

Artificial intelligence (AI) is playing a major role in transforming student engagement in higher education for early adopters of the technology.

# Cultivate Innovative AI-Powered Student Engagement in Hybrid Learning for Higher Ed

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## Situation Overview

Digital technologies such as artificial intelligence (AI) are transforming higher education just as they have reshaped other sectors. Even before the pandemic struck, colleges and universities were using AI to change how education is delivered: 54% of U.S institutions of higher learning said they are experimenting with AI, according to IDC's *Future-Ready Institutions: Assessing U.S. Higher Education Sector's AI Adoption and Capabilities*. The 2020 study, which examined the drivers, adoption, and use of AI in higher education, also found that 63% of respondents are leveraging the Artificial Intelligence and Automation technology in some capacity to achieve better student engagement.

Following the emergence of the novel coronavirus, mandatory shutdowns around the world forced schools at all levels to undertake emergency remote learning. Institutions of higher education (IHEs) turned to videoconferencing tools, online learning management software, and other digital solutions to keep education going. Those remote teaching experiences highlighted the barriers to digital learning adoption and technology-enabled education across systems worldwide. Challenges included equity, student privacy concerns, lack of collaborative and engaging student experiences, insufficient data-driven insights and engagement, not enough specialized IT talent to operate infrastructure, inadequate funding at some IHEs for building out networks, and a lack of training for faculty using digital learning platforms. In fact, according to NASPA, 85% of institutions did not systematically collect, integrate, and use data from across systems and sources.<sup>1</sup> This exacerbated the challenge of data-driven insights. In addition, college and universities found that many of their traditional and manual ways of operating no longer worked in a digital world. The pandemic has accelerated the need for digitization across everything — not only teaching and learning but also remote work and remote operations.

However, the degree of difficulty experienced was not evenly distributed across the higher education sector. Some institutions were more prepared due to key technology and pedagogy decisions made previously. Yet despite

## AT A GLANCE

### KEY STATS

COVID-19 has had a staggering impact on global education. According to UNESCO, 1.38 billion learners have been impacted by school/university closures worldwide.

### WHAT'S IMPORTANT

Even as institutions look to reopen with flexible schedules and new measures in place, more than 75% are reporting hybrid or fully remote learning for the 2021–2022 school year.

<sup>1</sup> NASPA, *Institutions' Use of Data and Analytics for Student Success: Results from a National Landscape Analysis*, 2018

being better prepared, many IHEs still had to shift to online learning overnight to survive, rapidly adapting plans for hybrid learning, student engagement, and new ways of operating with remote staff.

As a result, a greater awareness has coalesced among higher education leaders of the need for trusted infrastructure, greater institutional agility, and modern technologies that allow institutions to put the student at the center by creating a better experience that can improve outcomes from recruitment and admission through graduation and beyond.

## **AI Solution Benefits and Requirements**

AI solutions can enhance a wide range of processes in education — benefiting not only the students but also the institutions. As noted, the higher education industry is experimenting with AI applications to enhance student engagement. Some IHEs are using this technology to help personalize learning, improve knowledge retention, teach languages, or increase accessibility to lessons.

AI-powered adaptive learning technology for higher education can improve the student experience in many ways. For example, it can identify gaps in a student's knowledge and provide relevant coursework.

In addition, AI can prove useful for students in overcoming classroom language barriers. Translator tools utilizing AI cognitive services can provide real-time subtitles for presentations and lectures; live captioning helps those who speak other languages or have a hearing disability follow the lesson.

Chatbots enabled with AI and machine learning are also being employed to increase student engagement. These chatbots provide study material to learners via text or multimedia messages, testing their knowledge through pop quizzes. The bot submits the results to teachers for assessment. Chatbots can double as a teacher's virtual assistant, helping out by answering students' frequently asked questions, giving personalized feedback, and providing additional learning materials based on individual progress.

Many IHEs are developing systemic models for implementing distance education, including training in remote instruction. The flipped classroom model, along with screen recording apps, virtual meeting rooms, collaborative documents, and learning management systems, can enable dynamic and interactive learning environments. Using coteaching approaches during remote learning — such as parallel, alternate, station, and team teaching — ensures educators are supported. It also provides a consistent learning experience for students.

Early adopters of these solutions were less challenged during the pandemic because previous technology investments allowed them to accelerate processes and workflows to create learning models that were agile, flexible, and remote. However, to drive student engagement and operational efficiency, schools need to utilize AI solutions that help:

- » Identify trends in student engagement and interaction
- » Discover best practices in remote instruction and provide leaders with system-level insights
- » Harness data (traditionally stored in distinct silos) to create a unified data foundation, including data from student information systems and learning management systems to drive superior student experiences across the engagement life cycle, with personalized engagement and learning

- » Democratize the use of AI by utilizing no-code digital platforms that automate processes with apps, flows, and bots, saving time for administrators, faculty, and students while simplifying processes and providing new models of engagement
- » Deploy tools that enable accessibility and inclusion for all learners, including teaching in remote settings
- » Use AI and data analytics responsibly, transparently, and securely in accordance with privacy and compliance standards (Do not seek to utilize or exploit data that is outside the scope of engagement with the university. For example, do not buy external data about students to inform the institution's AI or monitor their behavior in ways they would not expect or appreciate; rather, use AI to make better use of the data already being collected through governed systems and processes and through direct engagement with students.)
- » Comply with regulations for digital engagement reporting with one-click data export

Leveraging AI during the transformation journey enables additional insights and builds the foundation for advanced and predictive analytics. However, the readiness to do so varies widely. Many IHEs do not systematically collect, integrate, and use data from across systems and sources; others rely heavily on manual processes. Partnering with a solution provider that respects privacy, adheres to accepted compliance standards, and has transparent data practices is key to an institution's ability to accelerate adoption of AI.

## ***Considerations***

AI-powered education comes with certain challenges and opportunities:

- » **Student and faculty data privacy.** While educators and school leaders may want to use online learning technology to gain insights about students to better serve them, there is some debate over whether the collection and analysis of such data violate a student's privacy rights. Concerns about student data use potentially harming an individual's future prospects or being sold to third parties for targeted advertising have led to student data privacy legislation, including the U.S. Family Educational Rights and Privacy Act (FERPA), the Health Insurance Portability and Accountability Act of 1996 (HIPAA), and the Federal Policy for the Protection of Human Subjects ("Common Rule"), along with state-specific regulations such as Georgia's Student Data Privacy, Accessibility, and Transparency Act and the Illinois Biometric Information Privacy Act. At the same time, in some scenarios, useful insights can be correlated without capturing personally identifiable information (PII).
- » **Ethics and governance.** IHEs need to establish well-informed, highly functioning oversight committees that are empowered to question, challenge, and explore how data and AI technologies are being used within the higher ed context and that set the standards for transparency and documentation of intent and operation.
- » **Security.** Online courses — whether hybrid or entirely remote — can create major cybersecurity risks. Malicious actors can seize opportunities to compromise critical systems and wreak operational havoc, especially when in-person classes are combined with on-demand online courses. Thus it is critical that colleges and universities ensure the data stored and shared across new remote classroom solutions is protected. Contracts for solution providers should have appropriate security clauses covering how data is stored, handled, and accessed by vendors. Ideally, schools should prioritize zero trust contracts that limit access to approved campus staff and students.

- » **Technology and training costs.** Public universities remain largely underfunded in the United States, and their IT infrastructure and support staff may lack the modern technology and digital skills found in private institutions. AI adoption among IHEs requires enabling data readiness, which is costly. For example, effective data mining means setting up the physical infrastructure — including servers, cloud networks, and hardware — as well as employing tech talent able to handle sophisticated data processes. High up-front investment is needed, but cash-crunched educational institutions may not have the necessary funds. Some of these issues could be alleviated by use of public cloud.  
It is also important to train staff and administrators in the appropriate use of data technologies to avoid misuse. For example, critics have pointed out how predictive data analysis could funnel students of color and those from low-income families into easier majors, mainly under the assumption that a lower grade point average is acceptable for these majors.
- » **Accessibility and inclusivity.** AI-powered transcription tools can reproduce classroom lectures in real time for students who are deaf and hard of hearing, and translation tools can provide an inclusive education environment for students learning in a second language. Dynamic solutions such as visual recognition services and predictive text functionality enable people with vision, hearing, cognitive, learning, and mobility disabilities and mental health conditions to better connect behaviorally, emotionally, and cognitively. AI is being combined with augmented reality and virtual reality (AR/VR) and intelligent task/process automation to support innovative offerings such as digital portals/applications for "out of classroom" interactions, personalized learning, virtual classrooms, and virtual tours.

## Conclusion

In the wake of the pandemic, all educators and students confront a newly transformed educational landscape. Hybrid models of learning that blend remote and classroom formats and new ways of doing the work of education will continue to be rebuilt and reinvented as we transition to the "new normal." Making this shift will not be a simple task, and it is incumbent on higher education leaders to explore platforms that can make a difference to students and staff. The good news is that faculty throughout the world will continue to innovate in exciting ways that will again focus on the needs of the learners. The challenge for IT administrators and IT professionals is to support educators by giving them the tools to create more engaging, personalized experiences for students.

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## About the Analyst



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