

# 2023 EDUCAUSE Horizon Report® Holistic Student Experience Edition



# 2023 EDUCAUSE Horizon Report<sup>®</sup> Holistic Student Experience Edition

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# EXECUTIVE SUMMARY

Increasingly, higher education stakeholders are recognizing the value—and the imperative—of empowering students to bring their whole selves to college and, to that end, are providing holistic programming and learning opportunities. Fostering student connection and belonging through multiple modalities and providing proactive and wide-ranging mental health resources while attending to issues of accessibility and inclusion are increasingly common on campuses. The artificial intelligence (AI) storm hasn't slowed down much since the fall of 2022, raising questions about opportunities and risk, as well as highlighting the need for ethical guidelines. In part due to the surge in AI use, but also due to the increasing use of technology for all types of student support, greater amounts of student data are being collected, prompting the need for sophisticated data models and expanded data literacies. Holding this balance between “student as human” and “student as data” becomes even more complex amid the polarizing political environment and the forces raising questions about the very sustainability of higher education.

For this *Horizon Report* edition focusing on supporting the holistic student experience in higher education, panelist discussions reflected these themes and mindset. This report summarizes the results of those discussions and offers a grounded perspective on multiple possibilities for where our future may be headed. This project was anchored in a modified Delphi methodology that seeks to elevate the collective perspectives and knowledge of a diverse group of experts, and the panelists' activities were facilitated using tools adapted from the Institute for the Future.

## Trends

As a first activity, we asked the Horizon panelists to provide input on the macro trends they believe are going to shape the future of holistic student success in higher education and to provide observable evidence for those trends. To ensure an expansive view of the larger trends serving as context for institutions of higher education, panelists provided input across five trend categories: social, technological, economic, environmental, and political. After several rounds of voting, the panelists selected the following trends as the most important:

### Social

- Awareness of mental health challenges and their impacts is increasing.
- University enrollments are decreasing in the United States.
- Student interest in online and hybrid learning is growing.

### Technological

- AI technologies are becoming more sophisticated and readily available.
- More data are being collected about students.
- Machine learning is increasingly being used to analyze student data.

### Economic

- Concerns about the cost of higher education continue to grow.
- More affordable postsecondary education options are being offered.
- Higher education continues to face budget cuts.

### Environmental

- The market for eco-friendly products and renewable energy is growing.
- Food insecurity and population displacement are increasing due to climate change.
- The need for climate literacy is growing.

### Political

- Political polarization is increasing in the United States.
- Politicians are becoming more involved with education curricula.
- Concerns are growing about the impact of AI on privacy.

Following the identification of trends, panelists were then asked to provide additional details substantiating each trend, as well as anticipated impacts each trend might have on the future of the holistic student experience.

## Key Technologies and Practices

Horizon panelists were asked to describe the key technologies and practices they believe will have a significant impact on the future of the holistic student experience in higher education, with a focus on those that are most likely to either accelerate or mitigate the trends identified as most important. After voting by the panel, the following six items rose to the top of a long list of technologies and practices:

- Artificial intelligence
- Accessible and inclusive tools and practices
- Supporting student connection and belonging with technology
- Expanded mental health support for students
- Unified data models for learning analytics
- Building data literacy for understanding and using student data

Having identified the most important technologies and practices, panelists were then asked to identify—for each key technology and practice—which trends might be the most impacted, in what ways stakeholders might leverage the technology or practice to support the holistic student experience, potential risks higher education stakeholders might face when implementing that particular technology or practice, and finally, the potential impact of that item on diversity, equity, and inclusion.

## Scenarios

Scanning the trends section and the technologies and practices section, we can begin to gather and arrange the information we have into logical patterns that can help us envision a number of scenarios for the future, scenarios for which we could start to prepare today. In this report, we paint portraits of four possible future scenarios for the holistic student experience in higher education:

- **Growth:** Unrestricted growth of AI technologies proliferates in every area of life, across the globe. Higher educators quickly respond to the need for reskilling the current and future workforce, but they struggle to combat the escalating mental health crisis and food and housing insecurity.
- **Constraint:** The future of higher education is threatened by financial uncertainty and social unrest. Institutions prioritize a “student as consumer” model to stay afloat. As individual stakeholders express dissatisfaction with higher education’s new image, leaders struggle to unite their institutions in working toward survival.
- **Collapse:** A series of natural disasters renders coastal regions all over the world uninhabitable. Massive reorganizations in population and resources eliminate the existence of a middle class, force families to focus on meeting basic needs, and reduce the viability of formal higher education.
- **Transformation:** The world embraces artificial intelligence as the greatest technological development of the 21st century. With a focus on safe and ethical practices, higher education adopts AI in all operational areas. Institutions are transformed by AI tools, enjoying great rewards, balanced by great risks.

Institutions of higher education, and the teaching and learning practices they adopt, are in many ways products of the larger environments of which they are a part. Colleges and universities are always made up of people living at a particular point in history, residing together in particular communities, and sharing a particular mixture of cultural ideas, norms, and resources. Mapping the future of these institutions and their practices demands that we pay attention to the larger social, economic, and other shifts taking place across our global society that may be impacting higher education in profound ways.

To help us explore these larger forces taking shape around higher education, we asked panelists to survey the landscape and identify the most influential trends shaping the holistic student experience across five categories: social, technological, economic, environmental, and political. This section summarizes the trends the panelists voted as most important in each of these categories, as well as anticipated impacts of and evidence for each trend.

Many of the trends identified by panelists are underlying drivers putting pressure on the future of higher education: decreasing enrollments, concerns about the cost of higher education, budget cuts, and the increasing availability of low-cost alternatives to higher education. The impact of political polarization and the involvement of politicians in education curricula also have the potential to impact higher education broadly.

From a technical perspective, trends related to AI and the use of data are discussed—the sharp increase in the availability of and interest in AI, as well as the increase in data collected about students. Panelists noted that machine learning is increasingly being used to analyze student data, which brings with it growing concerns about the impact of AI on individuals' right to privacy.

Some trends centering students' experiences and their ability to participate in higher education are highlighted, including the increase in awareness around the challenges and impacts of mental health and the impact of climate change on food insecurity and mobility. These drivers may also impact another trend we have seen consistently since 2020: the growing interest from students in online and hybrid learning. Related to climate change, panelists also pointed to the growing market for renewable resources, as well as the increasing need for climate literacy.

Taken together, these trends give higher education institutions a lot to consider in terms of sustainability—economic and environmental; policy and process related to AI; and holistic, student-centered, flexible supports and offerings.

## Social

**Awareness of mental health challenges and their impacts is increasing.**

**University enrollments are decreasing in the United States.**

**Student interest in online and hybrid learning is growing.**

## Technological

**AI technologies are becoming more sophisticated and readily available.**

**More data are being collected about students.**

**Machine learning is increasingly being used to analyze student data.**

## Economic

**Concerns about the cost of higher education continue to grow.**

**More affordable postsecondary education options are being offered.**

**Higher education continues to face budget cuts.**

## Environmental

**The market for eco-friendly products and renewable energy is growing.**

**Food insecurity and population displacement are increasing due to climate change.**

**The need for climate literacy is growing.**

The summary of these trends is drawn directly from the discussions and inputs provided by our expert panelists, in keeping with the tradition of the Delphi methodology. Each of the trends was identified and voted on by panelists without influence from the EDUCAUSE Horizon Report staff, aside from our work organizing and synthesizing the panelists' inputs for presentation here.

Each of the trends encompasses far more complexity and variability across types of institutions and regions of the world than can be adequately captured in such a brief summary. Indeed, the expert panelists—who represent a variety of roles and institutional types within the United States, as well as communities outside of the United States—routinely reflected on the ways in which trends affect institutions differently across different settings. Where possible, we've tried to account for that variability, though the reader will certainly bring additional experiences and contexts that would further broaden these considerations.

## Political

**Political polarization is increasing in the United States.**

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**Politicians are becoming more involved with education curricula.**

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**Concerns are growing about the impact of AI on privacy.**

**H**igher education takes place within particular social contexts, and learning experiences are shaped and colored by the people interacting and building relationships through those experiences. The student experience in higher education is a fundamentally social practice, one that is better understood by mapping the important social trends developing within and around it.

## Awareness of mental health challenges and their impacts is increasing.

**Impact:** Mental health challenges affect people worldwide, and college students are no exception. Students are experiencing **all-time high rates of stress, depression, anxiety, and suicidal thoughts**. Mental health can affect all aspects of the student experience, including enrollment and retention, learning and academic performance, participation, and engagement in the classroom and in extracurricular activities. It also has a bearing on social relationships, including those with peers, faculty, and staff. Even though many students are facing mental health challenges now more than ever, they are also willing to seek help. Colleges and universities are experiencing massive increases in demand for mental health services, in addition to requests for accommodations. This has caused strain for institutions, with many scrambling to secure mental health practitioners in the midst of an ongoing shortage of mental health workers, in addition to resources such as 24/7 hotline operators and telehealth services. As awareness of these problems continues to grow, officials at some institutions are thinking beyond therapy and counseling and are finding ways to adopt and embrace a culture of health and wellness. Approaches include modifying course policies to be more accommodating and flexible, training faculty and staff to identify students in distress, and providing tools and workshops on health and wellness. Moving forward, institutions need to find ways to help students deal with the common factors that negatively impact mental health, such as coursework/load, loneliness, financial concerns, bullying, and the stress associated with being a member of an underrepresented group. Colleges also need to focus on offering timely mental health services that can be accessed via different methods based on institutional type and also student needs and preferences (i.e., some students prefer off-campus services, others prefer telehealth, and still others prefer on-campus or on-site services). Fostering a culture that promotes wellness can help reduce stigma, increase student resilience, prevent mental health crises, and provide better overall support for students throughout their college journey.

**Evidence:** Data from **the Healthy Minds Study (HMS)** found that student mental health issues are rapidly increasing, and it's not just a symptom of the pandemic. A communications professor at **Salt Lake Community College** uses Zoom polls to conduct anonymous mental health check-ins with his students. An article from *Inside Higher Ed* **provides resources and guidance** for faculty to support their students' mental health.

## University enrollments are decreasing in the United States.

**Impact:** Since 2010, undergraduate enrollments in the United States **have shown a steady decline**, with a sharp drop during the pandemic. Though numbers have somewhat stabilized since the pandemic, **disparities in enrollments—across institution type and student demographics—remain**. More generally, enrollment declines are expected to continue as the traditional population of prospective students shrinks and as more people question the value of a college degree. Enrollment declines have the potential to impact the student experience in both positive and negative ways. Lower enrollments, along with more offerings of online and hybrid courses, mean that there are and will be fewer students on campus, which will impact class size, support services, participation in extracurricular activities, and the ability for students to connect with peers and with campus life overall. Panelists offered competing predictions for the ways lower enrollments might affect class sizes in the coming years. On the one hand, it could reduce class sizes, which may improve student learning experiences. However, it could alternatively lead to larger class sizes due to shortages of faculty at some campuses. Tuition-dependent institutions will be disproportionately impacted by declining enrollments because they will continue to experience budget cuts, affecting their ability to provide the variety of resources and services needed to support student learning and wellness, in addition to providing robust degree programs. As enrollment declines continue, institutions will look to nontraditional populations for recruitment, student diversity will rise, the variety of student needs and expectations will expand, and, thus, institutions will need to be ready to support increasingly diverse student experiences.



**Evidence:** According to a report by the [ECMC Group](#), only about half of Gen Z high schoolers are considering pursuing a four-year degree, a decrease of 20% compared to 2020. [Kirkwood Community College](#) will be closing or modifying its Dental Technology, Energy Production, and Distribution Technologies programs and is laying off faculty and staff due to low enrollments.

## Student interest in online and hybrid learning is growing.

**Impact:** Over the past few years, student interest and enrollment in online and hybrid courses have quickly increased. Students still highly value on-site experiences, but many have found that online and hybrid courses offer more flexibility, which is especially helpful for those juggling work, family, and other life responsibilities and issues. To meet growing demand, institutions will need to develop mature and fully scaled online and hybrid programs. To support student experiences across modalities, institutions will need to garner more buy-in from faculty; [student interest in online learning outpaces faculty interest in online teaching](#). Institutions will need to adopt and maintain appropriate technology, offer support services to meet the needs of virtual learners, and hire specialists with expertise in developing, implementing, and managing online courses and programs. Faculty also need more time, training, and support (e.g., investments in centers for teaching and learning) so they can teach effectively across modes. Curriculum and assessment design need to be revisited,

with a major focus on evidence-based recommendations and practices regarding accessibility and which learning designs and assessment strategies work well in online or hybrid versus on-site environments. As more students enroll in online and hybrid courses, the college experience has the potential to change in a number of ways. Online options might help make education more attainable to students who need flexibility to pursue education. These learning options might also improve health and well-being for all students by allowing for a better work–life balance. Yet, there are also potential challenges. Students enrolled in online or hybrid courses may find it more difficult to engage and make meaningful connections. Equity and accessibility issues might also be exacerbated; the digital divide could continue to grow, with underrepresented and low-income students being the most impacted. As colleges adopt and continue to offer multiple learning modalities, they must develop structures that support access and quality learning equally across modalities.

**Evidence:** A faculty mentor at the [Foothill-De Anza Community College District](#) is working with faculty to improve their relationships with students in online learning—humanizing online learning should not only benefit all students but also improve equity for students from marginalized backgrounds. Online student orientation at [Blinn College](#) in Texas has trained more than 40,000 students to navigate their online courses effectively, improving student success rates, especially for economically disadvantaged students.

## FURTHER READING

### *Inside Higher Ed*

[“Stress Is Hurting College Students”](#)

### *The Hechinger Report*

[“Another Million Adults ‘Have Stepped Off the Path to the Middle Class’”](#)

### *Forbes*

[“By the Numbers: The Rise of Online Learning in the U.S.”](#)

# TECHNOLOGICAL TRENDS

**T**echnology is constantly changing and growing more sophisticated. As technologies become outdated and new technologies are introduced, institutions of higher education must consistently monitor the usefulness of tech already implemented and plan for new technologies that enable more adaptive decision-making and more flexible teaching and learning experiences. What those technologies are, how they are deployed across the institution, and the ways in which they themselves continue to evolve is one of the ongoing and defining stories of higher education.

## AI technologies are becoming more sophisticated and readily available.

**Impact:** ChatGPT landed in higher education not with a whimper but with a resounding roar. While AI technology has been used in higher education for years, the introduction of newer and more sophisticated tools such as generative AI has put it back in the spotlight, leaving many wondering what the impact will be on the student experience. Many are already alarmed at students' use of AI to complete coursework, yet some are embracing AI tools, noting that they also have the potential to shape the student experience in positive ways. For example, faculty are using AI to streamline course material generation, and some institutions are developing recommendations and best practices for use in the classroom, in addition to using AI to personalize learning, identify learning gaps, and accommodate students with disabilities. As AI tools become more sophisticated, detecting their use will only become more difficult. Thus, higher education should prepare for AI to be here to stay and nearly impossible to detect. Curriculum and assessment design need to be reimagined. Faculty need to find ways to adopt assessments that minimize opportunities for plagiarism, fostering creativity and critical thinking. It's also becoming clear that given the ubiquity of AI, many students will need literacy in these tools to be prepared for the workforce. With increasing adoption of these tools, institutions will face new privacy, security, and ethical challenges. They may also see an increase in demand for AI literacy training, larger numbers of students entering majors such as computer and data science, and new programs that focus on low- or no-code technologies as AI takes on more coding work.

**Evidence:** The release of ChatGPT is leading to a surge in new faculty hires. The University at Albany will hire 27 new AI faculty, Purdue University will hire 50 new AI faculty, and Emory University will hire between 60 and 75 new AI faculty. The University of Texas at Austin announced plans to launch an online master's degree program in artificial intelligence (MSAI), and already more than 4,000 prospective students have requested information about the program.

## More data are being collected about students.

**Impact:** Higher education institutions are collecting more and more data on their students. With the rapid adoption of online and hybrid learning modes and educational technologies during the pandemic, in addition to increased pressures surrounding enrollments and graduation rates, there has been an increase in the amount of data being collected and a sharper focus on using data to make informed decisions. The use of student data has growing potential to improve the student experience through identification and early intervention for learning gaps, personalized learning, and improved learning outcomes and student success. Yet with more data collection and expanding digital perimeters come more threats to student privacy. Colleges and universities are facing more data breaches, and security, privacy, and ethics are at the forefront of conversations at many institutions. As data collection becomes more invasive, student concerns about privacy will likely grow, leading to feelings of distrust if transparency and agency surrounding their data are lacking. Students will need more visibility when it comes to their data and should have the right to have the use of their data limited or restricted. Institutions will need to develop stronger practices for consent and a focus on improving data literacy for all stakeholders. Investing in campus-wide data literacy initiatives will help students make informed decisions regarding the collection and use of personal data, and it will allow leadership and other stakeholders to make appropriate decisions about how to use student data ethically and equitably in order to improve the college experience.

**Evidence:** An associate professor of sociology at the University of California (UC), Merced, says that colleges are not federally required to collect data on LGBTQ+ students, which makes it difficult to fully understand the student experience. Complete College America released a data management guidebook to help faculty, staff, college leadership, and policymakers understand and use data to improve completion rates, close institutional performance gaps, and facilitate economic mobility for historically excluded students.

## Machine learning is increasingly being used to analyze student data.

**Impact:** Machine learning (ML), a branch of AI that uses data and algorithms to identify patterns and imitate human learning, is more frequently being used to analyze student data, accelerating the potential for analytics to have an impact on student learning, outcomes, and success. ML can impact student outcomes by identifying performance and learning gaps. These analytics are particularly important for student outcomes because they can be used for early intervention by identifying students who are struggling and allowing institutions to provide targeted support, reducing dropouts. Student performance analytics can also help institutions better support marginalized students, who often lack the support they need to be successful. ML can also personalize the learning experience in the classroom. Learning management systems and other software now provide capabilities for monitoring student engagement with content, identifying student strengths and weaknesses, and then tailoring learning content, feedback, and activities based on those factors. ML is an attractive tool for institutions because it is quick, relatively accurate, and gives institutions an opportunity to generate timely, actionable data that ultimately may be used to improve student learning, retention, and graduation rates. However, reliance on these algorithms could negatively impact the student experience.

If the algorithms are not used mindfully, the potential arises for the misinterpretation or misuse of data. ML is also not free of bias, and in some instances its use can lead to **decision-making that exacerbates inequities**. Further, while students may benefit from more personalized experiences, the quality of these experiences may not be as good or as accurate as those not involving these powerful tools—for example, getting feedback from one’s professor versus automated feedback generated by an algorithm. Moving forward, institutions will need to leverage the use of ML to scale personalized interventions and generate insights about the student experience from analytics, while also ensuring that the data are accurately being used and by ensuring that automation does not result in unintended consequences. An overreliance on automation could ultimately make learning feel less personalized and humanistic, leading to disengagement and poorer student success and wellness.

**Evidence:** **McKinsey & Company** released a report that shares promising use cases for advanced analytics in higher education and examples of how institutions are using data to improve accessibility and the student experience. **Amazon Web Services (AWS) Machine Learning University** is launching a free AI/machine learning program to help community colleges, minority-serving institutions (MSIs), and historically Black colleges and universities (HBCUs).

### FURTHER READING

#### U.S. Department of Education

“Artificial Intelligence and the Future of Teaching and Learning: Insights and Recommendations”

#### EDUCAUSE

“Student Data Privacy and Security: A Call for Transparent Practices”

#### Nature

“Using Machine Learning to Predict Student Retention from Socio-Demographic Characteristics and App-Based Engagement Metrics”

# ECONOMIC TRENDS

**H**igher education is no stranger to economic challenges. Finding reliable markets and sources of revenue while keeping costs from ballooning is always of critical importance to institutions. Yet economies and enrollment patterns fluctuate, so institutional leaders need to be prepared for fiscal instability and uncertainty by anticipating declines in funding and adopting new ways of thinking about and planning institutional business.

## Concerns about the cost of higher education continue to grow.

**Impact:** Despite showing some recent signs of stabilizing, college tuition has been on the rise for decades. As state funding for higher education remains variable (with many institutions facing declines), costs have shifted to students through increases in tuition and fees. Unsurprisingly, prospective students are now placing more emphasis on ROI when it comes to deciding whether college is right for them, and a growing number are pursuing alternatives to traditional higher education as concerns about ROI grow. Institutions now face pressure to control costs in order to attract and retain students, which is a major challenge as many are facing funding cuts and declining tuition revenue. As institutions reassess and reprioritize their resources, they will have less money for student services and amenities, for faculty development and other instructional support, and for student- and faculty-facing technologies, raising concerns about their ability to maintain the quality of the student experiences that they offer. Institutions will need to find ways to adopt more cost-effective support services that are easy for students to access, expand financial aid options, and explore alternative educational models to reduce the financial burden on students while still investing in adequate faculty development, instructional support, and technology in order to provide a high-quality learning experience. If the gap between the cost of higher education and students' ability to pay continues to grow, we could see further declines in enrollment and equitable access to higher education as students who are priced out of college find themselves diverted to nondegree options.

**Evidence:** The majority of [University of Arkansas System institutions](#) are proposing increases in tuition and mandatory fees for 2023–24. [The University of Houston System Board of Regents](#) approved a new program called “Cougar Textbook Access Program” to make textbooks and course materials available for undergraduate students at a fraction of the current cost. Some colleges are looking for ways to make tuition less expensive; for example, in [Maine](#), lawmakers are proposing legislation that would cut tuition in half for students who graduated from high school in the state.

## More affordable postsecondary education options are being offered.

**Impact:** As concerns about the cost of higher education grow, institutions are adopting more affordable education options such as nondegree and competency-based pathways such as microcredentials and certifications. These options are growing in their attractiveness due not only to their affordability but also to their flexibility and focus on skills-based learning, which is important for students navigating the workforce. As institutions implement these alternative options for learning, they will attract and serve more diverse groups of students and nontraditional learners, increasing access and equity on campuses and potentially impacting inclusion in positive ways. While opening these new pathways may lead to additional revenue as institutions tap previously underserved markets, they may still face the challenge of devoting significant resources to implement and maintain these opportunities, potentially diverting resources from other areas that may impact the student experience, such as credit-bearing programs, research, extracurricular activities, and services. Further, with more educational options comes more variability in the student experience and increased difficulty navigating those experiences for both students and the institutions supporting these new options. Institutions that find themselves confronting changing markets are going to have to adapt and figure out how to support a range of students from varying backgrounds, including full-time students pursuing four-year degrees, those who are part-time, and those who want to pursue very short-term training to learn a very specific skill or skills. Institutions that start to expand their offerings may find themselves stretched thin if they aren't strategic in their approach to ensuring a student experience that is of equal quality and value regardless of the pathways students choose, which includes finding ways to help students navigate their experiences in the most meaningful and seamless ways possible.

**Evidence:** As enrollments in traditional degree programs decline, enrollments in alternative programs such as [apprenticeships](#) and [trade programs](#) are increasing. Historical evidence suggests that interest in workforce-oriented programs stems from a tight labor market; however, if higher education costs remain high or increase, more interest in these programs could be spurred by cost concerns. A survey by [Coursera](#) found that 90% of students and recent graduates said they would be more likely to enroll in programs that have microcredentials or entry-level professional certificates.

## Higher education continues to face budget cuts.

**Impact:** Funding for higher education remains uncertain. Most institutions faced cuts surrounding the pandemic, [followed by increases in funding in 2022 and 2023](#) due to state surpluses and federal stimulus funding. However, concerns about the stability of state funding remain, and additional budget cuts might be needed in the future, which would exacerbate issues for institutions already in a budget deficit. Additional budget cuts could negatively impact the student experience in many ways. Institutions might be forced to reduce or eliminate support services, resources, and programs that contribute to student success, well-being, and satisfaction. Staffing

levels could be impacted, and operating with reduced staff will increase workload and may lead to increased faculty and staff burnout and attrition. This means that students would consequently have limited access to advisors, faculty, counselors, and other supports. With more budget cuts, some institutions might need to decrease degree programs, course offerings, and enrollment numbers to reduce operational costs. Already, some are canceling whole degree plans or are merging programs. Continued budget cuts will also transfer the cost of education to students, and higher education may become even more of a dividing line socially and economically. In the face of budget cuts and declining enrollments, many institutions will be required to pare down their resources to fit budget realities. This presents an imperative opportunity for institutions to redefine the college experience by finding creative solutions, modalities, and models that are scalable.

**Evidence:** Four of the [Big Ten universities](#)—Penn State University, Rutgers University, the University of Minnesota, and the University of Nebraska—have significant budget deficits and will need to make cuts moving forward. [Cuts in state funding](#) for higher education are pushing more of the costs to students and are exacerbating existing inequalities. [The U.S. Senate](#) passed bipartisan legislation raising the debt ceiling limit to prevent severe budget cuts in higher education.

## FURTHER READING

*The Chronicle of Higher Education*  
“Colleges Fear Cost of Doing Business Will Become Much Costlier”

EDUCAUSE  
“EDUCAUSE and WCET QuickPoll Results: Current Trends in Microcredential Design and Delivery”

*Inside Higher Ed*  
“House Debt Plan Would Mean Higher Ed Spending Cuts”

# ENVIRONMENTAL TRENDS

Institutions of higher education draw on finite local and global materials and resources to fuel their operations, and their facilities leave sizable imprints on the environments around them. The need to adopt sustainable practices across the board, far too often overlooked in higher education planning and decision-making, will be inescapable in a future more concerned with climate stability and environmental sustainability.

## The market for eco-friendly products and renewable energy is growing.

**Impact:** The market for eco-friendly products and renewable energy resources such as wind, solar, and hydroelectric continues to grow. In the United States, renewable energy is the fastest-growing energy source, **increasing by 90% within a decade**, and eco-friendly products increased their market share last year. Students, especially those in younger generations, increasingly care about higher education's carbon footprint and sustainability initiatives, and thus colleges and universities that invest in sustainability are becoming more appealing to prospective students. An increase in the market for eco-friendly products and renewable energy could have positive implications for the student experience as institutions integrate sustainability and climate issues into their curricula, in addition to generating new climate research opportunities and campus initiatives and activities for students to be involved in. This could not only enhance students' awareness and skills in these growing industries but also help foster an environmentally conscious campus culture and contribute to overall student well-being, engagement, and future career prospects. Some institutions are already seeing the benefits of investing in renewable energy. Institutions that implement renewable energy have been able to save money on their energy bills and recover costs. Meanwhile, some colleges and universities are receiving funding and grants to conduct renewable energy research projects, and tax incentives are available for these projects. Eco-friendly products and renewable energy are thus promising areas of investment that have the potential to attract students, bring in extra funding for research and projects, and save money, which could then be devoted to better supporting the student experience.

**Evidence:** **Montclair State University** announced a renewable energy agreement with ENGIE Resources LLC, under which the university will purchase renewable energy credits (RECs) from wind, solar, and hydro projects. In 2020, **Penn State University** began purchasing renewable energy generated at three solar farms in Franklin County, Pennsylvania, saving an estimated \$2.5M in energy costs around the two-year mark.

## Food insecurity and population displacement are increasing due to climate change.

**Impact:** Climate change is causing more and more severe weather conditions and disruptions across the world. Changes in temperature and precipitation and reductions in water availability have caused millions of people to be displaced from their homes. Further, these disruptions have also impacted agriculture, livestock, and food delivery, leaving many with limited access to sustainable food sources. College students, especially those from high-climate-impact areas and from low socioeconomic backgrounds are being more frequently impacted by these climate-related challenges, resulting in more disruptive college experiences. Students are relying more on their institutions when it comes to some of these issues. For example, many students are not eligible for supplemental nutrition assistance because it requires them to work at least 20 hours a week, which is daunting for full-time students. Further, more and more students are coming from a background of economic stress, and when climate disruptions occur, they may not have resources to relocate. Some institutions are addressing these challenges by incorporating climate change awareness and mitigation strategies into their curricula and campus operations, as well as by implementing support services and resources to assist students affected by food insecurity and displacement. This includes on-campus food pantries, emergency housing assistance, and mental health resources. By implementing these types of support, institutions are helping ensure that students' basic needs are met so that they can then succeed academically and personally in the face of these challenges.

**Evidence:** *Inside Higher Ed* discusses three examples of college initiatives that support students facing food insecurity. **California State University and the University of California** campuses received recurring funding to implement basic needs centers—hubs that help students with housing and food insecurity, in addition to providing other support services such as finding and paying for insurance, medical care, and public benefits.

## The need for climate literacy is growing.

**Impact:** Institutions are ramping up their sustainability efforts, and many have implemented more course offerings and programs on climate and sustainability issues. Yet a growing need persists for climate literacy, especially across disciplines and fields. Evidence is also mounting that young people are being overcome by climate anxiety, which is exacerbated by **lack of or varied understandings of climate change**. By developing and implementing more climate and sustainability curricula, institutions can reduce students' anxiety while empowering them to make better climate decisions and lessening their personal carbon emissions. It's apparent that students will need climate literacy beyond higher education—they will need to be equipped with the knowledge and skills to adapt to the changing workforce and to increasingly green environments and initiatives. As institutions expand their climate offerings, they need to ensure that students have the opportunity to learn

about climate across a variety of disciplines. Climate issues are already traditionally covered in science courses, but there is a growing need to educate individuals on broader climate issues such as technology, health, socioeconomic, and political issues as they relate to climate and sustainability. To foster educational programs, colleges and universities will need to equip faculty with adequate training and resources so they can teach climate across areas—many faculty do not have formal training in climate issues/topics.

**Evidence:** According to the **Hechinger Report**, the climate and renewable energy workforce is projected to grow rapidly, stemming from new Inflation Reduction Act funding and the climate and health bill. Yet, without significant investments and more mature climate curricula in higher education, there is likely to be a shortage of workers to fill those jobs. Student anxiety about climate change and its impacts is growing; leaders and educators can take **five steps** to help students transform their anxiety into meaningful actions.

### FURTHER READING

*Times Higher Education*

"How a Green Approach to Tech Can Attract and Engage Students"

*The Guardian*

"The American Climate Migration Has Already Begun"

*The Chronicle of Higher Education*

"The Climate-Conscious College"

# POLITICAL TRENDS

**H**igher education, for better and for worse, is always entangled in and concerned with the political climate and events of the present moment. In addition to determining overall higher education funding, politics is interwoven with higher education as an object of research and study and as subject matter for courses. Because of this long-standing entanglement, political trends have significant effects on higher education at a variety of levels, both positively and negatively.

## Political polarization is increasing in the United States.

**Impact:** In the United States, the political divide continues to deepen, putting higher education institutions on the front lines of culture-war battles. Individuals' views of higher education increasingly align with their political affiliations, and the major parties are becoming more divided in their views on education, including topics such as admissions, academics, DEI, and financial issues. An increase in political polarization is already impacting the student experience by making learning experiences more rife with conflict and intense campus debates and disagreements. Polarization on campuses also has the potential to create stagnant learning environments where exploration, growth, critical thinking, and open discussions are discouraged and learning instead becomes centered around fixed mindsets reinforcing views based on political alignment. With the rise in polarization, some students are taking a stance and standing up for academic freedom. Yet, if polarization continues to increase, we may see some students gravitate to institutions that support their political views, leading to less diversity and more filter bubbles full of like-minded individuals on some campuses. Institutions will face challenges when it comes to fostering an environment that encourages respectful dialogue, critical thinking, and inclusivity. To address this, institutions need to implement or bolster support services, such as counseling, peer mediation, and bias response teams, while also providing faculty with resources and training to effectively navigate sensitive and controversial topics in the classroom. By doing so, institutions can cultivate a campus culture that values diverse perspectives and promotes intellectual growth.

**Evidence:** According to a report by [Axios](#), "a quarter of prospective college students say they'd shun a school in a state whose politics or policies they abhor." [The Greater Good Science Center](#) launched a project focused on "Bridging Differences in Higher Education" that identifies and spreads research-based strategies for fostering dialogue, relationships, and understanding across group lines. As part of this initiative, they developed an online course that teaches skills and principles for intergroup contact and dialogue, and so far more than 8,200 people have enrolled.

## Politicians are becoming more involved with education curricula.

**Impact:** Political involvement in higher education, especially at the state level, is increasing as the partisan divide continues to widen. In some states, officials and legislators are proposing and enacting bills that will lead to significant changes in curricula and other campus activities and initiatives. An increase in the involvement of politicians in education curricula could impact the student experience by potentially leading to changes that reflect political biases or agendas. This may result in less academic freedom, a narrowing of perspectives, and reduced intellectual diversity, which could hinder students' critical thinking and analytical skills. Already, we've seen book bans in K-12 contexts, which could impact students by [stifling their precollege learning experiences](#). Additionally, bans have been proposed in higher education on specific content and initiatives, including critical race theory, gender and sexuality studies, history, and DEI efforts. These types of academic changes have the potential to disproportionately impact students from underrepresented groups, causing them to feel less connected and valued. They can also impact students in general by limiting their development of the knowledge and skills required to successfully interact with and understand those from different backgrounds. Another potential impact is that students may encounter uneven educational experiences depending on where they live. Further, with more challenges to academic freedom, institutions may see more faculty attrition as instructors lose autonomy. If more faculty migrate to institutions that respect their academic freedom, the student experience will be impacted in terms of a variety of factors, such as class size, student-to-faculty ratio, and opportunities for students to engage in research. To counteract these potential effects, colleges and universities need to emphasize the importance of academic freedom, promote the inclusion of diverse viewpoints in the classroom, and ensure that support services and resources are implemented that will foster meaningful and open discourse.



**Evidence:** According to an article by the *Los Angeles Times*, defunding DEI programs will put students at a disadvantage because they will be less prepared to enter changing workforces that are growing in diversity. Faculty in some states, including *North Carolina* and *Florida*, are speaking out against proposals from their governing boards and the state. These proposals include eliminating DEI efforts, implementing guidelines for curricula and assessments for certain courses, and removing tenure for faculty.

## Concerns are growing about the impact of AI on privacy.

**Impact:** Over the past several years, the demand for AI-powered tools in higher education has quickly grown. Institutions are adopting these tools in an effort to streamline processes and improve student outcomes and experiences, and students are adopting these tools for creative endeavors and to facilitate their coursework. This increase in adoption of AI has led to growing concerns over privacy considerations. Personal data and information are often not only being collected for institutional purposes but are also being shared with third parties, sometimes without users' knowledge. For example, ChatGPT, a generative AI tool which is reportedly being used by many students, has a privacy policy that allows personal information to be disclosed to third parties without any notice to the user. Further, there are questions about the accuracy and potential misuse of data—AI *can give false positives* and has been *shown to demonstrate biases*. As concerns about AI and privacy grow, they could influence the holistic student experience by prompting colleges and universities to adopt more stringent

data privacy and security policies when using AI-driven tools and platforms for student support services. Further, future legislative changes could impact AI usage on campuses, such as the implementation of privacy legislation and regulations that protect personal data collected via AI, especially focused on preventing instances of misuse, in addition to *shifting the burden of responsibility from users to those who are collecting the data*. Even if legislation lessens the burden on the user, the time is still ripe for institutions to develop mature digital literacy training and programs that educate users on the intersection of AI, data analytics, privacy and security, and ethics. AI tools are likely here to stay, so institutions will need to find impactful ways to educate stakeholders about privacy risks associated with AI, implement transparent consent processes, and establish clear guidelines and policies for the responsible use and storage of student data. By addressing privacy concerns, colleges and universities can ensure a safe and secure learning environment that respects individual rights while still leveraging the benefits of AI to enhance student success and well-being.

**Evidence:** *Italy's Data Protection Authority* temporarily banned ChatGPT and launched a probe over a suspected breach of privacy rules. The Biden Administration issued the *Blueprint for an AI Bill of Rights*, and the National Institute of Standards and Technology released its *AI Risk Management Framework*. Both documents aim to protect individuals and society from AI-related risks. The U.S. Department of Education's *Office of Educational Technology* is working to develop policies and supports focused on the effective, safe, and fair use of AI-enabled educational technology.

## FURTHER READING

### *Government Technology*

"Can Digital Resources Ease Political Polarization in Class?"

### *Gallup*

"College Students Favor Open Discussion of Race and Gender"

### *Forbes*

"Exploring the Security Risks of Generative AI"

**T**he *Horizon Report* identifies “key technologies and practices” that are anticipated to have a significant impact on the future of the holistic student experience. Panelists are invited to consider technologies and practices that have the most potential to either accelerate or mitigate the trends identified for the report. We include both technologies and practices because we know that while innovations and advancements in technological capability create new opportunities, it’s often the organizational or pedagogical practices or the development of institutional capabilities that offer the most potential as change drivers.

With this *Horizon Report* edition’s focus on supporting the holistic student experience, it is not surprising that the technologies and practices highlighted by the panel are wide-ranging and cover lots of organizational ground. Given the explosion of generative AI models and functionality into the marketplace and increasing capabilities of predictive AI, artificial intelligence was voted into the top six.

Technologies and practices that center students were also prioritized, including expanded mental health supports for students, accessible and inclusive tools and processes, and supporting student connection and belonging with technology.

Rounding out the top six were two practices that emphasize the importance of data systems and data literacy in supporting a holistic student experience. Unified data models for learning analytics and building data literacy for understanding and using student data were voted to the top as well.

In each section, readers will find an overview of each key technology or practice, a discussion of its relevance to the holistic student experience, and a set of resources for further reading. Examples of projects that bring each technology or practice to life are also included with brief descriptions and links to learn more.

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## Artificial Intelligence

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### Accessible and Inclusive Tools and Processes

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### Supporting Student Connection and Belonging with Technology

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### Expanded Mental Health Support for Students

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### Unified Data Models for Learning Analytics

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### Building Data Literacy for Understanding and Using Student Data

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# ARTIFICIAL INTELLIGENCE

## Overview

Artificial intelligence (AI) has the potential to impact all areas of the holistic student experience. Some stakeholders anticipate that AI-powered tools could be used to greatly improve students' experiences through a broad range of functions: optimizing course loads, providing personalized coaching and tutoring, designing flexible and customizable learning paths, integrating content across courses and extracurricular activities, evaluating institutional processes and courses, assessing student learning, and much more.

Proponents envision a seamless AI-powered student experience—from recruit to alum—integrating support services, learning experiences, extracurricular activities, professional development, and lifelong learning. With intelligent personalization, AI learning environments could be the key to unlocking truly equitable and inclusive experiences, ensuring that every learner's set of needs is met. AI insights could even support students' sense of belonging by facilitating meaningful community connections.

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"As AI becomes ubiquitous, we need to remember that it is a tool and that it can be used positively or negatively. We have to keep our focus on the ethics and institutional integrity that have guided us in the past to face this new future challenge."

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Even those who envision a shining future for AI in higher education acknowledge that we are far from our ideal state, and getting there will take concerted investments of time and money. Faculty, staff, and students alike will need training and professional development to use AI tools safely and effectively. Data governance systems need to be updated, and AI tools need to be integrated into institutional data ecosystems. Further, rapid advancements in AI present perhaps one of the greatest risks of the contemporary digital world. AI operates on massive datasets, introducing questions about what data are collected

and how, how stakeholders consent to and opt out of data collection, who can access data and data insights, and how AI models are trained. Risks attached to AI tools go far beyond data privacy and security or even digital access disparities. Because these tools are trained on data generated by current social, cultural, and economic systems, they can and do amplify inequities and biases inherent in those systems. AI developers have yet to solve such failings, and this lack of control over AI outputs has compelled higher education leaders to proceed with great caution.

## Relevance for the Holistic Student Experience

### **Students are having a variety of experiences with generative AI.**

Even as generative AI-powered technologies approach ubiquity, higher education stakeholders are debating whether such technologies should have a place at their institutions. The argument falls along a continuum with two extremes: ban generative AI to protect academic integrity and personal privacy, or integrate generative AI across student experiences to keep up with the digital age. In reality, many stakeholders find themselves falling somewhere in the middle, acting with caution while exploring potential opportunities. In the meantime, students will have differential experiences with generative AI in various contexts, even at the same institution.

### **Using AI is anticipated to become a predominant skill for the 21st-century workforce.**

Though higher educators are debating whether and how generative AI should be used in institutions, employers seem to be clamoring to integrate all types of AI into their current processes and products. AI has a greater potential than any other modern

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“There is a lot to uncover about AI and its impact, and hence, integrating it with care and caution is important. However, if we prevent our learners from engaging with AI, we will be doing them a disservice.”

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technology to introduce large-scale disruption into the workforce, especially for jobs that require great technical skill and specialized knowledge. Thus, many higher education leaders assert that educators have a responsibility to teach students how to use AI tools ethically and responsibly, or they risk being left behind at this critical juncture in the digital revolution.

### **The very purpose of education is being challenged as AI tools are capable of replicating many human tasks.**

Some educators are embracing these changes, urging colleagues to focus on teaching students higher-order skills such as complex synthesis, analysis, interpretation, prediction, and even creativity. In this rapidly changing landscape, students themselves have an opportunity to take a leadership role and actively engage in discussion of how human thinking is distinct from AI. Still, stakeholders both within and outside higher education are raising alarms about AI replacing human work. Thus, there are larger ethical and even existential questions about AI that remain unanswered.

## Artificial Intelligence in Practice

### OER Repository for Generative AI Class Activities

Through the Private Academic Libraries Network of Indiana (PALNI) Innovation Grant, Butler University will build an open repository of peer-reviewed generative AI activities that focus on building students' AI literacy skills or providing hands-on use of these tools. The activities created will be discipline-specific, and because of the open licensing, faculty can reuse or remix anything in the repository to fit their context. Initial activities will be published in December 2023.

### CEPTCHA: An Alternative for the CAPTCHA

Millions of people every day have to prove to a robot that they are not a robot by doing "robot stuff" such as identifying images with cars or traffic signs, typing blurry words, or ticking a checkbox. CAPTCHAs are boring, derogatory, insulting, and inhumane. After all, we are human. Give us a test that enables us to prove that we are human! Give us a CEPTCHA!

### Financial Aid Advanced Analytics

The Financial Aid Advanced Analytics helps recommend eligible students for the various financial aid schemes available at Singapore Management University. The system makes use of students' application data to derive insights and identify those with financial difficulties or exceptional achievements. It is designed to provide key insights into the financial aid applications and apply necessary shortlisting criteria for faster, more efficient and accurate financial aid management, processing, and short-listing.

### UD StudyAiDE: Developing an AI-Powered Study Companion for Student Success

UD StudyAiDE, the University of Delaware's emerging pilot project, uses OpenAI technology for the benefit of student success. We are training a private, internal large language model with our faculty intellectual property so our students can generate personalized learning experiences. This project leverages two decades of videos from our proprietary lecture capture system, Canvas content, and course materials. The generated output includes individualized study guides, practice exercises, worked examples, and more.

### RadioGPT: Using AI Technology to Drive Localism and Relevance in the Broadcast Industry

The University of Florida College of Journalism and Communications (UFCJC) is using GHQ, a multiplatform radio station targeted at students and campus life, to create AI-driven personalities that will provide hourly updates on weather, events, and news for the UF community. The content will be provided by GHQ staff and students, and the AI will enhance broadcasting. Research will help students and the radio industry develop best practices in the effective and ethical use of AI.

### LearningClues

Most online learning environments include a menagerie of educational platforms, including, but not limited to, a learning management system (LMS), an e-textbook, lecture capture, and adaptive learning systems. The LearningClues Project uses generative AI to mine what was presented during class sessions and automatically provides learners AI-generated session highlights with questions to stimulate reflection and study guides with flashcards based on what was discussed in class.

## FURTHER READING

### *Tyton Partners and Every Learner Everywhere*

*Time for Class 2023*

### *Cornell Chronicle*

"Writing with AI Help Can Shift Your Opinions"

### **SURF Communities**

"AI Ethics Guidelines Landscape"

### *Forbes*

"How Colleges Are Using Artificial Intelligence to Improve Enrollment and Retention"

### **Stanford University, Human-Centered Artificial Intelligence**

"AI Will Transform Teaching and Learning. Let's Get It Right."

### **University of San Diego Online**

"43 Examples of Artificial Intelligence in Education"

### *Nature*

"Why AI's Diversity Crisis Matters, and How to Tackle It"

### **The U.S. Department of Education Office of Educational Technology**

*Artificial Intelligence and the Future of Teaching and Learning*

### **McKinsey & Company**

"What Every CEO Should Know about Generative AI"

# ACCESSIBLE AND INCLUSIVE TOOLS AND PROCESSES

## Overview

Accessible and inclusive tools and practices lie at the intersection of multiple social and technological trends described in this *Horizon Report*. In addition to identifying general efforts to improve the accessibility and inclusivity of higher education, this year's panel turned a spotlight on the higher education community's growing awareness of previously existing and new mental health challenges for students. At the same time, students and other stakeholders are increasingly interested in hybrid and remote learning modalities, artificial intelligence, and data analytics. In this way, there are new and amplified concerns about holistic student well-being when considering the backdrop of a digital world. The tools and processes the higher education community employs have the capacity to support students as never before, but they could also widen equity gaps between students in higher education institutions.

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"Accessibility is key in higher education and supporting the holistic student experience. Making accessibility easy and painless is important for all stakeholders."

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An accessible and inclusive higher education requires much more than providing students with assistive technology or the ability to request accommodations. Horizon panelists described a wide range of accessible and inclusive tools and processes, many of which are designed to help educators take a proactive approach to accessibility and inclusivity. Accessibility and inclusivity must not be limited to instructional content. From student affairs and student life to financial aid and the parking office, the entirety of a students' educational experience should be accessible and inclusive. For instance, educators can use software to review websites and other instructional materials to identify digital accessibility issues and even to propose solutions. Staff and administrators can implement flexible institutional policies that support all students. Finally, all stakeholders can examine their implicit biases and create space for hearing and learning from other members of our community.

## Relevance for the Holistic Student Experience

**Accessibility and inclusivity are foundational.** It is not possible to have a conversation about supporting the holistic student experience without certain foundational elements. A truly student-centered educational experience must be accessible and inclusive. Otherwise, higher education will only continue to perpetuate historically exclusive and harmful practices. Accessible and inclusive tools and processes not only benefit historically marginalized groups of students but can eliminate structural barriers, creating an effective and enriching learning environment for all students to thrive.

**Creating accessible and inclusive educational experiences requires collaboration.** Implementing accessible and inclusive tools and processes requires concerted effort from faculty, staff, administrators, and vendors. Further, accessibility and inclusivity require multiple types of expertise that may be siloed across (or

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“The risks lie in not implementing accessible tools and processes. Accessibility is a law, and being proactive and developing accessibility in course design and web design attitude really makes for a better product than retrofitting products.”

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even outside) an institution—for example, educational equity, instructional design, faculty development, privacy and security, and technology design and development, to name just a few. Stakeholders must work together to make accessibility and inclusivity seamless elements of tool and process design.

**Prioritizing accessibility and inclusivity is resource-intensive.**

Accessibility and inclusivity cover a wide range of student needs, stakeholder expertise, institutional units, and specific tools and processes. Further, stakeholders must consider the full range of modalities through which students engage with their institutions. Making and sustaining progress requires significant investments

of both time and money, and there is no authoritative source or guide to “getting it right.” Instead, institutional leaders must commit to ongoing and continuous evaluation and improvement, requiring buy-in and dedication across the institution.

## Accessible and Inclusive Tools and Processes in Practice

### From Virtual to Reality: Leveraging the Metaverse for Inclusive Learning Experiences of Students with Disabilities

This project explores how the metaverse serves as a virtual space, offering extensive educational opportunities for students with disabilities. By transcending the traditional classroom setting, it enables immersive and realistic learning experiences that revolutionize education. By harnessing the power of the metaverse, we can break barriers, provide inclusive learning experiences that go beyond physical limitations, and empower students with disabilities to thrive in their educational journey.

### Accessible Wayfinding Fosters Inclusion for Students with Visual Impairments

Blind and visually impaired students need to find classrooms, computer labs, exits, restrooms, and bus stops like any other student. Orientation and mobility training is expensive and hard to find. The NaviLens wayfinding system was designed for blind and visually impaired people to navigate their environment independently. It uses special QR codes and a free app to deliver location and service information in the language of the phone.

### Accessibility in the Digital Learning Environment Collaborative

To engage the Northwestern University community around the topic of digital accessibility, a campus-wide partnership has been formed to guide and support instructors who need assistance bringing their learning materials and course sites into compliance with Northwestern's digital accessibility policy. The project team works closely with faculty to address and incorporate seven core skills into their course sites via a gamified approach, the *Mission: Accessible* challenge.

### Inclusive Online Learning Environments: A National Collaboration to Support Online DEI for All

Diversity, Equity, and Inclusion (DEI) and online education experts from SUNY, and expert staff and faculty from Cal State Los Angeles Center for Effective Teaching and Learning (Cal State LA CETL) and the California Community Colleges, have collaborated with more than 60 institutions to develop a flexible framework that can be used to infuse DEI practices into any online course quality rubric.

### Grading Accessible Conformance Reports

Institutions across the world ask vendors to submit accessible conformance reports (completed VPATs) for electronic resources. But many institutions struggle with how to compare these reports between resource options, how the responses correlate to specific portions of the population, or how to compare them to a prior year response. The University of Texas at Arlington has developed a scorecard to solve this problem! Contact [accessibility@uta.edu](mailto:accessibility@uta.edu) for a copy of the scorecard.

### Universal Design for Learning (UDL) Fellows Program

The UDL Fellows Program aims to support faculty and staff in developing expertise in UDL through a comprehensive professional development program. Participants will engage in a series of workshops, online modules, and project-focused activities, enabling them to apply UDL principles in redesigning their courses and practices. By incorporating inclusive and accessible elements, these initiatives will benefit students, staff, and faculty members from diverse backgrounds, providing greater options and flexibility in resources, tools, processes, and course delivery. In its pilot year, the program will reach 21 courses with diverse learning contexts and has the potential to directly impact more than 5,000 students in the upcoming academic term.

## FURTHER READING

#### Andratesha Fritzgerald

*Antiracism and Universal Design for Learning: Building Expressways to Success*

#### Achieving the Dream

"Holistic Student Supports Redesign"

#### TIME

"I'm a Blind Scientist and Inventor. More Disabled Kids Should Have the Opportunities I Had"

#### Anthology

"Proactive, Not Reactive: How the University of Manchester Shifted Their Approach to Digital Accessibility"

#### CMSWire

"6 Considerations for Digital Accessibility and Generative AI"  
**Cornell University Center for Teaching Innovation**

*Inclusive Teaching Strategies*



# SUPPORTING STUDENT CONNECTION AND BELONGING WITH TECHNOLOGY

## Overview

Higher education stakeholders have come to rely on technological solutions to a range of problems, and technology will continue to play a central role in institutional operations in the future. Now, colleges and universities are leveraging technology to reimagine the ways in which students are able to connect, both with each other and with faculty and staff. Tools aimed at supporting students' interpersonal connection and belonging can address issues such as recruitment and retention, educational and extracurricular engagement, academic achievement, and general wellness.

The role of student connection and belonging is well known to contribute to student success in higher education and support their holistic wellness by combating social isolation. Additionally, institutions can gain valuable and essential insights about students' experiences in their own words. Still, no technological solution comes without risk. Without careful implementation, tools designed for connection and belonging can easily flood students with extraneous information. In this way, potential solutions may only exacerbate existing problems such as stress and overwhelm.

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"Creating connections with or through technology could increase a sense of belonging, and feeling a sense of belonging can increase a student's overall impression of the student experience generally and the course experience academically."

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Tools do not have to be designed for educational settings to be valuable for connecting students. Faculty and staff are already repurposing tools designed for enhancing communication and collaboration in other contexts. For example, applications designed to bring remote workers together can be used to help students communicate about coursework, club activities, support services such as advising, and more. In these cases, faculty and staff are not only helping students connect but are also teaching them to use tools they will likely need for the workplace.

Social media applications can be used in real time and in ongoing student engagement, both for academic and extracurricular activities and to communicate with students about events and resources. Students already spend time on social media, and they are already leveraging such tools to connect with each other, even before their first day of classes. For example, an incoming class might follow a specific hashtag to identify potential new friends and roommates.

## Relevance for the Holistic Student Experience

### **Digital equity plays an integral role in using technology to support student connection and belonging.**

Without equitable access to digital tools and resources across the institution, some students will miss out on the benefits of digital solutions, perpetuating systemic biases and inequity. However, digital equity is not characterized simply by access to basic hardware, software, and internet. Technology that supports student connection and belonging must also be designed with accessibility, affordability, privacy, and security as fundamental principles. When built on a foundation of accessibility and access, these technologies can even support personalized learning and communication for students with disabilities.

### **Digital tools are one piece of a much larger puzzle.**

As institutional leaders leverage more technology to connect students, they must be cognizant of larger pedagogical, social, and cultural settings. Digital tools alone will not solve any problem, but when they are implemented with the right expertise and as part of a larger strategic effort, they can help students develop purposeful and

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"Focus on providing accessible and useful ways of connecting with technologies. The technology should respond to the current student learning and student life needs, as well as provide privacy and safety."  
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meaningful connections. Technology should facilitate interpersonal connection, not replace it. Further, faculty and staff should not be fooled by the myth of the "digital native." Students need instruction and training in using digital tools for school, even if they have used the same tools in other contexts.

### **With the right set of tools, students can find support and resources around the clock and around the calendar.**

In the hybrid world, business hours have taken on a whole new meaning. Technology can now be used to connect students, faculty, and staff outside the limitations historically imposed by on-site business hours and geographical location. As pressures such as budget cuts continue to impact institutions' capacity to develop and maintain student support mechanisms, on-demand technology is increasingly valuable. In addition to removing limitations of time and geography, technology can merge experiences that might currently be separated by modality, creating an integrated, multimodal experience for students, faculty, and staff.

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"Higher education institutions that support student connection may be able to differentiate themselves in the increasingly competitive postsecondary education landscape."  
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# Supporting Student Connection and Belonging with Technology in Practice

## Center for Equitable Digital Access at California State University, Fullerton

California State University, Fullerton (CSUF) is bridging the digital divide through the Center for Equitable Digital Access (CEDA) to benefit all students who have struggled to digitally compete. We understood that in order to have equity in education we need to eliminate obstacles and barriers. Low-income students at CSUF face many obstacles to earning their degrees. CEDA was created to combat this. CEDA is an ambitious and comprehensive program through which all students have equal access to devices, the internet, digital skills training, and tech support, both at home and in the classroom. CSUF is transforming empowered learners through CEDA!

## Tiger-2-Tiger: Building Belonging for Online Students through Virtual Communities

Tiger-2-Tiger is a virtual community at Fort Hays State University (FHSU) that significantly improves peer connection and a sense of belonging for online learners. This community addresses the social experience gap for online students by providing a space for serendipitous meetups, casual interactions, and authentic peer conversations. Through Tiger-2-Tiger, FHSU enables all students, regardless of learning modality, to connect, contribute, and build the relationships they need to succeed.

## The Doctoral Community by Grand Canyon University

The Doctoral Community (DC) Network is a virtual community designed to take doctoral students beyond the classrooms of the learning management system to support doctoral students' scholarship, sense of belonging, and connectedness. The motto of the DC is "Connect, Collaborate, and Communicate." The DC connects learners, faculty, and alumni with forums, resources, guides, wikis, knowledge bases, training courses, and more. The DC facilitates synchronous and asynchronous learning and communication.

## UMGC Immersive Pilot

As an original META-sponsored metaversity, the University of Maryland Global Campus is running a two-year pilot to test how immersive technology can increase learning opportunities, impact academic success rates, and improve student retention for adult students otherwise largely accessing their education online and asynchronously. Initial pilot courses produced encouraging results. Subject matter ranged from introductory speech to criminal justice, the latter including virtual victims with scattered virtual clues.

## MyUSU 2.0 Student Engagement Portal

MyUSU provides a unified gateway for meaningful connections to the entire Utah State University (USU) community and is the first student-driven software update for USU. Designed to be student-centric, MyUSU implemented information, resources, and tools to promote social networking opportunities as well as academic progress. MyUSU 2.0 launched in August 2021 to further centralize the university's online resources and connect campus community members.

## Classroom Technology That Develops Student Connections

Winona State University provides students with leased laptops, appropriate software, and network services for their education. This classroom technology initiative builds on this foundation by providing a laboratory environment with USB-C docks, multiple monitors, and Internet of Things devices. These components are woven into a supportive learning environment utilizing videoconferencing, screen-sharing, and class recordings. Students master these skills during class so they are prepared upon graduation for today's connected world.

## FURTHER READING

### *Behavioral Scientist*

"The Biggest Challenges Facing Higher Education Are Those of Student Belonging. EdTech Can Help."

### *EdTech*

"What Technologies Do Colleges Need to Support Modern Students?"

### *EdTech*

"How Universities Can Use AI Chatbots to Connect with Students and Drive Success"

### *Inside Higher Ed*

"Academics Fall For and Fret About Technology"

### *The Advocate*

"How Technology Supports Relationships between Teachers and Students"

**Indiana University Bloomington, Center for Innovative Teaching and Learning**

"Technology to Support Equitable and Inclusive Teaching"

# EXPANDED MENTAL HEALTH SUPPORT FOR STUDENTS

## Overview

Higher education stakeholders' increasing awareness of the challenges and impacts of mental health is a trend that touches almost every aspect of higher education. In an effort to aid students in these difficult times, faculty, staff, and administrators are working to expand mental health supports and programs. Faculty and staff training, peer counseling, graduate counselors and interns, and service bots are all examples of mechanisms for increasing student access to mental health support and equipping faculty and staff with the knowledge and empathy to connect students with the right help at the right time. Understanding that students are not empty vessels who arrive at our institutions ready to be filled with knowledge, higher education leaders are finding new ways to recognize students' individual life experiences and circumstances and provide support for the whole student.

In addition to creating, improving, and maintaining formal programs that support student mental health, higher education stakeholders are working to change the culture of

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"Expanded mental health support for students becomes the underpinning of a successful higher education career. For any student struggling, access to resources in a timely and effective manner allows them to face and overcome adversity while remaining engaged and progressing toward completion."  
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higher education. Student productivity and learning are often measured in time—namely, time spent attending classes, doing homework, and studying. This approach to evaluating students negates the importance of student agency, individuals' varying abilities and needs, and the role of affective constructs in the learning process. Additionally, systems favoring time measurement over more meaningful productivity measures (e.g., producing useful outputs, demonstrating professional skills) perpetuate a data surveillance culture, which can increase stress and anxiety for all stakeholders. A more holistic alternative to time measurement is a system that combines quantifiable

student data with person-to-person contact strategies, ensuring that individual students' unique situations and goals are acknowledged, valued, and accounted for in academic, financial, and career plans. Further, institutional culture is beginning to shift toward prioritizing self-care, personal well-being, and even fun over academic responsibilities. This shift is a direct acknowledgement that all of us, including students, must be able to bring our whole selves to work and school in order to be successful.

## Relevance for the Holistic Student Experience

### **Supporting student mental health is everyone's job.**

Currently, institutional and community mental health professionals are overburdened by the recent influx of students looking for help, coupled with an ongoing shortage of mental health professionals. With deliberate training, all faculty and staff can be equipped with the skills needed to identify students in need, provide appropriate support when possible, and refer students to the right services. Perhaps more importantly, faculty and staff can play a role in preventing at least some of the stresses and pressures associated with school through inclusive pedagogy and equitable policies (both academic and broader institutional policies). Certainly, there are risks associated with distributing mental health responsibility across the institution. Proper training for faculty and staff requires time and money, resources stakeholders are finding less and less available. Additionally, as more stakeholders become involved in mental health support, there are more opportunities for unintentional harms such as providing students with inappropriate advice or incorrect resources.

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“Expanded mental health support is a [diversity, equity, and inclusion] issue at its core, with a formal recognition of the importance of mental health on an equivalent level as the physical. Formalizing in this way helps to broaden the awareness and expansion of resources available to faculty, staff, and students.”

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### **Students' increased interest in online and hybrid modalities can be leveraged to broaden their access to mental health supports.**

Students are no longer limited to on-site campus mental health centers. The expansion of general remote-operating capabilities, including telehealth, means that students have more options for protecting their privacy, finding culturally relevant options, and accessing the appropriate level of care rather than being limited to a one-size-fits-all service. Creating and maintaining multimodal mental health supports will be a massive undertaking for institutions, requiring additional resources and expanding risks in areas such as data privacy. However, panelists argue that the greater risk is not

providing students with the help they need, when they need it.

**Mental health is an equity issue.** Higher education leaders are recognizing that students' mental health is as important as their physical health, and all students should have equal access to holistic wellness supports. Understanding the needs of diverse groups of students requires meeting students where they are and asking them what they need. This seemingly simple task is complicated by a variety of factors, including student data privacy and security, the need for expertise related to educational equity, and the availability of resources required for methodologically sound research.

# Expanded Mental Health Support for Students in Practice

## Technology Integrated into a Stepped Care Approach for Collegiate Mental Health

Miami University adopted a stepped care approach to increase student awareness of and access to mental health services and programs on campus. Technology was central in the adoption and success of this framework, including an online Wellness Navigator tool, rolling out TogetherAll, a supportive online community for students with shared experiences, and providing virtual training for faculty/staff to increase their capacity to address student mental health concerns in the classroom.

## Montgomery County Community College's Expanded Mental Health Services

In response to the mental health and wellness needs of our students, Montgomery County Community College (MCCC) launched a Wellness Center to provide a tiered system of holistic care, including in-person mental health support, 24/7 virtual mental health counseling and medical care, substance use recovery support, food and housing resources, and resource navigation. More than 2,000 MCCC students have registered for virtual mental health services since 2020.

## The Healthy 49ers Wellness App

UNC Charlotte's Center for Wellness Promotion, in collaboration with the College of Computing and Informatics, developed an app addressing the eight dimensions of well-being (emotional, physical, occupational, social, spiritual, intellectual, environmental, and financial). This home-grown app specifically addresses the holistic well-being of UNC Charlotte students by delivering wellness tips, health and well-being monitoring, and engagement opportunities, as well as connecting students to the health and well-being services on campus.

## Advancing Health and Wellness through Collective Impact

The health and well-being needs of our community have been amplified by the persistent effects of the pandemic and exacerbated by the pervasive impact of institutionalized racism. Leaders at the University of Michigan decided to take bold action to foster conditions that improve mental health. The Well-being Collective is a collaborative effort focused on making U-M a better place to live, work, and learn for students, faculty, and staff.

## The Happiness Project: A Collaboration between Velocity and the Library

Amid concerns around student social isolation, entrepreneurs at University of Waterloo considered developing...an app. Recognizing that technology alone cannot effectively solve this problem, Waterloo's incubator, Velocity, launched Foundations: The Happiness Project in partnership with the library. Foundations encourages students to challenge their assumptions and validate ideas through research. The program was its own solution to the isolation crisis—connecting like-minded students—and culminated in pitches of truly student-centered recommendations.

## The Waubensee Mental Health Peer Support Program

Our goal in developing the Waubensee Peer Support Program was to empower students, enhance a sense of belonging, and promote an inclusive community that supports each other's mental health and unique identity, while improving wellness in our daily lives.

## FURTHER READING

### Association of American Medical Colleges

"A Growing Psychiatrist Shortage and an Enormous Demand for Mental Health Services"

### Uprise Health

"The Role of Mental Health in DEI" *Inside Higher Ed*

"Report: Colleges Help, and Hurt, Student Mental Health"

### National Education Association

"The Mental Health Crisis on College Campuses"

### Lumina Foundation

"The Mental Health Crisis and Higher Education"

### American Psychological Association

"Student Mental Health Is In Crisis. Campuses Are Rethinking Their Approach"

### *Journal of Clinical Child & Adolescent Psychology*

"Conceptualizing Community Mental Health Service Utilization for BIPOC Youth"

### U.S. Department of Health and Human Services

"New Surgeon General Advisory Raises Alarm about the Devastating Impact of the Epidemic of Loneliness and Isolation in the United States"

### *Journal of Behavioral Health Services & Research*

"Optimizing Efforts to Promote Mental Health on College and University Campuses: Recommendations to Facilitate Usage of Services, Resources, and Supports"

# UNIFIED DATA MODELS FOR LEARNING ANALYTICS

## Overview

With more and more data about educational environments being collected every day, higher education leaders are looking for meaningful ways to harness the power of those data. Artificial intelligence tools, and machine learning in particular, have sharply risen in popularity in recent years. Higher education leaders can use learning analytics to achieve a more holistic understanding of student experiences across institutional silos, but only with the help of unified data models. Unified data models bring together disparate data from across the institution so that end users can carry out more robust analyses. For example, data about students' academic engagement can be combined with data about their extracurricular activities and even self-reports such as surveys and course evaluations. Data insights can be used for a wide variety of institutional activities, from strategic planning to student advising. Analytics tools can also provide faculty and staff with recommendations such as pedagogical approaches and resources for students.

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“Use of particular algorithms may lay bare intrinsic biases that may not be apparent at first but may be more apparent as time goes on and certain trend lines develop.”

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To maximize the benefits of learning analytics and minimize unintentional harms, stakeholders must properly manage unified data systems. Given the current state of most institutional data governance, this will require significant resources, in ways both tangible (e.g., time, money) and intangible (e.g., cultural shifts). EDUCAUSE defines data governance as the processes, policies, and goals for managing institutional data, typically including policies and standards for data access, data quality, security and privacy compliance, and retention and archiving. Efforts to create unified data models for learning analytics carry significant risk. At a time when resources are already spread thin, it will be challenging for institutions to dedicate enough resources to redesigning data governance. The biggest hurdles to overcome are creating data privacy policies that protect individual students and address concerns about tracking and surveillance, shoring up data security to protect institutions from data breaches, designing and monitoring data analytics practices so that they do not perpetuate harmful biases and exacerbate existing inequities, and training end users so that data insights are used appropriately.

## Relevance for the Holistic Student Experience

**Properly managed data can feed proactive tools and dashboards.** Proactive data analytics tools such as early-alert systems are designed to enable faculty and staff to help students as early as possible. These systems could provide support for students who are otherwise hesitant to ask for help, students who are not even aware that they need help, and students who lack familiarity with resources that might be available to them. Optimizing tools and dashboards requires efficient data governance, especially unified data models.

**Unified data models facilitate the democratization of learning analytics.** Holistic student support requires a team approach from everyone at an institution. With the right data unification strategy, administrators, faculty, staff, and even students would be able to access data insights with minimal training and without needing deep expertise in learning analytics. Increasing

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"Disparate systems in higher ed have always raised issues in unifying the data. There is also distrust throughout higher ed that the data are accurate and true, which causes issues when using these data for learning analytics."  
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access to data and learning analytics does require additional training and support for more end users, so expanded data governance plans should account for this need.

**Leaders can use unified data insights to move from deficit models to asset models.** Learning analytics tools and dashboards can help end users draw conclusions about the systems at their institutions and across higher education broadly. This approach shifts the onus for supporting student success away from individual students, faculty, and staff and back onto institutional systems. Further, instead of only searching for gaps in student achievement, institutional leaders can take a proactive and strategic approach to identifying both strengths and weaknesses in institutional policies, procedures, course offerings, asset allocation, and more.

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"Students do want some degree of privacy, and they do not want to feel 'tracked.' Including students in the conversation would help create a sense of trust."  
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# Unified Data Models for Learning Analytics in Practice

## Arizona State University Learning@Scale

The ASU Learning@Scale (L@S) project is developing the foundational infrastructure and protocols to connect a wide range of diverse student and course data. We provide researchers with access to data on student achievement, learning, persistence, courses, and more, while maintaining individual and institutional privacy. L@S is a platform that promotes innovation in research and analytical methods, resulting in the advancement of equity-oriented practices, benefiting all students.

## Faculty Student Success Dashboard (FSSD)

FSSD is an innovative data toolset that allows faculty to understand how they individually contribute to their student's academic performance, progress, and success (e.g., retention, graduation). It is the first data toolset of its kind in the California State University System. The toolset helps faculty identify opportunities to take concrete proactive actions to reach out to specific students in need, supporting California State University, Fullerton, faculty commitment to student success.

## Course Insights: Learning Analytics for Instructors

Course Insights is a Canvas integration developed by Teaching and Learning with Technology at Penn State that enables instructors to view learning analytics data for the population of students enrolled in their courses. The tool empowers instructors to explore the relationships between course engagements and learner activity to outcomes in their courses, helping them shape their pedagogical strategies, course administration, and out-of-class student support needs.

## Student Experience Excellence Design: Planting the SEEDs of Student Success

To create a “wow” student experience and to remain true to our mission of enabling students to achieve, succeed, and prosper, the College of Southern Nevada has created the SEED initiative. The program is a holistic transformation of the student journey, replacing silos and broken experiences across multiple departments and tools with a single life-cycle data platform supported by people and processes that aim to architect student experiences at every touchpoint in their student journey.

## Leveraging Integrated Data Model for Interprofessional Education, Academic Advising, and Instructional Design

The University of Michigan's integrated data model blends student information systems (SIS) and various learning environments, driving transformative projects. In health care education, it supports interprofessional education (IPE) through curriculum mapping and competency tracking for students across programs. Additionally, the model empowers advisors with students' course grades from the current term, aiding effective guidance toward academic goals. The model confirms instructional designers' course design recommendations provided to course admins. This comprehensive approach fosters student success.

## FURTHER READING

### Institute for the Future of Education

“Learning Analytics as a Support Tool for Higher Education”

### Dataversity

“Should You Consider a Unified Data Model?”

### Forbes

“Why AI Teams Need A Unified Data Format for Machine Learning Datasets”

### McKinsey & Company

“How Higher-Education Institutions Can Transform Themselves Using Advanced Analytics”

Charles Lang, George Siemens, Alyssa Wise, and Dragan Gašević (eds)

Handbook of Learning Analytics  
*EDUCAUSE Review*

“Discrimination in a Sea of Data: Exploring the Ethical Implications of Student Success Analytics”

### Educational Technology Research and Development

“Buried Treasure or Ill-Gotten Spoils: The Ethics of Data Mining and Learning Analytics in Online Instruction”

### Teaching in Higher Education

“The Case of Canvas: Longitudinal Datafication through Learning Management Systems”

### Society for Learning Analytics Research

“Learning Analytics: 3 Challenges and Opportunities”

# BUILDING DATA LITERACY FOR UNDERSTANDING AND USING STUDENT DATA

## Overview

All three of this year's technological trends are related to data and data analysis. We see an increase in the amount and types of data being collected about students; simultaneously, the use of machine learning and AI tools is increasing. New and improved data insights could certainly help the higher education community tackle some of its biggest problems (e.g., mounting budget cuts and the impending enrollment cliff), but without concurrent advances in data literacy for all institutional stakeholders, this data-driven culture could do more harm than good. Data insights that are improperly generated or interpreted can inform interventions that reinforce harmful stereotypes and biases, lead to wasteful investment of resources in unhelpful programs, and distract institutional leaders from students' holistic needs. Building data literacy for faculty and staff and empowering them to effectively generate and use data insights could improve institutions' understanding of the holistic student experience, take a proactive approach to supporting students, and identify root causes of institutional barriers to student success.

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"Data literacy is an essential skill for decision-making for all the stakeholders, and in the context of student data, [data literacy] provides insights into student profiles, learning preferences, social and political factors, and critical support needs."

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Supporting data literacy is no small task, and many institutions will find that they need to take some steps even before launching professional development in this area. First, data governance practices, policies, and definitions need to be clearly defined so that faculty and staff are able to use data with the appropriate guardrails. In this way, data privacy and security will be prioritized, minimizing the risk of unethical and unsafe data practices. Further, good data governance facilitates best practices in data analysis and the distribution of data-informed conclusions. These best practices help reduce intrinsic bias and mitigate the proliferation of structural inequities. Institutions might also need to pursue stakeholder buy-in before they are able to improve support for data literacy. Too often, data literacy is an afterthought, rather than a foundational ability necessary for 21st-century success. Successful institutions of the future will recognize data literacy as a fundamental and essential skill for every individual.

## Relevance for Teaching and Learning

### **Learning analytics is a multidisciplinary field.**

Students engage with institutions in countless ways, so a holistic approach to data literacy must go beyond interpreting statistics. Multidisciplinary teams should be employed to design data literacy supports. Teams should include end users and content experts in fields such as learning sciences, educational equity, and social sciences, as well as process experts in statistical and qualitative methodologies. Certainly, assembling teams across institutional silos is an evergreen challenge in higher education.

Efforts to build bridges will require bottom-up effort and top-down support.

### **Building data literacy bolsters a culture**

**centered on holistic student support.** When faculty, staff, and administrators are able to analyze and interpret data, they all have the agency to identify aspects of student experiences that need more attention and resources. This democratization of data insights reduces the impacts of personal bias and anecdotal evidence—when stakeholders can directly access data insights, they are less likely to rely on the loudest or most convincing points of view.

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“Right now, there is not a clear understanding of the data pipeline... Creating resources for data literacy would help people understand the need to have reliable data before acting on data, and when looking at student demographics and other student data, being accurate before being actionable is vital.”

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Key opportunities in this space include data visualizations and dashboards that make all types of data usable by any stakeholder, including students. Further, the very definition of “data” must not be confined to information about constructs that can be quantified at scale. Such approaches lead to misleading conclusions and silence the experiences of historically minoritized groups. Instead, data literacy training should include instruction on inclusive analytics practices such as data disaggregation and qualitative data analysis.

### **Students need data literacy**

**to be agents in their own educations, careers, and lives.** In particular, when considering the holistic student experience in higher education, institutional data processes should be not only transparent for students but also inclusive of student voice. Further, data insights should not be reserved for faculty and staff. Students should be empowered to use data insights to understand and make decisions about their own education. Beyond the institutional setting, data literacy will help students with critical thinking and enable them to judge the veracity of information they receive from any source.

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“Data literacy should be taught to students to help them be agents in supporting their own holistic experiences.”

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# Building Data Literacy for Understanding and Using Student Data in Practice

## Turning Data into Action: Professional Development at the Intersection of Equity and Evidence

To foster data-informed and equity-minded decision-making that supports historically underserved students, the California State University (CSU) offers the nationwide online Certificate Program in Student Success Analytics. With its interactive and action-oriented curriculum, the team-based program brings together faculty, staff, and administrators to collectively examine equity gaps on their campuses and to collaborate on innovative practices that remove barriers to graduation. Participants can earn a digital badge, and no previous data literacy is required.

## The Colgate University Data Science Collaboratory

The goal of the collaboratory is to develop a vibrant research community among faculty and students. We aim to provide statistical guidance and resources to researchers across fields increasingly reliant on data science. Further, because students are incorporated into the scientific community, they gain exposure to data science research and experience selecting, applying, and interpreting the results of appropriate techniques in various real-world contexts.

## Terracotta

Terracotta, a platform for experimental education research, enables research across education levels, student populations, and learning materials by embedding studies directly in Canvas. Terracotta supports teachers and researchers by randomly assigning different versions of online learning activities to students, collecting informed consent, and exporting de-identified study data. The platform lowers technical and methodological barriers to conducting rigorous and responsible experimental research within online course sites.

## Democratizing Data to Close Equity Gaps in Higher Education

The Kean University division of Strategic Analytics and Data Illumination (SADI) fosters transparency and excellence through data visualization and strategic analytics. We strive to create a data-centric culture, empowering institutional success. The project “Democratizing Data to Close Equity Gaps in Higher Education” affords our Kean community with data-driven decision-making. It promotes data literacy, develops training programs and user-friendly dashboards, and facilitates collaborative discussions. By promoting equity and inclusivity, the project drives positive change and improves outcomes for all students.

## UCI Compass: Enrollment Management Analytics

Compass EMA is the future of enrollment management and a key component of UC Irvine’s data-driven culture. This analytics application provides intelligence into UC Irvine’s enrollment trends and patterns, empowering stakeholders and improving student outcomes. One of its key features is its ability to produce predictive analytics using machine learning algorithms to analyze historical data and identify trends that can be used to predict future enrollment patterns and adjust university policy.

## Data-Informed Teaching Community of Practice at the University of Iowa

The Data-Informed Teaching Community of Practice at the University of Iowa—co-sponsored by the Office of Teaching, Learning, and Technology (OTLT) and the Center for Teaching—is a faculty-driven effort to gather, share, and apply best practices for leveraging course-level data to improve student learning outcomes. The community benefits from the partnership with OTLT, which provides professional staff who bring expertise in effective teaching practices and learning analytics.

## FURTHER READING

<b>EAB</b> “The Six Data Detractors Holding Your Campus Back – And How to Respond” <i>Campus Technology</i> “5 Institutions Building Data Literacy to Support Student Success”	<b>Fierce Education</b> “What Higher Ed Needs to Know about Data Literacy, Future of Work” <i>International Journal of Educational Technology in Higher Education</i> “How Stakeholders’ Data Literacy Contributes to Student Success in Higher Education: A Goal-Oriented Analysis”	<b>Edutopia</b> “Boosting Students’ Data Literacy” <b>MIT Sloan School of Management</b> “Data Literacy for Leaders” <i>Inside Higher Ed</i> “Data Skills Are Just as Important as Soft Skills in Higher Education”
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**W**ith the trends we're observing and the technologies and practices emerging around us that are already helping shape the future, we can begin to imagine how all of these elements might combine and coalesce into larger stories about who we'll be as people and what higher education will be in the future. In this section we offer up several of these larger stories through a series of scenarios that reflect on where these trends and technologies and practices may ultimately lead us in 10 years' time.

To paint these scenarios, we use a forecasting framework from the Institute for the Future (IFF) to envision four distinct possible futures that each take a different angle on how today might be leading into tomorrow. The first scenario we envision is characterized as Growth, a scenario in which the current trajectories of things today have continued along their same paths into the future, breaking past previous limits. The second scenario is Constraint, a scenario in which higher education has organized itself around a common threat or core guiding value or principle that drives our decision-making and animates our daily practices. In the third scenario, Collapse, we imagine a future in which higher education has experienced a series of breakdowns and widespread changes that ultimately leave many institutions decimated due to a failure of human systems to overcome inherent tensions or weaknesses. In the Transformation scenario, a new paradigm has been established within higher education that has led to a fundamental shift in the ways we think about and carry out education, stretching our imaginations and challenging our assumptions.

This year, panelists were also actively engaged in creating the scenarios through small group discussions imagining first-, second-, and third-order consequences for several possible futures that built on some initial sketches. For Growth, panelists explored implications of a future where generative AI proliferates into almost every aspect of life (e.g., software for work, educational software, household gadgets, games). In the Constraint scenario, the starting point was a future where most higher education institutions are launching campaigns to convince stakeholders of the value of higher education. The potential future for Collapse was a world where a series of natural disasters renders coastal regions all over the world uninhabitable. And finally, in the Transformation scenario, panelists reacted to the idea of a world where, as the result of an international policy summit, AI leaders have released new, researched-informed guidelines for ethical and transparent AI practices.

The scenarios we offer here only represent our potential futures, of course. With so much changing around us seemingly on a daily basis, it is impossible to know with any degree of certainty who we'll be and what higher education will be in 2033. The best we can do in the present day is use exercises like these to get better at anticipating and planning and to practice creative thinking about our future, grounded in the best information we have available to us, so that we can be more prepared to face whatever future does eventually arrive.



**Growth**



**Constraint**



**Collapse**



**Transformation**

Unrestricted growth of AI technologies proliferates in every area of life, across the globe. Educators in higher education quickly respond to the need for reskilling the current and future workforce, but they struggle to combat the escalating mental health crisis and food and housing insecurity.

In early 2023, generative AI exploded onto the landscape of international discourse. Within just a few years, generative AI tools evolved from an interesting new technology to an integral component of almost every aspect of daily life, from software for work and learning to games and household gadgets. By 2025, mainstream news outlets were commonly reporting on the “Fourth Industrial Revolution,” as businesses laid off thousands of employees whose jobs were replaced or reduced by automation. Though the initial economic shift was overwhelming for many families, changes in workforce needs and skills quickly led to more opportunities for entrepreneurship and innovation. Today, employees commonly use AI tools to reduce the time they need to complete their work, achieving the same or better outcomes than they did in the past. Employers largely embrace these changes and encourage employees to use their new freedom to pursue individual interests. “Side gig” culture is booming, contributing to new entrepreneurship trends. Paradoxically, workers’ newly discovered free time mostly presents them with the opportunity to work more. Leisure activities and personal wellness take a back seat to the never-ending drive to do and accomplish more. Despite efforts in the mental health profession to leverage generative AI to provide individuals with digital companions, overall holistic wellness has continued to decline over the past ten years.

Professionals from nearly every industry sector have needed reskilling and upskilling to use AI at work. In an effort to remain relevant in the age of AI and recover from the 2025 enrollment cliff, universities and colleges have recently undertaken a paradigm-shifting mission: training the existing and upcoming workforce to develop and use AI. Though

numerous government agencies provide financial support for individuals and institutions to accomplish this goal, the rapid change in priorities is putting pressure on institutions that are already under-resourced and staff who are overworked, especially at community colleges and training institutions. Further, financial support is only available to institutions that can prove they meet a long list of key performance indicators. Now more than ever, higher education institutions are collecting data about as much of the student experience as possible, using machine learning to quickly generate data insights. Even as they escalate data collection and analysis efforts, higher education leaders are beginning to abandon efforts to implement comprehensive data literacy and data privacy plans, feeling that the broader data-obsessed culture has advanced too far, too quickly, and can’t be stopped. Many students feel over-surveilled at school, exacerbating feelings of distrust and isolation.

The impacts of the AI boom on the environment, especially its massive carbon footprint, have largely been ignored. Across the world, political polarization has prevented the passage of any meaningful legislation to protect the environment. More and more students are being displaced by climate change migration every day. There are now more institutional programs than ever to help support students with housing and food, but they are barely able to keep up with students’ needs. Many institutions are streamlining support services to a single digital assistant. Powered by generative AI, these assistants are able to keep track of resources students might access from both their educational institutions and external sources. Digital assistants also provide students with tutoring, academic and career coaching, and even information about rapidly changing weather conditions and their impacts on daily activities. However, digital assistants fail to meet the needs of the students who most need them, primarily due to inequitable access to hardware and high-speed internet. In this way, the AI boom has ushered in an age of unprecedented productivity, but it is widening digital, social, and economic divides faster than any previous technology.

**T**he future of higher education is threatened by financial uncertainty and social unrest. Institutions prioritize a “student as consumer” model to stay afloat. As individual stakeholders express dissatisfaction with higher education’s new image, leaders struggle to unite their institutions in working toward survival.

The mid-2020s were a perfect storm for higher education institutions. Increasing concerns about cost of attendance and return on investment, declining enrollments, and sweeping budget cuts threatened the future of higher education as it existed. Rapid advances in AI over the past ten years significantly shifted the job market, and more students have been finding well-paying jobs without a formal postsecondary degree. Employers and online education providers have created comprehensive bootcamp-style onboarding and microcredentialing programs that equip new workers with the specific skills they need in their jobs. Higher education institutions have not been able to compete with these approaches to job readiness, which are often free or comparatively inexpensive for the worker.

In an effort to reignite interest and belief in their mission, colleges and universities have slowly changed operations to become more valuable to prospective students. Institutions are adopting a truly student-centered model, understanding that students are consumers of higher education with distinct needs and preferences. Institutions are increasingly transparent with data-informed insights about the return on investment students can expect from their education, providing data not only about completion rates and employment opportunities but also about less tangible outcomes such as satisfaction, happiness, and

experiential learning. Further, educators are reprioritizing their work to focus on lifelong learning, career exploration, access, and accessibility. Now, rather than committing to a single course of study at a single institution, students are free to explore their interests at multiple institutions and engage in new experiences as their personal and career goals change. This flexibility and customizability has attracted adults from a wider age range, and the demographics of the average student body are shifting. Further, because student experience is now central to all aspects of institutional operations, access and accessibility are almost ubiquitously considered to be foundational elements in the design of both curricular and extracurricular experiences.

As institutions strive to attract local students, some leaders are trying to leverage geographic political divides by taking public stances on politically divisive issues. The control of public funding for higher education based on political ideologies has intensified since the early 2020s, forcing higher education leaders to make sweeping policy changes that align with political platforms. These leaders are finding it easier and more profitable to align with local political movements, facilitating policy enforcement and bolstering tuition revenue from local communities. Not all institutional stakeholders are in favor of these shifting priorities, and they’ve extensively debated topics such as academic identity and the true purpose of higher education. The general public has expressed skepticism and criticism in response to higher education’s new image. Some are interpreting higher education marketing campaigns as “sales pitches.” It seems clear that in order for formal higher education to survive, all stakeholders are being forced to sacrifice some of their own ideals and support the new normal.

**A** series of natural disasters renders coastal regions all over the world uninhabitable. Massive reorganizations in population and resources eliminate the existence of a middle class, force families to focus on meeting basic needs, and reduce the viability of formal higher education.

In 2024, as the world was still reeling from the global COVID-19 pandemic and widespread political turmoil, a relentless series of natural disasters rendered coastal regions all over the world uninhabitable. Hurricanes, tsunamis, typhoons, and other coastal hazards marked 2024 as the most devastating year for weather in recorded history. The immediate loss of life and livelihood was immeasurable, and higher education institutions were no exception. Many institutions were forced to shut down immediately, though some were able to shift to remote operations. Now, nearly a decade later, humanity is still working to regain its footing. Initial responses to the 2024 weather crisis revolved around rescue and recovery, but communities quickly realized they would need to focus on endurance and longevity. In many parts of the world, goods could no longer be imported due to the collapse of multiple major sea ports and new carbon emissions regulations limiting the use of air transport. Many countries and smaller territories have been forced to become more self-sufficient in their supply chains while grappling with global food and medicine shortages. Disparate access to coastal resources has exacerbated economic divisions. Now, an even smaller portion of the world's population has even more control over the global economy, and the existence of a global middle class has all but vanished.

Coastal boundaries are being redrawn, and new coastal regions will need to be established. Climate experts and researchers have been urging builders to invest in resilient construction (i.e., building methods and materials designed to withstand severe weather events), arguing that eventually there will be no safe corner of the planet. Understanding the sweeping and immediate need for novel solutions, higher

education institutions are diverting research dollars to climate change and resilient infrastructure research. Communities must still rely on government support to rebuild, but political divisions are interfering with rebuilding progress; government officials who deny the existence of climate change refuse to support resilient infrastructure initiatives and climate change education programs. The growing need for resilient infrastructure has shed new light on economic disparities. Insurance companies are refusing to cover most coastal areas, and the cost of coverage in any geographic region is skyrocketing. The cost and availability of insurance are also widening economic divides. The families and businesses that need insurance the most are forced to live without it. Each new severe weather event displaces more communities. Property ownership has become so risky that it is no longer a viable way to build generational wealth for most families. The strain of climate migration has forced families to reprioritize investments, focusing on farming and trade skills over traditional schooling, leading to dramatic declines in higher education enrollment.

Social unrest is now escalating as separate communities with deeply divided social and political beliefs attempt to merge. Areas adjacent to evacuated regions have been overwhelmed with surges in population and lack the appropriate infrastructure to support daily life for new residents. Schools at all levels still do not have the physical space to accommodate new students and lack the resources to expand on-site operations, and higher education institutions have not been able to return to routine operations. Though some schools have tried to use online and hybrid learning models to meet students' needs and compensate for the loss of physical buildings, not all regions have the digital infrastructure to support remote modalities. With scarce resources for rebuilding and dwindling enrollments, higher education is now only a remnant of what it once was. Institutions that have managed to survive are too expensive for the new working class, and higher education is a privilege reserved for only the wealthiest individuals across the world.



**T**he world embraces artificial intelligence as the greatest technological development of the 21st century. With a focus on safe and ethical practices, higher education adopts AI in all operational areas. Institutions are transformed by AI tools, enjoying great rewards, balanced by great risks.

The explosion of AI tools in 2023 created an overwhelming mix of emotions across the world. With each new development, public opinion shifted between excitement, hope, caution, and fear. Though immediate demands were made by various groups to halt or at least regulate the technology, governments found it challenging to respond expeditiously, and the world could only watch as AI evolved exponentially. By March 2024, just one year after the release of GPT-4, world leaders realized they were far behind and must act quickly. They organized the 2024 Global AI Summit, bringing together the world's most respected leaders in AI development, ethical and responsible technology development, data privacy and security, the global economy, and international relations. Over the course of six months, the group designed research-informed "global guidelines" for ethical and transparent AI practices. The guidelines were open to public comment throughout the process, and the final result was largely accepted as one of the only truly collaborative international policy documents ever created. As individual governments and independent entities adopted the guidelines, new laws and policies immediately led to increased transparency in the processes used for training and implementing AI algorithms, including large language models. Now, nearly 10 years later, developers are compelled to disclose detailed accounts of what data are collected, how they are collected, how individuals can opt into or out of data collection, how data are stored and protected, who has access to data, what processes are used for data analysis, and how findings are shared. This transparency is leading to more rapid exchanges of ideas across the industry, vastly improving the quality of AI tools available. Today, the world is built on ethical AI.

Higher education has experienced transformative shifts in disposition toward AI. As institutions have been drafting new policies to align with the global guidelines, higher education leaders have felt more confident with AI tools being used for learning and work. In addition to integrating AI tools into almost every facet of daily operations, most institutions now support academic programs that integrate disciplinary study and the use of AI. However, as researchers and developers have had to slow their work to comply with guidelines, innovation has also slowed. Policies tend to present roadblocks for risk-taking and innovation, leading to some measure of homogeneity in the current AI landscape. Further complicating innovation efforts, different local and world governments have contrasting interpretations of guidelines, leading to conflicting laws. Higher education institutions are still struggling to maintain compliance with varying regulations. Still, academics are capable of producing larger volumes of research more quickly than ever before, rapidly solving some of the world's most unyielding problems.

In recent years, while stakeholders who act in good faith have taken time to comply with new laws and policies, "dark AI" has emerged. There are daily developments in the ways bad actors can use AI with malintent. Cybersecurity professionals are scrambling to even keep up, let alone stay a step ahead, and the field of cybersecurity becomes even more deeply entrenched in reactionary processes rather than data protection and crime prevention. Cybersecurity is a particularly challenging issue for higher education, as most institutions have transitioned to unified data models to facilitate the use of AI tools. With each new data breach, faculty and students lose trust in their institutional leaders to uphold the global guidelines by safeguarding their data. Coalitions and associations are constantly issuing and revising guidelines for self-governance, auditing, and correction, and watchdog groups have taken on the task of monitoring AI use and data security in higher education. While cybersecurity issues have dampened stakeholder trust in institutions' ability to safeguard their data, the transformative impact of AI has outpaced these drawbacks. As a whole, the higher education community is still committed to a future paved by AI technology.

**T**he *Horizon Report* methodology is grounded in the perspectives and knowledge of an expert panel of practitioners and thought leaders from around the world who represent the higher education, teaching and learning, and technology fields. This year's group included returning and first-time Horizon panelists, all sought out for their unique viewpoints, as well as for their contributions and leadership within their respective domains. The panel represents a balance of global contexts, with members contributing from North America, Europe, and Australia. We also sought balances in gender, ethnicity, and institutional size and type. Dependent as the *Horizon Report* is on the voices of its panel, every effort was made to ensure those voices were diverse and that each could uniquely enrich the group's work.

Expert panel research followed a modified Delphi process, in addition to adapting important elements from the Institute for the Future (ITFF) foresight methodology. Following the Delphi process, our expert panelists were tasked with responding to and discussing a series of open-ended prompts, as well as participating in subsequent rounds of consensus voting (see sidebar "Panel Questions"), all focused on identifying the trends, technologies, and practices that will be most important for shaping the future of supporting the holistic student experience. Ideas for important trends, technologies, and practices emerged directly from the expert panelists and were voted on and refined by the panel. Direct quotes from the panelists are included in this report to further emphasize their contributions and were only lightly edited for readability. Indeed, EDUCAUSE staff had minimal influence on the content of the panel's inputs and discussions, providing mainly group facilitation and technical support throughout the process. This was done to protect the core intent of the Delphi process—that an organized group of experts themselves discuss and converge on a set of forecasts for the future, on the basis of their own expertise and knowledge.

The framing of the questions and voting across each round of panel input was adapted from ITFF's foresight methodology and drew upon the ITFF trends framework and process for collecting data about current trends and signals of coming

change. Ensuring an expansive view across all the many factors influencing the future of higher education, the ITFF "STEEP" trends framework enabled our panel to focus on Social, Technological, Economic, Environmental, and Political trends. This effectively broadened the panel's input and discussions beyond the walls of higher education to more explicitly call attention to the larger contexts within which the student experience takes place. These larger trends—and the current evidence and anticipated impacts of these trends—served as the grounds on which the panel built its discussions on the emerging technologies and practices influencing institutions' support of the holistic student experience.

As they provided their inputs and engaged one another in discussion, panelists were encouraged to share news articles, research, and other materials that would help reinforce their inputs and provide evidence for their particular viewpoints on current and future trends. In addition to enriching the panel's discussions and supporting the panel's voting and consensus processes, these materials were collected by EDUCAUSE staff for use as evidence and further reading in the writing of this report. In the Delphi and ITFF methodologies, these collected materials also serve the purpose of ensuring that the panel's future forecasts are sufficiently grounded in "real" data and trends.

## Panel Questions

### STEEP Trends

**Round 1 (for Social trends; repeated for each STEEP trend category):** Use the discussion board below to propose social trends. Examples of social trends are behaviors, demographics, beliefs, lifestyles, values, cultural concepts, family, aspirations, life stages, mobility, etc.

To understand what the future might look like, we identify trends that are the forces reshaping today's landscape into something new. Some of these trends may be new or recent developments; others, such as demographic shifts, may have been visible for decades and continue to impact our future.

Remember that:

- Trends are directional, either increasing or decreasing.
- There's often a historical element.
- They often fall into the STEEP categories.

When proposing an original trend, please use the following format:

First, copy and paste the titles below in your post. Do not make any changes.

[TREND]

[LINKS]

[POTENTIAL IMPACT]

Next, enter the information about the trend, signal, and impact following each bracketed label. Enter each trend in a separate discussion post.

An example of this process can be found below. Responses to others do not need to follow this format.

When contributing to the STEEP discussion boards, we ask that you:

- Engage with posts of your colleagues. Rich discussion helps improve the data we are able to collect for the next step of the process.
- Note agreement or disagreement, and provide additional evidence or counterfactuals that support your position.

**Round 2 (for Social trends; repeated for each STEEP trend category):** The list below summarizes the Social Trends provided by this year's Horizon panel.

From this list, please select the top six (6) trends you believe will have the most influence on the future of teaching and learning. Drag those six (6) items from the left-hand list to the right-hand list, then rank them in the order of most influential (1) to least influential (6).

**Round 3:** Panelists were asked to respond to the following questions about each of the top trends identified by the panel:

- What additional evidence can you provide for this trend? Examples of good evidence include recent (i.e., within the past year) research reports, credible news stories, personal experiences, etc.
- What potential impacts might this trend have on the future of the holistic student experience?

## Key Technologies and Practices

**Round 1:** For this round of information gathering, we're interested in hearing from you about those key technologies and practices that you believe will have a significant impact on the future of supporting a holistic student experience in higher education.

What do we mean by "key technologies and practices"? For the purposes of the *Horizon Report*, these are practices that are either new or for which there is substantial, perhaps transformative, new development. An important dimension of these technologies and practices is that they have the potential to have significant impacts and effects on supporting a holistic student experience. In particular, be thinking about technologies and practices that have the potential to mitigate or accelerate the trends the panel has identified.

Each answer should include three elements: (1) the key tech or practice; (2) a brief explanation of why you believe this technology or practice will have a significant impact on the future of supporting a holistic student experience in higher education; and (3) an example of a program or institution that exemplifies this key tech or practice.

When proposing a technology or practice, copy and paste the template below for your post. Do not make any changes; simply fill in the blanks. Please use a separate post for each technology and practice.

[TECH OR PRACTICE]  
[IMPACT]  
[EXAMPLE]

**Round 2:** The list below summarizes the key technologies and practices provided by this year's Horizon panel. From this list, please select the top twelve (12) items you believe will have the most influence on the future of the holistic student experience. Drag those twelve (12) items from the left-hand list to the right-hand list and then rank them in the order of most influential (1) to least influential (12).

**Round 3:** Panelists were asked to respond to the following questions about each of the top six techs and practices, with these ratings used to consider important differences and similarities between each:

- Which of the following trends are supported or mitigated by <tech/practice>? Select all that apply.
- In what ways could higher education stakeholders (i.e., staff, faculty, students) use <tech/practice> to support the holistic student experience?
- What risks, if any, might higher education stakeholders (i.e., staff, faculty, students) face when implementing <tech/practice>?
- How, if at all, might higher education stakeholders (i.e., staff, faculty, students) leverage <tech/practice> to support diversity, equity, and inclusion?
- What further reading (e.g., news articles, institutional examples) about <tech/practice> can you suggest for readers of the Horizon Report?

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