# The Top Five Trends in Ed Tech



- **Adapting to generative AI**

- **Cybersecurity and data privacy**

- **The new normal of hybrid learning**

- **The promise of predictive analytics**

- **Increased inclusivity**

The advent of generative artificial intelligence may be the most attention-getting technological trend in higher education in 2024, but several other notable developments are underway. Colleges are focusing more sharply on cybersecurity amid a heightened risk of cyberattacks. They're also embracing new norms of remote and hybrid learning in the post-pandemic era, using predictive analytics to strengthen enrollment and retention, and working to ensure that new technology promotes diversity and inclusion. At a moment when technology is more integral to education than ever before, all of those trends — and the ways they intersect with one another — are poised to have a substantial effect on academe's future.

## Adapting to generative AI

While the emergence of generative AI has been accompanied by a great deal of excitement in many quarters, it has also inspired fear, uncertainty, and in

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With over two decades dedicated to advancing the field of education, I recognize how the critical importance of fostering innovation to bolster educational outcomes and empower learners. As the education technology leader at Amazon Web Services (AWS), I have the privilege of collaborating with education industry pioneers to cultivate new products and solutions, driving global scalability and success.

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**- Mike Lombardi**
Education Technology Vertical Leader
Amazon Web Services

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some cases existential dread among many college leaders and, to an even great extent, classroom instructors.

Students' use of AI is widespread. Earlier this year, a *Chronicle* survey found that 52 percent of administrators and 72 percent of faculty members believed generative-AI tools "pose a threat to how higher education educates, operates, and conducts research." There's extensive concern that the tools endanger academe's core values, spreading false information, undermining academic integrity, and diminishing students' writing skills and content knowledge.

Yet the survey also showcased the myriad ways colleges are adapting — and expecting to adapt further in the years to come. Many are setting new rules or guidelines for the use of generative-AI tools, or incorporating the subject into existing academic-integrity policies. A growing number of institutions are requiring — or at least recommending — that faculty members cover AI in their syllabi, clarifying what use is permitted and what is prohibited.

Many professors are also rethinking classroom practices and assessments, increasing their reliance on in-class writing, discussion, and debate, as well as assigning activities in which students critically analyze AI-generated material and compare it with their own work. Some professors are using the technology to help them design courses and create syllabi. There's hope that the technology can make learning more personal and individualized, perhaps through the use of increasingly popular AI tutors, and help teachers be more productive and efficient.

Outside the classroom, many administrators are using AI to draft college communications, streamline the admissions process, and enhance online portals offering public information — and student services — at all hours of the day and night. AI is increasingly embedded in learning-management systems, word processors, and other commonly used online tools. It's also strengthening on-campus hardware by, for example, improving the audio quality of a sound system when a speaker is walking around a classroom wearing a microphone.

"We're starting to see these more invisible uses of AI," says Glenda Morgan, an analyst at Phil Hill & Associates, an ed-tech consulting firm. "It's also starting to democratize data, making it useful to regular people."

Meanwhile, colleges increasingly are adapting their data-governance policies, which determine how their data is collected, stored, and used — essentially, how they make the most of this valuable

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asset. "Data governance is the most critical mechanism on campus" to facilitate the kind of data usage higher ed will need, says Kathe Pelletier, director of the teaching and learning program at Educause, a higher-ed information-technology association. "We're seeing institutions that may have had no data-governance process" or had "a fly-by-night approach to data governance" becoming "much more intentional, inclusive, and structured in how they're setting up their approaches."

## Cybersecurity and data privacy

Following a rise in cyberattacks on colleges over the last few years, awareness of the need for robust cybersecurity is growing at all levels of higher ed, and institutions are taking a number of steps to make it a higher priority. They're

embracing two-factor authentication and other password-security measures as well as hardware requirements, such as preventing users from downloading files onto the desktops of campus computers.

They're also forging closer partnerships with law enforcement and hiring chief information-security officers, or CISOs, who monitor potential threats, including phishing and ransomware. "I'm mostly seeing bigger and wealthier universities hiring them, but I'm also seeing colleges sharing CISOs and cybersecurity efforts," says the education futurist Bryan Alexander, a senior scholar at Georgetown

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University. One successful example, he says, is the New York Six Liberal Arts Consortium — a group of half a dozen colleges — that shares a cybersecurity officer.

Colleges are also working to expand and elevate the role of those officers and other cybersecurity employees. That means making sure they're getting out of organizational silos — attending meetings and taking part in important conversations with a wide array of college leaders across different departments — and integrating their work throughout their campuses. "The silver lining for higher ed is we can't offer enough courses and majors in cybersecurity," Alexander says.

To make sure current students have the information they need for strong cybersecurity, institutions are doing various kinds of education and training in person and online. Beyond explaining risks like phishing and ransomware, they might explain how to strengthen a VPN or avoid

connecting to open Wi-Fi networks that might be unsafe. Some colleges are even "gamifying" their education and training on the issue, holding cybersecurity-themed competitions, carnivals, or "escape room" challenges.

## The new normal of hybrid learning

For most of academe, the era of learning exclusively in person is over. Online education continues to grow. According to Alexander, about a third of college students nationally are taking classes entirely online, about a third are taking classes entirely in person, and about a third are a hybrid. "At Georgetown, for the past two years, all of my classes have been a mix of in-person and online — people around tables and people on live video," he says. "It's more work than only being online or face-to-face, but I think it's where we're moving."

"Continued demand for digital learning is manifesting itself in a lot of ways," says Van L. Davis, chief strategy officer at WCET, a nonprofit focused on education technology that is part of the Western Interstate Commission for Higher Education. "Data shows an increasing number of students in distance-education courses, especially compared to before the pandemic."

Many students still prefer face-to-face learning, but online options are vital for students who aren't of traditional college age, have lots of responsibilities outside the classroom, or both. Besides, "students that prefer face-to-face learning still said other students should have the ability to choose the modality that works best for them," according to Pelletier. There's an "overarching desire for flexibility and choice" among faculty members and students, she adds. "Students not only want but also expect the opportunity to choose when, where, and how" they get their education.

With many colleges now attempting to rely less on online-program managers — due to those providers' revenue-sharing demands — some institutions are trying to develop an increased in-house capacity for online education. There's some support for that effort from the federal government, but less-resourced colleges still struggle with it.

"To build up in-house capacity takes a lot of time and money," says Alexander. "Some of these campuses may have the money, but they don't want to spend it, and they don't have the time or inclination. It may be that they back away from online learning or wait for the market to generate a better OPM."

### The promise of predictive analytics

"We're starting to hear that institutions are becoming interested in learning analytics again," says Davis. Given the enrollment crisis — and how it's intensified the focus on retaining students as well as attracting them — such analytics could increasingly help colleges.

"It's going to be much more important for presidents to have a clear view of data

that impacts retention," says the ed-tech analyst and consultant Phil Hill. Davis observes that "early-alert analytics" may be particularly useful "to predict where

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a student may encounter challenges" based on a bunch of different data points — from admissions, transcripts, and use of learning-management systems, among other sources.

Imagine a college notices a number of sophomores dropping out and then discovers that the students lost much of the financial or educational support they had during their first year. That's the kind of data that can help identify problematic trends — and prevent more of them in the future. "Rather than wait for a student to

have a problem, you intervene," Davis says. For instance, colleges might provide pre-emptive tutoring or advising interventions for students before they take classes they may struggle with.

As a recent Educause report noted, analytics can inform redesigns of curricula or pedagogy. They can drive decision making in recruiting and marketing. As they become more sophisticated, they promise even greater benefits.

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Yet the growing use of analytics raises a number of concerns. Worries include their potential biases — especially when they're generated by AI — and the financial cost of the technology and staffing needed to collect, manage, and harness analytics, as well as risks that students' privacy may be jeopardized. Institutions need safeguards to try to avoid misinterpreting data.

### Increased access and inclusivity

Many ed-tech tools, including generative AI, are seen by enthusiasts as beneficial for better access and inclusion. "Students and faculty members for whom English isn't a first language can use [AI] to help them communicate and to polish their writing," the Educause report noted.

"Neurodivergent learners with atypical approaches to interacting with others and processing information can ask questions of AI instead of an instructor in a classroom full of students, or use a text-to-speech function or language translation."

That can also strengthen broader institutional efforts to make campuses more supportive of neurodiversity. Penn State, for example, has a new initiative to create "sensory-friendly libraries" with "rooms that offer equipment and furniture to help students cope with sensory challenges," according to the university's website. Librarians can create "multisensory learning experiences" with the help of tablets, smart boards, and interactive kiosks — technologies that allow users to customize their experiences of library programming based on their individual visual or auditory preferences.

Pelletier applauds such efforts and says there's a growing trend of ed-tech products featuring "automatic annotation" and text captions for video content, which benefits learners with hearing disabilities or those who may simply prefer to process information by reading.

She also believes there's a growing desire to use technology to support students' mental well-being. "There's a large intersection between folks with mental-health struggles and folks with disabilities, especially when they're at an institution that doesn't support their learning in an inclusive way," she says. "The interest in institutional responsibility in providing tools and resources that support mental health in concert with the shift toward more inclusive products is a really good sign for communities with neurodiversity or other kinds of disabilities."

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