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Generative AI in Higher Education

A Strategic Framework for Transformation and Innovation

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Introduction

Reimagining higher education in the age of GenAI

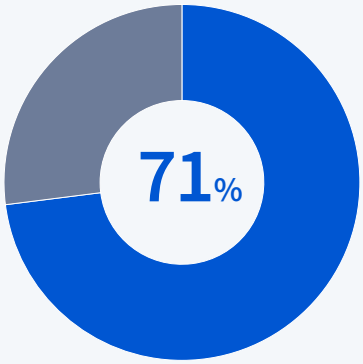
Higher education is on the brink of a revolution. Rapid advancements in generative AI (GenAI) have the potential to fundamentally change how campuses around the world teach, learn, and conduct research.

The time for institutions to harness the power of GenAI is now. Last year alone, there was a staggering twenty-fold increase in job postings requiring GenAI skills,[1] with 71% of leaders indicating a willingness to hire less-experienced candidates with AI skills over more experienced candidates without.[2] This shift in the job market demands that students acquire new skills to thrive in the modern workforce. Campuses must embrace GenAI and provide the necessary training to students, faculty, and alumni to ensure they stay competitive.

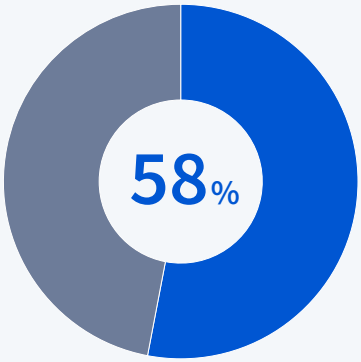
The impact of GenAI extends far beyond immediate skill acquisition. Imagine students using simulations to refine their critical thinking in virtual spaces. Picture professors in underserved regions gaining access to the best research and resources, all curated and personalized by GenAI. Envision a world where learning knows no language barriers, empowering institutions to deliver world-class education accessible to all. GenAI holds the power to level the playing field, ensuring equitable access to quality education for students everywhere.

This raises the question: Will GenAI replace teachers? Not really. Artificial intelligence can't replicate the emotional awareness, empathy, and mentorship teachers provide. Instead, it can empower instructors to expand their reach and impact, scaling their online presence to connect with more students. The future of education lies not in replacement, but in this collaborative model. The teacher-student relationship will remain a cornerstone of education, with GenAI enhancing its impact. With the strengths of both, institutions can forge a future where technology augments, rather than replaces, the vital role of teachers.

Generative AI in Higher Education: A Strategic Framework for Transformation and Innovation provides higher education leaders with a blueprint for understanding and integrating GenAI into their institutions, building on Dr. Jules White's vision shared in a Coursera and Vanderbilt University collaboration. The guide offers comprehensive insights into leading curriculum integration, fostering interdisciplinary collaboration, and navigating ethical considerations, so that institutions can fully leverage the potential of GenAI now—and in years to come.



of business leaders say they would hire a less experienced candidate with AI skills over a more experienced candidate without



of higher education leaders say AI is reshaping their institution's policies—either by updating existing ones or creating new ones[3]

A blueprint for transformation

Overview: blueprint

1. Equip learners with GenAI skills

Create GenAI literacy programs that provide both technical training and instruction on ethics, data privacy, and societal impact.

Integrate GenAI as a core component across academic programs and disciplines, from the humanities to the sciences.

Equip faculty to teach GenAI concepts, including ethics and societal implications, through workshops, seminars, and other resources.

2. Ensure ethical AI use

Create ethics committees dedicated to overseeing the development and implementation of AI-related policies.

Develop robust guidelines on the ethical use of GenAI, including considerations around data privacy, bias mitigation, and transparency.

Incorporate GenAI ethics into curricula, equipping students with the knowledge and skills to navigate ethical challenges at work.

3. Enhance operational efficiency

Automate routine tasks like course scheduling, alumni management, and admissions to reduce burden and save time.

Train administrative staff to use GenAI tools effectively, maximizing their potential to streamline operations.

Continuously evaluate GenAI's impact, adjusting to improve outcomes and meet institutional needs.

4. Build partnerships

Forge strategic industry partnerships to bring cutting-edge tech and data into the classroom.

Co-create specialized GenAI curricula with experts to reflect industry trends and needs.

Leverage online platforms like Coursera to scale GenAI education for both traditional and lifelong learners.

5. Drive data-driven decisions

Use AI-powered analytics to monitor performance, engagement, and outcomes, refining curricula.

Train faculty and staff to leverage data in operations and strategic planning.

Regularly evaluate and update AI tools and strategies to align with institutional goals.

Equip learners with foundational GenAI skills

Meet student learning expectations with faculty readiness

To fully unleash GenAI's potential, higher education institutions must equip their students, faculty, and staff with comprehensive GenAI skills. This goes beyond technical know-how. Dr. Jules White emphasizes: "Teaching the building blocks of GenAI is crucial. This entails teaching not only the technical aspects, but also understanding how to use these tools effectively within specific domains, whether it's in HR, writing and composition, or math."

Students increasingly expect their colleges and universities to equip them with the necessary GenAI skills to be competitive in the workforce. "Learners today are no longer just passive consumers of education; they're actively shaping their educational experiences," adds White. Students recognize the importance of GenAI in their future careers and are advocating for the integration of AI literacy into their curricula. Seventy percent of recent graduates believe that basic GenAI training should be integrated into their courses.[4] Institutions are responding, with 53% of students already using GenAI in their coursework.[5]

Integrating GenAI into higher education comes with its challenges. Faculty members often express concerns about their readiness to teach concepts, particularly regarding GenAI's ethical and societal impacts. White highlights the importance of providing faculty with adequate training and resources: "It's not enough to just teach these tools. We need to ensure that faculty are equipped to guide students through the complex ethical questions that arise when we start integrating GenAI into their work." Institutions that effectively address these challenges can enhance the educational experience and position themselves as leaders in the rapidly evolving education landscape. They prepare graduates to be agile, ethical, and effective contributors to the workforce of the future.

Blueprint: Equip learners with GenAI skills

1. Create GenAI literacy programs that provide both technical training and instruction on ethics, data privacy, and societal impact.
2. Integrate GenAI as a core component across academic programs and disciplines, from the humanities to the sciences.
3. Equip faculty to teach GenAI concepts, including ethics and societal implications, through workshops, seminars, and other resources.

Nearly 7 in 10 graduates are ready to reskill

As AI continues to permeate various industries, there's a growing demand for GenAI literacy across a range of educational fields: 68% of workers are aware of coming disruptions in their fields and are willing to reskill to remain competitively employed.[6] To stay prepared for the future of work, 70% of recent graduates believe basic GenAI training should be integrated into their courses. Meanwhile, 53% of students are already using GenAI in their coursework.

Prioritize ethical considerations and responsible use

Stay prepared through proactive policy frameworks and awareness of bias risks

As higher education institutions integrate GenAI into their operations and curricula, establishing clear policies that promote responsible data management, address potential biases, and define acceptable technology use is critical. There's a need for frameworks that guide GenAI applications in ways that align with academic integrity. These considerations are evident in student sentiment: 71% believe training on the ethical use of GenAI is very important, underscoring the need for institutions to take proactive steps in this area.[7]

Keep in mind that AI systems, including GenAI, are only as good as the data on which they are trained. This means they have the potential to reinforce existing biases or introduce new ones. If the data itself contains biases, GenAI can perpetuate these biases, leading to unfair or discriminatory outcomes. This risk is particularly concerning in an educational setting, where the consequences of biased decisions can affect student admissions, grading, and even career opportunities.

Institutions must take a proactive approach to mitigate the risk of unethical outcomes. This includes implementing rigorous data governance policies and fostering a culture of transparency where the workings of GenAI systems are open to scrutiny. "It's crucial that we don't just deploy these technologies blindly," says White. "We need to understand how they work, what data they're using, and how decisions are being made. Transparency is essential to ensure that GenAI enhances education rather than undermines it."

GenAI's ethical use also extends to its interactions with students and faculty. For instance, using it to monitor student activities or performance could easily cross boundaries if not handled carefully. Educational institutions must balance using technology to improve outcomes while respecting individual privacy and autonomy.

The role of faculty in guiding GenAI use can't be overstated. "Faculty must be empowered to provide their own perspective and have a choice in determining how GenAI fits into their curriculum," says White. "We collaborate with faculty to build something together, rather than imposing a one-size-fits-all mandate." This collaborative approach not only helps with ethical integration but also ensures that faculty buy-in is achieved, which is crucial for the success of any AI-driven initiative.

> *Ethical considerations are paramount. It's crucial that we understand the workings of these technologies, including the data they're using and the decisions they're making. Transparency is key to ensuring that AI enhances education rather than undermines it.*

Dr. Jules White
Senior Advisor to the Chancellor on Generative AI, Vanderbilt University

GenAI presents challenges and opportunities for academic integrity online. Empower institutional excellence with AI-enhanced tools.

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Another concern often voiced by faculty is the potential for student misconduct. Innovations in academic integrity tools are increasingly important to ensure that online learning remains credible and trustworthy, so educators can continue to uphold high academic standards. Coursera's new suite of academic integrity features help universities verify and improve online learning experiences with tools such as assessment variation, time and attempt limits, and plagiarism detection.

To support this, institutions can establish ethics committees focused on GenAI and technology use. These committees should include representatives from various disciplines, ensuring that diverse perspectives are considered when developing AI policies. Such committees can also play a critical role in ongoing education about AI ethics, providing resources and training for faculty and students.

"We're at a critical point where the decisions we make about AI today will have lasting impacts on the future of education. It's our responsibility to approach this thoughtfully, ethically, and inclusively," adds White.

GenAI courses on Coursera for educators

Generative AI for University Leaders
by Vanderbilt University

Prompt Engineering for ChatGPT
by Vanderbilt University

Blueprint: Ensure ethical AI use

1. Create ethics committees dedicated to overseeing the development and implementation of AI-related policies.
2. Develop robust guidelines on the ethical use of GenAI, including considerations around data privacy, bias mitigation, and transparency.
3. Incorporate GenAI ethics into curricula, equipping students with the knowledge and skills to navigate ethical challenges at work.

Use GenAI for operational efficiency

Automate routine tasks to save faculty time

Beyond its use in higher education curricula, GenAI offers substantial opportunities to improve operational efficiency within campuses. By automating routine administrative tasks, GenAI enables faculty and staff to shift their focus from time-consuming processes to more strategic initiatives that enhance the educational experience.

GenAI can take over administrative tasks such as assessment generation, grading, attendance, and scheduling, freeing up teachers to focus on what they do best: teaching, mentoring, and ensuring quality and ethical standards are upheld. This capability is especially valuable when administrative processes involve complex, repetitive tasks that consume significant time and resources.

One key area where GenAI is making a notable impact is course scheduling. Traditionally, creating course schedules is a time-consuming process that requires balancing faculty availability, student demand, and room assignments—each with its own constraints and variables. By leveraging AI-driven tools, institutions can automate much of this process, optimizing schedules more efficiently and reducing the potential for human error.

At Vanderbilt University, implementing AI-driven scheduling tools has resulted in significant time savings. Before adopting GenAI, for example, scheduling courses for a semester could take several weeks. Now, with GenAI, optimized schedules are ready in just a few hours. This alleviates the burden on administrative staff and ensures that students have easy access to the right courses, ultimately improving their educational experience.

To improve alumni relations, a critical aspect of institutional growth, campuses can use GenAI to streamline database management, coordinate events, and personalize communications. By analyzing alumni data to identify patterns and trends, institutions can tailor outreach efforts and boost engagement based on alumni preferences.[8]

Moreover, AI, including GenAI, can automate other administrative processes such as grading, admissions, and financial aid management. By handling routine tasks like processing applications or distributing financial aid packages, AI allows staff to focus on providing personalized student support or developing new academic programs. Half of admissions departments, for example, are already using AI, with that number only expected to grow, according to a survey of education professionals well-versed in their schools' admissions processes.[9] This indicates a strong trend toward adopting AI for operational efficiency.

Blueprint: Enhance operational efficiency

1. Automate routine tasks like course scheduling, alumni management, and admissions to reduce burden and save time.
2. Train administrative staff to use GenAI tools effectively, maximizing their potential to streamline operations.
3. Continuously evaluate GenAI's impact, adjusting to improve outcomes and meet institutional needs.

Build industry and academic partnerships

Use external resources to enhance the educational experience

To further innovation, higher education institutions must actively pursue partnerships with industry leaders, research institutions, and online education platforms. These collaborations are vital for providing access to the latest resources, real-world data, and specialized expertise, which can significantly enrich the educational experience and better prepare students for future challenges they may face.

Enrollment trends highlight the critical need for scalable, high-quality GenAI training that strategic partnerships can provide: GenAI courses on Coursera have witnessed a 1,060% YoY increase in demand globally.[10] This surge in interest reflects a broader trend of both students and employers recognizing the importance of AI competencies in the modern job market. Sixty-four percent of companies are now seeking employees with advanced AI skills, showing the critical role of campuses in bridging the gap between academic learning and industry needs.[11]

Partnerships between universities and AI-driven companies can lead to the development of internship programs, collaborative research projects, and industry-sponsored hackathons. These initiatives enhance student learning and prepare talent to meet the demands in an AI-driven economy. Partnerships may even lead to the development of cutting-edge research that pushes the boundaries of what's possible with AI. Joint research initiatives between universities and industry partners could lead to breakthroughs that advance AI and provide valuable insights that can be incorporated into curricula. As White points out, "The synergy between academic research and industry application is where real innovation happens."

Blueprint: Build partnerships

1. Forge strategic industry partnerships to bring cutting-edge tech and data into the classroom.
2. Co-create specialized GenAI curricula with experts to reflect industry trends and needs.
3. Leverage online platforms like Coursera to scale GenAI education for both traditional and lifelong learners.

Drive data-driven decisions

Leverage AI to boost student outcomes and retention

Making the most of GenAI requires continuous evaluation and adaptation. Higher education institutions must cultivate a data-driven culture where the latest research, real-time data, and feedback from key stakeholders consistently inform decisions. This approach ensures that institutions remain responsive to change and AI's evolving role in education.

This agility is crucial, White notes, as the pace of technological advancement in AI is unparalleled, with new tools, approaches, and ethical considerations arising regularly. With ongoing evaluation and adaptation, institutions can stay updated and offer their students the most relevant and current education.

For example, institutions can use AI to analyze a student's goals and performance data and to monitor engagement. This can help identify areas where the student may be struggling to provide tailored resources and support. Real-time insights can guide instructional design and delivery, optimizing time in the classroom and increasing comprehension and retention. A study by EDUCAUSE found that nearly half of institutions already use data analytics to identify at-risk students.[12] Others are using AI-powered predictive analysis to understand what determines success, enhancing learning, personalized support, and engagement among students.[13] For instance, Western Governors University in Utah used AI to identify at-risk students and provide early intervention, boosting graduation rates by 5% from 2018 to 2020.[14]

Fostering a data-driven culture requires more than just adopting analytics tools; it involves a mindset change across the institution. Campuses must encourage faculty, administrators, and staff to enhance decision-making processes with data. "We're seeing a lot of interest in how to use AI tools to analyze data, both at the student level and the institutional level, to improve learning outcomes and operational efficiency," notes White.

Blueprint: Make data-driven decisions

1. Use AI-powered analytics to monitor performance, engagement, and outcomes, refining curricula.
2. Train faculty and staff to leverage data in operations and strategic planning.
3. Regularly evaluate and update AI tools and strategies to align with institutional goals.

Appendix

GenAI-enhanced Professional Certificates

As GenAI skills become increasingly crucial for the future workforce, curriculum design must equip students to use AI responsibly and confidently.

Faculty using AI recognize this need, with 75% agreeing that graduates must master GenAI tools for workplace success.[15] Sixty-six percent of business leaders mirror this sentiment, saying they wouldn't hire individuals lacking GenAI skills.[16]

To equip students for the future of work, we've integrated cutting-edge GenAI content into select Professional Certificates. We've also launched new Professional Certificates powered by GenAI, offering learners a comprehensive educational experience. Browse our course recommendations below.

Professional Certificate	New courses added
IBM Data Science	IBM Generative AI: Elevate Your Data Science Career
IBM Full Stack Software Developer	IBM Generative AI: Elevate Your Software Development Career
IBM Data Analyst	IBM Generative AI: Enhance Your Data Analytics Career
IBM Data Engineering	IBM Generative AI: Elevate Your Data Engineering Career

New Professional Certificate

IBM AI Product Manager Professional Certificate

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About Coursera

Coursera was launched in 2012 by two Stanford Computer Science professors, Andrew Ng and Daphne Koller, with a mission to provide universal access to world-class learning. It is now one of the largest online learning platforms in the world, with over 155 million registered learners.[17]

Coursera partners with over 325 leading university and industry partners to offer a broad catalog of content and credentials, including courses, Specializations, Professional Certificates, Guided Projects, and bachelor's and master's degrees.[18] Institutions around the world use Coursera to upskill and reskill their employees, citizens, and students in fields such as data science, technology, and business. Coursera became a Delaware public benefit corporation and a B Corp in February 2021.

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Endnotes

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