Faculty members may not be accustomed to working with technology — or believe it's not always conducive to the best teaching and learning — especially if they haven't received sufficient training and funding to help them use it well. Figuring out how to foster high-quality class discussion with some students in-person and others remote is another ongoing challenge. There may be a consensus around offering hybrid learning, but institutions are still struggling with the best ways to do it.

A parallel dynamic exists for the higher-ed work force. Whereas remote and hybrid jobs were extremely uncommon in academe prior to the pandemic, many employees — and prospective employees — are now looking for those opportunities, which makes the availability of remote and flexible work an important recruitment tool. Some tensions are emerging between university leaders and their workers over what exactly a more flexible workplace should look like, and some institutions are struggling with how to standardize best practices. Questions remain about how to maintain a strong institutional culture with less in-person work, yet there's no question that's the future in this sector, as it is elsewhere in the economy.

Of course, colleges that are increasingly

iStock

> There may be a consensus around offering hybrid learning, but institutions are still struggling with the best ways to do it.

reliant on technology need better cybersecurity, which is why academe is elevating the status of cybersecurity professionals on campus and finding new ways to communicate safety practices to faculty and staff members and students. It's why colleges are undergoing structural reorganizations to better integrate cybersecurity with the rest of their missions. Cognizant that cyber safety isn't the most exciting topic for the average person, campus leaders are turning to creative messaging and gamification strategies to engage young people and enlist their help in safeguarding their personal data and that of their institutions.

Technological change is always disruptive, even when it's not prompted by a global-health crisis. Conversations will continue about the limitations — and indeed the perceived harms — of a growing reliance on screens. Yet this moment of disruption also gives higher ed and its partners a unique opportunity for reform and renewal — to seize on what worked best during one of the worst periods in recent history and conceive whole new ways of using technology to impart ideas and information for years to come.


iStock

The Outlook for the Hybrid Classroom

Though the hybrid classroom existed well before the pandemic, Covid-19 necessitated — and ultimately normalized — a combination of in-person and remote learning throughout academe. Initially, it popularized the "HyFlex," or hybrid-flexible, approach first created by Brian Beatty, an associate professor of instructional technologies at San Francisco State University. HyFlex allows an individual student to choose how to attend class on any given day — in-person, online synchronously, or online asynchronously.

Three years after higher ed's emergency pivot to remote learning, the use of HyFlex isn't nearly as common. While it allowed institutions to continue to educate students during the pandemic, HyFlex, done well, isn't easy to pull off. Implementing it requires faculty training, upgraded classroom technologies, and instructional designers who understand its limitations as well as its possibilities. Students often found it challenging to navigate. Yet the broader notion of hybrid learning — such as a course with required in-person meetings as well as designated online components — is in greater demand than before the pandemic.

"On the one hand, there's a sense that the hybrid classroom is here to stay," says Kevin Gannon, who directs the Center for the Advancement of Faculty Excellence at Queens University of Charlotte. "It addresses some longstanding issues — including student attendance and participation. But on the other hand, I see individual faculty members struggling with that. In many places it feels like an unfunded mandate."

"There's a sense that the hybrid classroom is here to stay. But on the other hand, I see individual faculty members struggling with that. In many places it feels like an unfunded mandate."

"The future is flexible," says Bethany Simunich, the vice president of innovation and research at Quality Matters, an educational nonprofit focused on online learning. She believes hybrid classes will become "an even more crucial and vibrant part of higher education." The challenge for higher ed moving forward is to provide the funding, technology, and support for students and faculty members to realize a world in which the hybrid classroom is the new normal. "The institutions that will do this well are the institutions that will invest in personnel," says Gannon.

HyFlex instruction got started in a graduate program in educational technology. "That origin story matters," Gannon says, "because you had self-selected graduate students — many of whom were already professionals in the education world — who were interested in and proficient with technology."

But Flower Darby, the associate

director of the Teaching for Learning Center at the University of Missouri, notes most faculty members aren't like that.

> Institutions are "upgrading and fine-tuning and being more intentional in the technology they're providing for faculty," but many are still lacking the means to do it well.

"They're brilliant chemists and philosophers and educators," Darby says, "but we can't take for granted that every faculty member is going to feel comfortable with high-tech rooms." She says that she'd "love to see institutions investing substantial financial resources into ongoing professional development for teaching in hybrid classrooms and teaching with technology generally." She sees institutions "upgrading and fine-tuning and being more intentional in the technology they're providing for faculty," but many are still lacking the means to do it well.

"There's at least a vaguely defined expectation that HyFlex will continue when appropriate, but there isn't a clear idea among instructors about what that means, what they're required to do, or what support exists for it," Gannon says. HyFlex has been challenging for faculty members, because they can't predict which students will be in-person at which times, and facilitating good discussion can be difficult while some students are in-person and some are remote.

"It's exhausting," Gannon says. He adds, "I don't think you can expect faculty to continue to teach in that mode with nothing else changing with regard to pay or workload. For faculty who are adjunct, contingent, or [have a] term-to-term contract, this is an enormously different workload than just teaching a traditional on-site, face-to-face class or a regular online class."

Furthermore, he explains, "A lot of institutions have left it up to individual instructors to determine if this is a mode they want to teach in. Maybe there's been some more investment in improving classroom technology here and there — or maybe some institutions have scaled up their instructional-design capacities — but in terms of development and helping faculty manage workload and bandwidth, I don't think there's any progress that's been made on that."

This isn't to say colleges aren't continuing to train faculty to use technology in new ways. At Montgomery College in Rockville, Md., for example, a "Digital Fundamentals for Teaching and Learning" training — which takes about 20 hours to complete — teaches professors how to post files and upload a syllabus to the campus's learning-management system, as well as how to create and manage discussion boards, embed videos, and caption them to support accessibility.

The downsides of HyFlex aren't only for professors. According to Darby, students

attending class through video screens "are experiencing a marginalized learning experience." Gannon notes that more work has been done to prepare faculty for HyFlex teaching than to prepare students for HyFlex learning.

"It's really hard to do all the things we know foster student success if you're teaching in a HyFlex mode," he says. "You can do them, but it takes a lot of support — perhaps a teaching assistant or at least a technology assistant. It takes more time, training, and development to build a sense of belonging and community in a HyFlex course. Most places aren't providing anywhere near the necessary resources." He says the approach has been particularly hard for students who aren't used to prioritizing and ordering tasks or figuring out how to best structure their time.

That said, Gannon notes that hybrid learning, including HyFlex, can be useful for student athletes who may be traveling but want to go to class remotely, or for students who are sick but want to attend, or on days when there are weather-related school closures. He adds that some colleges see hybrid learning as "a potential selling point" as they're competing with other institutions to attract and retain students. Many students with disabilities, busy work schedules, or caregiving responsibilities appreciate the opportunity to choose their learning modality.

It's also important, experts say, to keep in mind that the conversation about the hybrid classroom and academic equity is complicated. "Technology makes education more accessible to more people," Darby says. At the same time, "we know that underrepresented students in higher education are also more likely to be juggling family and work obligations. Research from the earliest months of the pandemic showed that students of color — especially Black, Latino, and Latina students — did the worst in the remote and hybrid environment. That often had to do with work and family responsibilities as well as inequitable access to the internet or whether they had cameras in their laptops."

The challenge for academe is to work through these issues while embracing the advantages of hybrid learning. "It's widely recognized that in-person teaching and learning is richer and can be more engaging — though that's not a given — than remote and fully online experiences," says Darby, but "when students have the opportunity to attend online, to work together in breakout rooms, to engage in practice quizzes technology can make doable, that's the best of both worlds."

The Higher-Ed Workplace: New Realities

The campus workplace is also evolving, as academe grapples with the challenge of retaining and recruiting staff in a new era of remote, hybrid, and "flexible" employment. While some college leaders are requiring all their employees to be back on campus, insisting that an in-person experience defines their institutional culture, most appear to be breaking with the workplace policies of their pre-pandemic past.

"Before the pandemic in late 2019 and early 2020, hybrid and remote positions were almost nonexistent in higher education," says Andy Brantley, president and chief executive of the College and University Professional Association for Human Resources (CUPA-HR). "We all had to change our approach. Some institutions stayed remote for a year or longer, while others started to return" to in-person work "in the fall of 2020." He says that "coming out of the pandemic and moving back toward an in-person experience, at least for the campus where that's a core part of their culture, we began to have a dialogue about what can continue to be remote, what can be hybrid, and what must be in person."

There are some obvious trends across the sector. It's more difficult — and in some cases impossible — to provide remote work to employees who have to interface with students or maintain the campus grounds. Staff in departments such as information technology, human resources, and accounting, meanwhile, may not need to be on campus.

Brantley's organization recently held a spring conference with hundreds of human-resources leaders in higher education, and he says "a general consensus emerged that most of them are struggling with presidents and other

"Coming out of the pandemic and moving back toward an in-person experience, at least for the campus where that's a core part of their culture, we began to have a dialogue about what can continue to be remote, what can be hybrid, and what must be in person."

campus leaders who are more comfortable with all positions being on site. They also expressed concerns about some employees who now have the opportunity to do hybrid work — maybe two days in the office and three days remote — but still want their full, dedicated space" in the office "even though they're only using it a couple days a week." He says another challenge facing colleges is how to manage employees well in these new remote or hybrid modes.

The endurance of remote and hybrid work is driven largely by an economic imperative — the need to appeal to workers who are demanding flexible approaches. For example, a survey conducted by CUPA-HR and Educause, an association that supports the use of technology in higher ed, found that 36 percent of HR professionals and 42 percent of IT professionals prefer a mostly or completely remote work arrangement — yet only 14 percent of HR professionals and 21 percent


iStock

of IT professionals were working mostly or completely remotely as of the fall of 2021.

"A lot of institutions have realized they're not going to fill all of these roles if there isn't some flexibility, particularly as inflation has grown quite a bit but state appropriations" for higher education "haven't generally grown at a similar pace," says Genia Bettencourt, an assistant professor in the department of leadership at the University of Memphis' College of Education. "Salaries are increasingly not keeping up with the cost of living."

Bettencourt says that she began her career at a time when geographic flexibility seemed more important to professional advancement than it does today — and this change isn't lost on students graduating from college and considering whether to go into higher education. "Students are starting to have a better sense of their worth, as they should, knowing that higher ed needs good practitioners and that they're choosing careers that aren't going to pay as much as other careers," Bettencourt says. This dynamic can empower them to be more insistent about living where they want to live and working how they want to work.

Amanda Bailey, vice president for human resources at Boston University, says her

> "A lot of institutions have realized they're not going to fill all of these roles if there isn't some flexibility."

> "We needed remote work to be viewed as an enhancement to work life, but also be at a level" where employees "can still maintain community."

institution has "moved away from remote work and wants to be known as a flexible-work employer." After implementing a policy allowing many employees to work remotely up to two days a week, BU made the deliberate decision not to expand the number of days.

"We needed remote work to be viewed as an enhancement to work life," Bailey explains, "but also be at a level" where employees "can still maintain community." — still see other employees often, still have mandatory events, programs, and meetings where everyone has to attend in person. Those things undergird community."

Bailey adds that a greater number of remote days would hinder collaboration and productivity, though she stressed that the university will be consistently monitoring how its policies are working, leaving open the possibility of adjustment. In the meantime, BU's embrace of flexible work means that some staff are able to adjust their schedules, have a compressed work week of four days, or take advantage of a couple days of remote work at certain times of the year — even if they're typically in-person employees. Standardizing remote- and flexible-work policies across the university's many different departments is "probably the largest pain point," Bailey says.

Hopefully, it's a collaborative process, based on a "consistent set of practices and guiding principles that everybody can follow," said Bryan Garey, vice president for human resources at Virginia Tech, in a *Chronicle* virtual forum. Because "if we put this through the lens that everyone has to have the exact same landing space, frankly, we'll get nowhere. And everybody will just come back, and we will try to do a pre-pandemic work structure where most people were on site all the time. And we'll lose talent that way."

Cybersecurity: Understanding Vulnerabilities

The threat of cyber attacks — and their ability to jeopardize a college's data, operations, finances, and reputation — long predated the pandemic. In fact, online attackers were escalating their targeting of higher-education institutions — which are rich with data, but often poorly equipped with outdated cybersecurity systems — before widespread remote learning and working escalated the risk in 2020. Three years later, there's been a discernible cultural shift in how institutions are approaching this issue. Experts see many encouraging developments, starting with how cybersecurity is described and perceived on campuses, even as challenges persist and threats evolve.

According to a *University Business* report last year, education and research institutions were targeted by an average of 1,065 cyberattacks a week in 2021, up 75 percent from 2020. "In fact," the report says, "cyberattacks on higher education have been soaring for years — the Federal Student Aid Post-Secondary Institution Cyber Team found that 'actual and potential cyber incidents' rose by 2,880% between 2015 and 2019." It's part of why a role like chief information security officer, or CISO, has been expanded and elevated.

CISOs monitor potential cyber threats to their institutions, including phishing and ransomware, and have traditionally reported to chief information officers or CIOs, who purchase and install campus

iStock

> Education and research institutions were targeted by an average of 1,065 cyberattacks a week in 2021, up 75 percent from 2020.

information systems. A 2019 study by the nonprofit Educause found that roughly 40 percent of colleges had hired staff members solely responsible for tracking online security hazards. Increasingly, cybersecurity professionals are taking on broader roles — breaking out of their traditional organizational silos, taking part in meetings with university leaders, and being brought into conversations they'd long wanted to join about the overall health of their institutions.

Brian Kelly, who directed the cybersecurity program at Educause before joining the firm Compass IT Compliance last year as their virtual chief information security officer, says cybersecurity offices have historically been seen as "the office of no." They were the people who said, "no, you can't share that data" or "no, that's not secure." But the pandemic gave them the opportunity to be what Kelly calls "the office of know," or the people telling college communities what they needed to know to do their remote learning and working safely and securely.

"That was a really positive outcome," Kelly says, noting that more colleges have embraced multifactor authentication for logging into email, file-hosting services, and other online educational platforms. He says he senses that the pandemic made it much easier to explain this process as a benefit, not a burden. In addition, he notes that using multifactor authentication —

and having "basic cyber hygiene" more generally — is increasingly a requirement if institutions want to renew their cyber-liability insurance. It's forcing them to pay greater attention to "patching" software updates and properly configuring their firewalls.

"We all rely more heavily on email filtering to help screen out possible fraudulent spam emails," says Kim Milford, the chief information security officer at the University of Illinois at Urbana-Champaign. "Those emails usually end up sorted as junk mail, so if there's something legitimate lost, a user can still find it."

Michele L. Norin, the senior vice president and chief information officer at Rutgers University, says the past few years have also pushed colleges to think more about the security of all of the different devices used by students, staff, faculty, and their families — on and off campus. Best practices can include bolstering VPN security and giving guidance on avoiding connecting to open Wi-Fi networks that may not be safe.

Personal devices carry "extra risk, because we don't know how people's home computers are configured," Norin says. "Rather than having a computer in the office and a separate computer at home, maybe you just have a laptop that's mobile. That allows us to ensure that those devices are secure."

Along with implementing new technological protocols, cybersecurity professionals in academe are finding new ways to educate faculty, staff, students, and other people in their communities about their personal responsibility for preventing successful attacks.

After all, if just one person falls for an online attack — clicking an emailed link from a malicious sender or falling for a scam that involves turning over personal information — it can end up compromising an institution. (According to one report last year, 82 percent of data breaches involved "the human element" — unfortunate choices people made.)

Colleges like Rochester Institute of Technology and the University of Notre Dame are "gamifying" this kind of education and training, trying to find fun ways to engage their students and employees with competitions, carnivals, or cybersecurity-themed escape rooms. Kelly says that many of today's college students — from a generation that loves short-form video apps like TikTok — may be more responsive to education if it comes in the form of quick and engaging media content, perhaps broken up over time, as opposed to a 45-minute training they have to click through all at once.

> **Princeton University has a "Phish Bowl" website with alerts about the latest phishing attempts at the institution — so no one "takes the bait."**

Some colleges use a playful tone — or a bit of humor — for this serious subject. Princeton University has a "Phish Bowl" website with alerts about the latest phishing attempts at the institution — so no one "takes the bait." (Community members are invited to send in emails flagging new attempts.) An animated video on the site explains that phishing is "a form of fraud in which an attacker masquerades as a legitimate entity or person and attempts to gather your

personal information such as your password," noting that this can happen through email, social media, instant messaging, or even a phone. The video then explains warning signs of phishing emails, which can include blank or suspicious "to" or "from" fields, or poorly written or unusual messages conveying a sense of urgency or offering something that sounds too good to be true.

The ultimate goal is to encourage technology users to make good choices. "Users can be on the frontlines," says Kelly. "They can let those of us in IT and cybersecurity know what they're seeing. You want to make sure there's training and increased awareness among users."

That's especially true given the nature of cybersecurity threats — they're ever changing. "It feels like we're continually trying to catch up," says Norin. "The threat landscape is evolving. We're always trying to understand the next big threat — and how to get ready for it."

A FINAL WORD

Higher-ed institutions face strong headwinds coming out of the Covid-19 crisis. The years of reliable student enrollment, steady revenue growth, and widespread confidence in the value of the college degree are also long over, replaced with a looming "demographic cliff," pressing financial concerns, and an ever-changing constellation of technology options for teaching, learning, and working in academe — along with the attendant, unprecedented risks that that technology may bring with it.

Forward-looking campuses will need to embrace the advantages of remote and hybrid arrangements for their classrooms and work forces, while navigating their obvious drawbacks — striking a balance that serves students, faculty, staff, and their institutions. It's undoubtedly a difficult challenge, but academe can only truly thrive — now and into the future — by meeting it.

From breaking news to key insights to real-world advice, *The Chronicle of Higher Education* is dedicated to serving academic leaders and professionals. Our newsletters, subscriptions, special reports, virtual events, and exclusive data projects provide a comprehensive view of the latest trends and critical issues affecting academe. For more than 50 years, higher-education professionals from around the world have trusted *The Chronicle's* in-depth reporting and analysis to understand their world and make informed decisions.

THE CHRONICLE
OF HIGHER EDUCATION®

THE CHRONICLE
OF HIGHER EDUCATION®

1255 23rd Street, N.W.
Washington, D.C. 20037

202 466 1000 | Chronicle.com