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HETL Frontiers

The aim of the International Higher Education Teaching and Learning Association (referred to as HETL) is to bring together higher education professionals and thought leaders from around the world to dialogue, network, and collaborate on issues relevant to teaching and learning in higher education.

Artificial Intelligence (AI) in learning environments

Message from the President of the International Higher Education Teaching and Learning Association (HETL)

Dear HETL members and global education community,

Over the past century, as a result of dramatic political, economic, social, technological, and environmental changes, the democratization of knowledge has increased exponentially. The epistemic framework has shifted from knowledge scarcity to universal knowledge abundance, from isolated learning to collaborative learning, from individual intelligence to networked intelligence, and from a fixed number of years of formal learning to lifelong, lifewide, and lifedeep learning. This new reality of the post-digital age has exerted tremendous pressure on educational systems to adapt and evolve.

In a very short time, AI has become mainstream at all levels of education. What was once an experiment a few years ago is now, by and large, part of the teaching and learning process. The discussion now focuses on how AI can be improved to enhance teaching and learning, and how learning design can be refined to accurately measure what students truly know.

It's important to remember two important ideas: first, education reflects the broader social and economic system in which it is embedded, and second, technology, like any tool, is only as good as the person or institution using it. Technology has never been a substitute for sound evidence-based teaching and learning principles.

AI can restrict learning by outsourcing meaning-making, offloading critical thinking, and replacing human judgment with algorithmic processes, or it can enhance learning by detecting patterns that humans might miss, by modeling complex systems, and by extending learners' capacity to explore ideas across disciplines. As with any tool, its effectiveness depends on how it is used.

AI has exposed weaknesses in current assessment practices. If the assessment can be completed by an AI system, the assessment should be redesigned. The assessment itself may be outdated, or its administration may be inappropriate. Assessments should reflect what the student knows, not what AI knows.

Thus, it's not so much an AI problem as it is a learning design problem. This is why learning design is so important and why institutions must support faculty in designing programs and courses suited to the current technological environment. For example, oral presentations and assessments in which students must demonstrate their knowledge and reasoning in real-time in the classroom can play an important role in the assessment process.

With AI, the role of faculty becomes even more important because they frame the cognitive environment, ensure learning standards and objectives are met, determine the appropriateness of assessments, and support ethical development. AI can enhance learning, but it is up to us to design effective teaching, learning, and assessment processes.

Regards

Dr. Patrick Blessinger
President, HETL

Message from the Editor of HETL *Frontiers*

Dear HETL members and global education community

I am delighted to announce the release of the sixth edition of **HETL Frontiers**. This publication continues to explore the vanguard of higher education, with a dedicated focus on innovation, sustainability, and the rapidly shifting landscapes of teaching, research, and service.

This milestone issue is particularly significant as it centers on the **transformative role of Artificial Intelligence (AI)** within learning environments. As AI redefines the boundaries of pedagogy and administration, our contributors offer critical perspectives on how to harness this technology ethically and effectively.

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We are privileged to feature insights from a global network of esteemed educational leaders and scholars, including contributions from several HETL Country Directors. I wish to extend my deepest gratitude to Patrick Blessinger for his visionary leadership and his steadfast commitment to positioning HETL as a premier global platform for academic exchange.

Furthermore, I would like to recognize the HETL Publicity and Promotions Committee—Prof Sameera Saeed, Prof Taisir Subhi Yamin, Prof Rakel Kavena Shaleyefu, and Prof Mojca Kukanja Gabrijelčič—whose tireless efforts were instrumental in bringing this edition to fruition.

HETL Frontiers is published biannually. I encourage you to stay tuned to our communication channels for the upcoming call for submissions for our next edition. We hope this issue serves as both a provocation and an inspiration for your own work.

Warm regards

Dr. Martina Jordaan
Editor HETL Frontiers

HETL *Frontiers* – Content

HETL *Frontiers* is published twice a year in English. You may circulate and reproduce as you see fit. Kindly cite the authors and refer to the International Higher Education Teaching and Learning Association. We are looking forward to receiving any suggestions, comments and new articles.

1. Ethical Considerations: Navigating the Challenges of AI in Higher Education

by **Prof. Dr. Amar Kanekar**, Professor and Graduate Program Coordinator, Health Education and Health Promotion, **University of Arkansas at Little Rock,** United States of America

Introduction

The role of large language models (LLMs) in academic higher education, particularly their usage in classrooms online as well as face-to-face, has been fiercely debated. The advent of ChatGPT via Open AI (Artificial Intelligence) (https://openai.com/) has opened floodgates for numerous artificial intelligence based tools which are classified as generative and non-generative AI (https://curve.mit.edu/exploring-shift-traditional-generative-ai) Although the application of artificial intelligence via tools such as ChatGPT and its newer versions have a role to play in imparting education, its use has been heavily contested due to the ethical ramifications it has on learners and educators alike. Furthermore, the effective and legitimate application of artificial intelligence in education has been marred by concerns about plagiarism, reduction in cognitive effort and unoriginal thinking.

The purpose of this academic essay is to highlight the growing importance of the role of Artificial Intelligence-based tools, such as large language models in learning environments and their ethical ramifications. The following subheadings will be used for this essay: introduction to artificial intelligence-based educational tools and role of ethics in the learning environment, role of ethics from the learner's perspectives, role of ethics from the teacher/professor's perspective, and a conclusion.

Introduction to artificial intelligence tools and the role of ethics in the teaching and learning environment

Artificial intelligence tools such as the large language models have been a recent disruptive technological innovation. A variety of tools exist in the market and a few examples are ChatGPT (www.chatGPT.com), Google Gemini (www.gemini.google.com), Perplexity (www.perplexity.ai) and Microsoft Co-pilot (copilot.microsoft.com). Its current applications in teaching and learning have shown a mixed response from instructors and students alike, such that there is cautious enthusiasm, which is mired in wariness and ethical concerns. Ethical aspects of teaching and learning involve maintaining academic integrity throughout the teaching and learning process from the instructor as well as the student perspectives and violations of these include various aspects under the umbrella term 'academic misconduct', such as plagiarism of student assignments, data falsification, and collusion.

Role of ethics from the learner's perspective

As learners grapple with what constitutes being ethical while using generative artificial intelligence tools, most of the current research corroborates some perceptions and perspectives on what learners constitute

ethical usage. Use of generative artificial intelligence tools such as ChatGPT have been perceived as ethical when used for brainstorming ideas, summarizing literature, creating drafts and/or using grammar checks. However, there were concerns related to unreliable information, plagiarism, and encroachment on personal autonomy (Almassad et al., 2024; Chan & Hu, 2023). Overall, it is seen that learners are quite supportive of the usage of these tools, though there is confusion and not adequate clarity on their usage due to inadequate guidelines and insufficient or non-existing policies across academic settings. Clear policies and institutional guidelines for generative artificial intelligence usage will be quite desired and helpful for students to navigate themselves as they engage in critical thinking and learning through various assignments and exams (Johnston et al., 2024; Zaidy, 2024).

Role of ethics from the teacher/professor's perspective

When it comes to teachers/professors, a mixed kind of picture emerges in that those teachers who come from a science or technology background are much more supportive of using large language models as compared to teachers from traditionally non-scientific fields (Bernabei et al., 2023; Stepanechko & Kozub, 2023). This is a recent existing dichotomy and will hopefully be addressed in more detail as more studies emerge about the use and application of generative artificial intelligence in mainstream areas of science and the arts.

Faculty perceptions towards use of generative artificial intelligence tools in recent studies revealed an overall favorable pattern such that perceived usefulness of the artificial intelligence tool predicted their usage (Shata & Hartley, 2025), though it was balanced by concerns and challenges such as ethical issues, fairness on student assessments, and possible adverse effects on student-teacher relationship (Akanzire, Nyaaba & Nabang, 2025). Additional concerns involved plagiarism and critical thinking erosion as byproducts of engaging in the adoption of generative AI tools in teaching and learning (Peters et al., 2025). Finally, the majority of studies discussing faculty perceptions and attitudes towards the adoption of generative artificial intelligence tools in learning and teaching alluded to a significant role of faculty professional development related to Artificial intelligence literacy (AI literacy) (Khlaif et al.,2024).

Conclusion

In conclusion, generative AI is here to stay. Having mentioned that, it is quite imperative that we as humans harness the potential in terms of the depth and the breadth of its application in the higher education field. Using generative AI ethically is a prerogative of humans. We should never forget that generative AI is a technological tool designed by humans and hence should be under human control and not otherwise. A better approach would be to consider generative AI as a complementary tool to human work and application against a contrasting or conflicting tool. In the higher education field, particularly when planning to have a reciprocal relationship between students and instructors creating knowledge, a cyber-social intelligence framework is a good option (Galla, Cope & Kalantzis, 2025).

Concerns about generative artificial intelligence-based tools eroding the critical thinking capacity of humans need to be redirected and reimagined as a shift in the focus or mindset towards the role of generative AI tools used for information verification, response integration and task stewardship as new generation critical thinking skills (Lee et al., 2025). Finally, whether generative artificial intelligence tools assist in creativity is a matter of much debate, as there exist concerns about their 'originality' as the emerging output is based on pre-existing data (Habib et al., 2023)

As the use of generative AI evolves over the next few decades, I am hopeful that like any previous technological tools such as calculators, the internet, humans will not only embrace this tool but will use it

efficiently and effectively to supplement their own cognitive capacities and sensory perceptions based on experiential learning.

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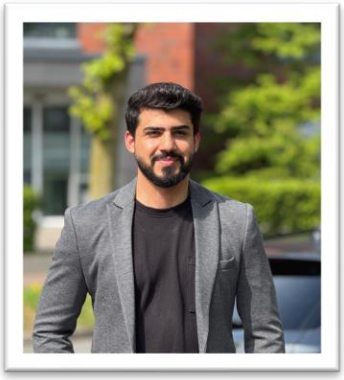
2. Beyond the Algorithm: Examining Human Judgment in Education

by **Prof. Dr. Thorsten Kliewe**, Science-to-Business Marketing Research Centre, **FH Münster University of Applied Sciences**, Germany



and **Faraz Ahmed Hayat, Accreditation Council for Entrepreneurial and Engaged Universities,** Germany

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Introduction

Artificial Intelligence (AI) is no longer a distant prospect in higher education. Across the globe, universities are integrating AI tools to streamline teaching, support students, and manage institutional operations. In classrooms and online learning spaces, AI analyzes student data, identifies learning gaps, and offers personalized feedback. It supports educators in tasks such as lesson planning, grading, and communication, creating more time for relationship-building and mentorship (Tan et al., 2025). At the same time, universities are also deploying AI to enhance administrative efficiency, streamline admissions, and optimize resource allocation, positioning these technologies as essential tools for modern higher education systems (Adams et al., 2022; Nguyen et al., 2022). Beyond its immediate advantages, AI has the potential to transform pedagogy by creating opportunities for more inclusive and flexible learning that prepares students for a world where digital fluency and critical thinking are essential (Benouachane, 2024).

Yet alongside these benefits lies a profound challenge. As AI systems take on increasingly complex tasks, decisions about what students learn, how they are assessed, and how resources are distributed may increasingly be made by algorithms rather than educators. While algorithms may offer support, they also risk displacing human judgment and ethical decision-making. Nguyen and colleagues (2022) have raised concerns about the lack of transparency and accountability in AI systems, whereas Mahajan (2025) warns that educators are often held responsible for decisions made by technologies they neither designed nor fully understand. When these systems make biased or inaccurate decisions, the consequences can reinforce inequities rather than alleviate them. Without clear oversight and human judgment at the centre, there is a risk that education becomes shaped by opaque technological processes rather than by the values and principles that guide teaching and learning (Akgun & Greenhow, 2021).

When Machines Decide

In many classrooms today, AI has already surpassed its initial support functions. At first glance, these technologies appear to enhance efficiency and personalise the educational experience. However, beneath the surface lies a power shift. Decisions that were once shaped by educators' experiences, pedagogical values, and knowledge of individual students are increasingly delegated to algorithms.

Molenaar's Six Levels of Automation model offers a useful lens for understanding this shift. At level one (*Teacher only*), educators control all aspects of instruction without any involvement from AI. Level two (*Teacher assistance*) introduces AI as an assistant that detects and diagnoses learning data, providing insights that teachers can use to inform their pedagogical choices. Level three (*Partial automation*) involves AI selecting or suggesting specific instructional actions, while the educator retains the authority to confirm or adjust these decisions. Level four (*Conditional automation*) assigns routine pedagogical tasks, such as monitoring progress or generating practice activities to AI, and the educator adopts a primarily supervisory role. Level five (*High automation*) shifts most instructional control to AI, with educators intervening only when necessary. By level six (*Full automation*), AI assumes near-total control of the teaching process, from content delivery to feedback, leaving educators on the margins of decision-making (Molenaar, 2022).

This evolution has significant ethical implications. Educators are expected to uphold values of fairness, accountability, transparency, and ethics as outlined in the FATE framework, yet they often lack the tools to question or override the decisions made by AI systems (Chounta et al., 2022). For example, when an algorithm assigns grades or predicts student performance, its internal logic may be invisible to educators. If a student challenges the outcome, the educator must defend a decision they did not make and cannot fully explain. This creates stress and role conflict, as highlighted by Holmes and colleagues (2021), who note that opaque systems reduce trust and erode professional confidence. The issue becomes even more complex when biases are embedded in AI systems. Research shows that algorithms trained on historical data can unintentionally reproduce patterns of inequality, such as privileging certain demographic groups in admissions or assessment (Akgun & Greenhow, 2021). Without transparency, educators cannot identify or correct these biases, leaving students vulnerable to discrimination and reinforcing systemic inequities. Nguyen et al. (2022) emphasize that fairness and ethical oversight cannot be achieved if educators are excluded from critical decision-making processes.

As AI takes on a greater share of educational responsibilities, the relationship between human judgement and machine decision-making must be carefully reconsidered. The challenge is to find ways to integrate AI that enhance rather than diminish the role of educators. This requires institutions to rethink governance structures, system design, and professional development to ensure that educators remain central to the teaching process, even as technologies evolve.

Finding Balance

The rapid growth of AI in higher education does not have to come at the cost of educators' autonomy. With thoughtful design and governance, these technologies can strengthen rather than replace the human elements of teaching. The key lies in framing AI not as a substitute for educators, but as a partner that supports professional judgment and ethical decision-making.

One essential step is ensuring human oversight and final authority. Educators must retain the ability to review, adjust, or reject algorithmic outputs, whether those outputs involve grading, feedback, or recommendations for students (Mahajan, 2025). Institutions should also prioritize transparency, selecting or developing systems that clearly explain how decisions are made and which data sources are used. When

educators understand how AI reaches its conclusion, they can identify potential biases and maintain trust with students (Nguyen et al., 2022).

Professional development is equally important. Many educators are expected to work with advanced AI tools without sufficient training to navigate their technical and ethical complexities. Targeted programs can equip faculty with the skills needed to critically evaluate AI-driven recommendations, integrate them into pedagogy, and recognize when machine outputs may conflict with educational values (Holmes et al., 2021). These programs should go beyond technical skills to foster confidence and critical reflection, ensuring that educators feel empowered rather than displaced by technology.

Finally, institutions must revisit their governance and policy frameworks. Too often, decisions about AI adoption are driven by efficiency metrics or external market pressures, leaving little room for dialogue about values and ethics. Moving toward a more participatory model—where educators, students, and administrators jointly shape policies—can help create systems that reflect the collective priorities of the academic community. Such governance structures can also set clear boundaries for where and how AI should be used, emphasizing its role as a supportive tool rather than an unquestioned authority (Benouachane, 2024).

Conclusion

AI has the potential to enrich higher education, but only if it is implemented in ways that respect and strengthen the human dimensions of teaching and learning. Educators, policymakers, technologists, and students must work together to define clear ethical guidelines and design principles for AI use in higher education. These conversations should not only focus on what AI can do, but on what it should do to support equity, transparency, and the well-being of both educators and learners (Nguyen et al., 2022). By placing fairness and accountability at the center of institutional policies, universities can prevent the uncritical adoption of tools that might unintentionally harm the very communities they aim to serve. Ultimately, the future of AI in higher education is not predetermined. It will be shaped by the decisions institutions make today about governance, training, and design. In doing so, universities can move toward a vision of education that is both technologically advanced and deeply human-centered.

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3. From process modeling to organizational learning: Entreprise knowledge-based system, artificial intelligence, and sustainable advantage

by **Dr. Mohsen Modarres,** CEO, Information Technology Consulting Group

Introduction

Competitive environments and resource scarcity increasingly compel organizations to seek value through process innovation and structural redesign. Traditional approaches to process improvement and reengineering often prioritize efficiency, yet their effectiveness ultimately depends on a deeper institutional capacity to systematically capture, coordinate, and interpret complex learning processes. The intricacy of hierarchical and interdependent systems—whether organizational or educational—requires more than technical optimization; it demands architectures that enables entities to progressively deepen their understanding of how activities, decisions, and outcomes interact across units, levels, and time horizons.

Enterprise knowledge-based systems (EKBS) provide this structural foundation by allowing organizations to map, codify, and mobilize processes in ways that support coherence, coordination, and strategic alignment. The strategic value of simulation and process-modeling technologies lies not merely in their ability to replicate operational sequences, but in their integration within an Enterprise knowledge-based systems architecture that transforms fragmented data into increasingly coherent forms of institutional insight. Through systematic, longitudinal, and dynamic representations of processes, Enterprise knowledge-based systems enhance an organization's capacity to anticipate outcomes, surface latent constraints, and allocate resources with greater analytical discipline.

While cross-sectional data may permit prediction in stable systems with low variability, most contemporary environments—across both business and education—are characterized by complexity, dynamism, and semi-equilibria. Under such conditions, isolated simulation models often struggle to account for randomness, path dependence, and discontinuous changes that shape performance and learning outcomes. Enterprise knowledge-based systems mitigate these limitations by institutionalizing feedback structures that allow models, interpretations, and practices to evolve as learning and experience accumulate. By embedding simulation and modeling within an adaptive knowledge infrastructure, organizations cultivate the capacity to refine assumptions, recalibrate expectations, and improve interpretive accuracy over time.

This transformation shifts process modeling from static analytical exercise to a cumulative capability grounded in reflection, revision, and integration. The ability to anticipate system behavior, absorb variation, and redesign processes dynamically reflects not only operational sophistication but a higher-order capacity for disciplined sensemaking, evaluative judgment, and informed decision-making. Accordingly, the value derived from process improvement does not stem solely from efficiency gains, but from an organization's ability to embed process knowledge within enterprise knowledge-based systems that support continuous learning, adaptability, and coherent judgment (Modarres, 2025). In volatile environments where semi-equilibria and discontinuous change are the norm, Enterprise knowledge-based systems enable organizations—whether firms or educational institutions—to convert resource constraints into opportunities for sustained value creation by strengthening their capacity to understand complexity, integrate experience, and respond with clarity and purpose.

Limitations of Process Modeling and Simulation in Teaching and Learning

Process modeling and simulation provide valuable analytical tools for examining and improving complex, hierarchical learning systems; however, their effectiveness is constrained by several structural and conceptual limitations. Recognizing these limitations is essential for institutional leaders and designers seeking to apply modeling techniques to inform educational quality and organizational learning meaningfully. A primary constraint arises from the tendency of many models to rely on idealized learning environments.

Simulations are often built upon simplified assumptions about learner behavior, instructional effectiveness, or institutional stability—assumptions that rarely hold in practice. Learning systems, like competitive organizations, operate within environments shaped by uncertainty, heterogeneity, and change. External forces such as policy shifts, technological disruption, evolving learner populations, or unanticipated crises are challenging to incorporate fully, increasing the risk of misalignment between simulated learning scenarios and observed educational outcomes (Modarres, 2025).

A second limitation stems from the hierarchical and interdependent structure of educational institutions. Learning outcomes emerge not from isolated instructional activities, but from interactions across multiple levels, including courses, programs, departments, colleges, and central administration. Traditional process models often struggle to represent these cross-level interdependencies with sufficient fidelity. As a result, simulations may understate the influence of faculty autonomy, curricular governance, and institutional priorities on teaching and learning processes. This underrepresentation can obscure how local pedagogical decisions interact with broader organizational structures, limiting the interpretive value of modeling outputs for systemic improvement.

Finally, many instructional models are constrained by their static orientation. Teaching and learning processes are inherently dynamic, evolving as new evidence accumulates, student needs shift, and

disciplinary knowledge advances. Static representations risk becoming outdated quickly, reducing their usefulness for ongoing refinement and informed decision-making. Although simulation techniques can incorporate time-based elements, embedding continuous adaptation—such as changing learning objectives, instructional innovations, or external quality requirements—remains a persistent challenge. Without mechanisms that allow models to learn from experience and revise underlying assumptions, process modeling in education risks functioning as a snapshot rather than a living representation of learning systems.

In this context, Enterprise Knowledge-Based Systems are particularly critical for higher education institutions seeking to manage and enhance complex, hierarchical learning systems effectively. Enterprise Knowledge-Based Systems encapsulates pedagogical expertise and institutional knowledge, providing a structured framework for capturing, organizing, and applying information related to teaching, curriculum, and learning outcomes. The development of Enterprise Knowledge-Based Systems is essential to overcoming the inherent shortcomings of modeling and simulation of complex academic systems. The proposed architecture represents a system-interactive technology that integrates learning analytics, data warehousing, data mining, and artificial intelligence, enabling academic leaders to collect longitudinal learning data, integrate cross-disciplinary instructional processes, and optimize institution-wide educational performance. Artificial intelligence (AI) has already begun to reshape higher education, and its integration with simulation and data mining offers unprecedented opportunities to evaluate and refine pedagogical models. Integrating EKBS with AI enables institutions to assess learning data more deeply, revealing patterns in student progression, instructional effectiveness, and curricular alignment that might otherwise remain hidden. Moreover, this integration allows educators and administrators to query historical and real-time data to identify interrelationships among learning variables and emergent trends that inform evidence-based decision-making.

Educational Advantages of Enterprise Knowledge-Based Systems

Artificial intelligence (AI), enterprise knowledge-based systems (EKBS), and institutional design form a triadic interplay that is increasingly central to adaptability in contemporary educational institutions (e.g., Modarres, 2025). AI enhances instructional personalization, administrative efficiency, and pedagogical innovation, enabling institutions to respond more effectively to changing educational demands (e.g., Brynjolfsson & McAfee, 2017).

EKBS provides the structural infrastructure necessary to capture, organize, and leverage academic knowledge, aligning teaching and learning processes with institutional mission and strategy (e.g., Nonaka & Takeuchi, 1995; Alavi & Leidner, 2001). Their integration signals a broader shift toward knowledge-driven educational governance, where organizational structures evolve to support data-informed, technology-enabled learning decisions. However, integration is not without challenges. Institutions must balance standardization with academic freedom, efficiency with innovation, and technological opportunity with concerns over data ethics, privacy, and faculty resistance. These tensions mirror those observed in complex organizations more broadly and underscore the importance of structural and cognitive alignment.

Concluding Remarks

The preceding discussion underscores that technological advancement alone is insufficient to generate sustained value in complex, knowledge-intensive environments. Whether in organizational or educational settings, performance and quality outcomes increasingly depend on the capacity to learn, adapt, and reconfigure practices over time rather than on the mere acquisition of advanced tools. This insight aligns with March's (1991) foundational distinction between exploration and exploitation, which highlights the

persistent tension between short-term efficiency and long-term adaptability. Institutions that overemphasize exploitation—optimizing existing routines and technologies—risk narrowing their learning trajectories and undermining their ability to respond to emergent complexity.

From this perspective, artificial intelligence and enterprise knowledge-based systems should be understood not as substitutes for human judgment or organizational learning, but as infrastructures that shape how learning unfolds. When embedded within supportive institutional designs, these systems can help rebalance the exploration–exploitation dynamic by preserving experimentation, enabling reflection, and facilitating the accumulation of insights over time and across organizational boundaries. Absent such alignment, technological sophistication may accelerate existing routines without enhancing adaptive capacity.

Sustained advantage, therefore, rests on the ability to translate technological efficiency into dynamic learning capabilities. Prior research on knowledge creation emphasizes that organizational learning depends on the continuous interaction between tacit understanding and explicit knowledge, mediated by structures that enable interpretation, dialogue, and revision (Nonaka, Toyama, & Nagata, 2000). AI-enabled EKBS can support this process by capturing experience, integrating diverse perspectives, and making learning visible and transferable across contexts. Looking ahead, effectiveness in both educational and organizational systems will increasingly depend on treating learning, process redesign, and capability development as ongoing strategic concerns rather than episodic initiatives. In environments characterized by uncertainty, heterogeneity, and discontinuous change, resilience derives not from technological adoption alone, but from the capacity to sustain learning over time. In this sense, the convergence of AI, EKBS, and institutional reconfiguration reflects a broader shift toward viewing learning itself as a strategic asset—one that underpins adaptability, coherence, and long-term value creation (March, 1991; Modarres, 2025).

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4. AI as an Educational Tool: Integrating Artificial Intelligence in Computing and Business Courses

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Introduction

To effectively educate Generation Z and Generation Alpha, two generations that have grown up with technology integrated into their educational experiences, it is vital to incorporate advanced technological tools, particularly Artificial Intelligence (AI) tools, into the educational curriculum. This integration is crucial for fostering the critical competencies required for navigating the evolving professional landscapes of the future. As educators increasingly adopt these AI technologies and tools, they gain considerable latitude in the design of their courses, facilitating the creation of more immersive and engaging learning experiences that resonate deeply with students. This pedagogical shift not only enhances student engagement but also prepares learners to thrive in a technology-driven world.

In an effort to fulfill educational objectives across both developed and developing nations, educators are adopting innovative pedagogical methodologies that frequently integrate traditional instructional practices with avant-garde artificial intelligence applications. This experimental framework encompasses collaborative peer pedagogies alongside the examination of diverse teaching strategies. While such initiatives may occasionally compel educators to transcend their established pedagogical boundaries, the seamless integration of AI presents remarkable opportunities for augmenting student engagement and optimizing learning outcomes.

As we navigate deeper into this paradigmatic shift, it becomes increasingly evident that the deliberate incorporation of AI tools within the domain of higher education not only equips students to adeptly navigate the intricacies of the contemporary job market but also cultivates a vibrant classroom atmosphere that promotes ongoing learning and adaptive skill development.

This article endeavors to explore the profound ramifications of artificial intelligence (AI) tools within the domains of computing, business management, and marketing. It will elucidate how a thorough comprehension and strategic application of AI tools can engender a novel cadre of professionals, equipped to excel in a complex and perpetually evolving global landscape. The discussion will also address the imperative for educational institutions to adapt their curricula and pedagogical approaches, ensuring that emerging professionals are adeptly prepared to navigate the intricacies of an AI-driven marketplace.

Leveraging AI Tools in Business Management and Marketing Education

Technical competencies are pivotal for the successful advancement of Generations Z and Alpha across a multitude of professional domains. However, it is equally imperative to acknowledge the crucial significance of soft skills within this framework. Qualities like creativity, problem-solving, and emotional intelligence distinguish individuals in an environment increasingly influenced by artificial intelligence. As AI technologies advance and introduce new methods for data analysis, the necessity for enhanced critical thinking and problem-solving abilities has intensified. This underscores the interconnectedness of technical and soft skills in today's workplaces, where both are essential for tackling complex challenges and fostering innovation.

This study scenario in the Business Management and Marketing course features a collaborative initiative involving local business owners, along with an in-depth analysis of real-world data. This teaching approach is crafted to develop students' skills in addressing complex issues from various angles through techniques such as problem-based learning, detailed case studies, and collaborative projects. As a result, students are well-equipped to deal with the complexities of real-world business environments, significantly enhancing their critical analysis capabilities and strategic decision-making skills.

In this hands-on project-based course, students were encouraged to incorporate AI-driven marketing analytics and Customer Relationship Management (CRM) tools into their work. This experience not only gave them exposure to cutting-edge technologies but also challenged them to design and implement their own marketing strategies and campaigns. Each group approached their case uniquely, using analytical tools to assess target locations, identify market trends, and craft strategies that resonate with potential customers. They also investigated social marketing platforms and developed actionable sales forecasting strategies suitable for real businesses.

By analyzing real-time data produced by AI tools, students were empowered to make insightful, ethical decisions. Throughout the semester, they presented their results to industry professionals and the course instructor, receiving invaluable feedback that highlighted the importance of adaptability and the need to stay attuned to changing consumer trends.

Leveraging AI Tools in Computing Education

A comparative analysis was conducted focusing on a computing education course, chosen specifically for its alignment with the technological interests and engagement levels of students proficient in digital tools. In this rigorous undergraduate course, students were systematically encouraged to incorporate AI-driven tools into their bi-weekly assignments. This pedagogical approach not only facilitated hands-on interaction with advanced technologies but also mandated a critical reflection on their usage.

Students were tasked with articulating their processes, detailing the inputs they utilized when engaging with the AI tools, and explicating their decision-making methodologies to evaluate the outputs generated. This reflective practice was designed to enhance their understanding of accuracy, correctness, and the

ethical ramifications tied to the deployment of AI technologies. By the conclusion of the course, participants emerged not merely with enhanced technical proficiencies in computing but with a nuanced comprehension of the pivotal role that AI tools occupy within the broader computing ecosystem.

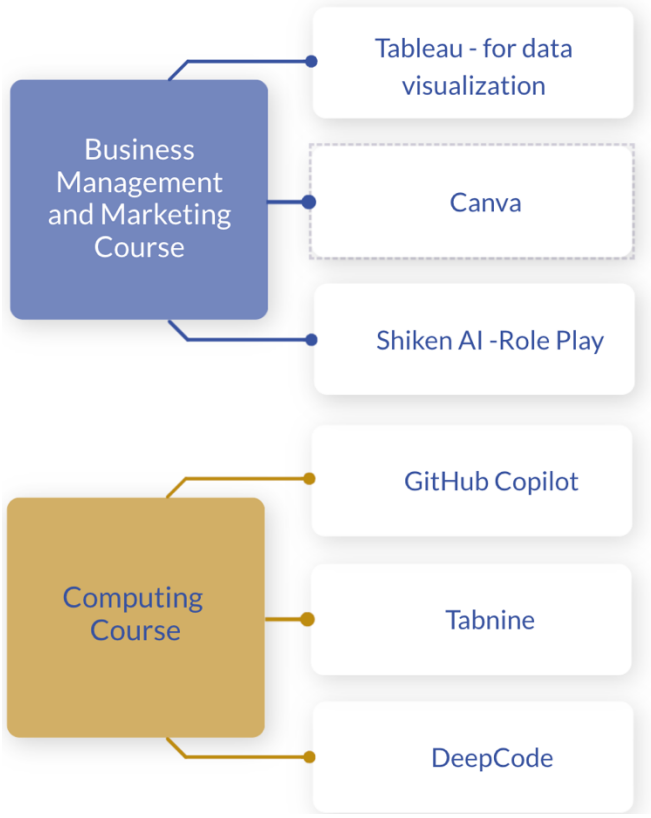
Conclusion

In conclusion, based on our observations, the integration of AI tools across business management and computing education represents a significant evolution in pedagogical practice, underscoring the need for ethical considerations alongside technical proficiency. This approach cultivates a comprehensive skill set that merges competencies in data analytics and technological applications with vital soft skills such as creativity and critical thinking.

Central to this integration is instructors' AI literacy, which is crucial for guiding students in understanding the ethical implications of AI technologies. By equipping educators with a strong foundation in AI, they can foster an environment that emphasizes responsible usage and ethical decision-making in technology deployment.

As students engage in project-based learning alongside industry professionals, they are not only equipped with practical skills but also instilled with an ethical framework to guide their future professional conduct. Thus, the strategic incorporation of AI tools in educational paradigms sets a new standard, ensuring that graduates are proficiently equipped to address both the challenges and moral complexities inherent in a technology-driven landscape. This holistic educational framework empowers the next generation of professionals to navigate the intricate interplay between innovation and ethics in their careers.

Table 1 – Created by authors the tools that were used in the observed courses



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5. Rethinking Teacher-Student Relationships in the Age of AI: A Sociological Exploration

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Introduction

Artificial Intelligence is rapidly reshaping higher education—not only by transforming how information is produced and shared, but also by influencing the social relationships that make learning meaningful. Tools that offer personalised feedback, automate grading, or predict student performance are now common, and they bring with them deeper questions about authority, trust, and the nature of human interaction in education.

Traditionally, the bond between teachers and students has rested on communication, mentorship, and shared learning. Teachers have long occupied a dual role: they are providers of knowledge and also moral guides who support intellectual growth. As AI becomes more involved in teaching and assessment, these long-standing roles are undergoing significant change. This essay examines how AI is reshaping educational relationships and how the social dynamics of classrooms are being renegotiated in the process.

Education, Power, and the Sociological Lens

Education is more than a process of instruction—it is a social institution shaped by hierarchy, norms, and interpersonal relationships. Teachers traditionally exercise both *epistemic authority* (the power to define valid knowledge) and *social authority* (rooted in institutional position and experience).

The introduction of AI adds a new participant to this relationship. Algorithms that evaluate performance or suggest learning paths now influence how teachers and students interact. Decisions once rooted in professional judgment are increasingly shaped by data and automated analysis.

From a symbolic interactionist perspective, this shift affects how meaning is constructed in the classroom. When students receive feedback from a machine rather than a teacher, they may view the technological response as more objective. This can subtly change how they perceive their instructors and how teachers understand their own roles. Critical theory further urges us to examine who designs these systems, whose interests they serve, and how they might strengthen existing institutional power structures—even while claiming to personalise learning.

The Transformative Potential of AI in Teaching and Learning

Alongside these challenges, AI offers genuine possibilities for enriching educational practices. One of its strongest contributions is the ability to personalise learning. Adaptive platforms respond to students' individual needs, creating room for learners to move at their own pace and style. When used thoughtfully, this can make education more accessible and responsive.

AI also has the potential to lessen administrative pressure on teachers by taking over repetitive tasks such as routine grading or data tracking. This allows educators to spend more time on meaningful interactions—mentoring, facilitating discussion, and encouraging critical and creative thinking.

Moreover, data-driven insights can help teachers recognise learning difficulties or emotional disengagement at an early stage. When combined with human empathy and professional judgment, these insights support more holistic intervention. In this framework, AI becomes a collaborator rather than a replacement—providing information while human teachers bring interpretation, ethics, and care.

Risks, Dependencies, and the Erosion of Human Connection

Despite these benefits, the growing reliance on AI raises important sociological concerns. One major risk is the weakening of the human connection that lies at the heart of education. Learning is not simply the transfer of knowledge; it is a shared journey built on trust, conversation, and emotional engagement. When algorithms mediate communication or feedback, these relational elements may fade.

Teachers may also find that their authority appears diminished when automated systems take over tasks central to teaching. Students, in turn, may become overly dependent on instant, machine-generated responses. This can discourage curiosity and critical thinking, leading to a passive acceptance of algorithmic decisions.

Ethical concerns also emerge. Algorithms are not neutral—they reflect the assumptions and biases of their creators. Without scrutiny, AI tools may unintentionally perpetuate inequality or misrepresent certain groups. This raises pressing questions about who controls the systems that increasingly influence educational experiences.

Finally, an overemphasis on data risks narrowing the purpose of education. When learning is reduced to measurable outputs, students may come to be seen as data points rather than individuals with unique intellectual and emotional trajectories.

Preserving Humanity in an AI-Integrated Educational Space

To address these concerns, educational institutions must take deliberate steps to protect the human core of teaching and learning. Teachers need training not only in operating AI systems but also in understanding their social and ethical implications. They must be equipped to question how algorithms shape classroom dynamics and to ensure that technology supports, rather than overrides, human judgment.

Students also need guidance in engaging with AI critically. They should be encouraged to question technological outputs, understand limitations, and maintain autonomy in their learning. Digital literacy must include awareness of ethics and responsible use.

Institutions must craft policies that promote transparency, fairness, and inclusivity in the use of AI. Data-driven tools should assist decision-making without replacing the nuanced, empathetic understanding that only human educators can provide.

Conclusion: Moving Toward a Humane and Inclusive Future

The increasing presence of AI in higher education marks a transformative moment for teacher–student relationships. While it challenges existing structures and redistributes authority, it also offers new opportunities for personalised support and creative teaching.

The central task before educators is not to reject technology, but to integrate it in ways that strengthen human connection. Teaching must continue to be rooted in empathy, dialogue, and shared exploration. If institutions can balance technological innovation with compassion and critical awareness, higher education can evolve into a space that is both modern and deeply humane.

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6. Transforming Education: The Impact of Artificial Intelligence on Learning Environments

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Abstract

Artificial Intelligence (AI) is increasingly recognised as a transformative force in education, reshaping pedagogical practices, assessment methods, and student engagement. By enabling adaptive learning systems, intelligent tutoring, and data-driven decision-making, AI has the potential to personalise education and bridge gaps in traditional classroom models. However, concerns about equity, ethics, and the digital divide highlight the need for critical inquiry into its actual impact on the learning environment. The objective of this study is to evaluate how AI integration is transforming educational spaces in terms of accessibility, learning outcomes, and teacher–student dynamics. Methodologically, the research adopts a mixed approach: secondary data from UNESCO, OECD, and World Bank databases (2015–2023) are used to examine global patterns of AI adoption in education, while primary qualitative data were collected through interviews with teachers and students in higher education institutions in India that have piloted AI-enabled platforms.

Statistical analysis of institutional performance metrics is combined with thematic analysis of stakeholder experiences to provide a holistic understanding of AI's educational impact. Findings indicate that AI significantly enhances personalised learning by tailoring content to student pace and ability, improves administrative efficiency, and facilitates innovative assessment practices. Yet, the evidence also reveals a widening digital divide, where under-resourced institutions face barriers in infrastructure, affordability, and training. Furthermore, while AI reduces teachers' routine workload, it simultaneously redefines their roles, requiring new competencies in digital pedagogy and data ethics. Concerns about privacy, and over-reliance on technology also emerged as critical challenges. In conclusion, the study argues that AI has the capacity to transform education into a more inclusive, efficient, and student-centered ecosystem, but this potential is contingent upon supportive policies, equitable resource allocation, and ethical governance frameworks. By situating AI within broader debates on education and technology, the research underscores both the opportunities and risks of digital transformation in learning environments.

Keywords: Artificial Intelligence, Education, Learning environment, Personalised learning, Digital divide, Teacher–student dynamics, India.

Introduction

Artificial Intelligence (AI) is increasingly recognised as a transformative force in education, reshaping how teaching and learning take place. Unlike earlier technological shifts, AI introduces dynamic capabilities such as adaptive learning, intelligent tutoring systems, and data-driven decision-making. These developments enable educators to design more flexible and personalised learning experiences. Students can learn at their own pace, receive tailored feedback, and access educational resources in more interactive ways. This capacity to individualise instruction holds the potential to bridge long-standing gaps in traditional classroom models, particularly in large or diverse learning settings.

However, the promise of AI is not without complications. Questions of equity, ethics, and the widening digital divide underline the need for critical examination. As AI spreads across global education systems, it is essential to evaluate who benefits, who is left behind, and how the roles of teachers and students are evolving. The objective of this study is to examine how AI integration is transforming educational spaces in terms of accessibility, learning outcomes, and teacher–student dynamics. Using a mixed-method approach, the analysis combines global datasets and qualitative insights to present a comprehensive view of AI's educational impact.

Global Patterns of AI Adoption

The period between 2015 and 2023 has seen a rapid acceleration in the adoption of AI across education systems worldwide. Countries with advanced technological infrastructures have been quick to introduce AI into classrooms, using adaptive platforms, automated grading tools, and real-time data analytics to support learning. International datasets indicate that AI is most commonly used to personalise instruction, track student performance, and improve administrative functions. This shift reflects a broader move toward efficiency, standardisation, and evidence-based educational planning.

Yet, global AI adoption remains uneven. Wealthier countries dominate implementation, while many low- and middle-income countries continue to struggle with foundational infrastructure. This disparity risks reinforcing existing educational inequalities at a global scale. In countries like India, only select higher education institutions have been able to pilot AI platforms effectively, often supported by external funding or government initiatives. Many others face persistent barriers related to affordability, technical expertise, and access.

Personalised Learning and Pedagogical Change

One of the most significant impacts of AI in education is its ability to personalise learning experiences. Unlike traditional models where a uniform curriculum is delivered to all students, AI can adapt content in real time based on individual progress, preferences, and learning speed. Students who grasp concepts quickly can move ahead, while those who need additional support can receive targeted exercises and feedback. This creates a more inclusive and responsive learning environment.

Additionally, AI has brought about important shifts in pedagogical practices. Teachers can leverage predictive analytics to identify at-risk students, tailor lesson plans, and intervene early to address learning gaps. Classroom activities are becoming more interactive, with intelligent tutoring systems supporting both in-person and blended learning. Assessment methods have also evolved, with AI facilitating automated grading, plagiarism detection, and adaptive testing. These tools improve the accuracy, efficiency, and timeliness of feedback, allowing teachers to focus on higher-order instructional tasks.

Changing Roles of Teachers and Institutions

AI not only transforms how students learn but also redefines the role of educators. By automating administrative and repetitive academic tasks, AI reduces teachers' workload, enabling them to dedicate more time to mentoring and facilitating critical thinking. However, this shift also demands new competencies. Teachers must now navigate digital pedagogies, interpret learning analytics, and engage with ethical concerns surrounding technology use. As AI becomes more embedded in classrooms, professional development and capacity-building for educators become crucial.

Institutional governance is also undergoing change. Many decisions that were once based on intuition or experience are increasingly informed by data generated through AI platforms. Attendance tracking, academic performance monitoring, and resource allocation are now supported by predictive models. While this can enhance institutional efficiency, it also raises questions about over-reliance on data-driven decision-making and the erosion of human discretion in educational spaces.

Equity and the Digital Divide

A critical challenge in AI integration lies in ensuring equity. Access to AI-enabled education is uneven across institutions, regions, and social groups. Under-resourced schools and universities may lack reliable internet connectivity, hardware, or skilled personnel to operate AI systems effectively. Students in these institutions risk being excluded from the benefits of digital transformation. This gap is not merely technological but also socio-economic, reflecting broader patterns of inequality in society.

Moreover, AI systems can unintentionally reproduce biases present in their training data. If algorithms are trained on datasets that reflect dominant cultural or linguistic norms, they may not fully serve students from marginalised backgrounds. Ensuring equitable AI adoption requires more than infrastructure investment; it demands inclusive design, local adaptation, and supportive policy frameworks that prioritise vulnerable groups.

Ethics, Privacy, and Accountability

AI in education also raises pressing ethical questions. The collection and analysis of student data are central to AI functionality, making privacy and data security critical concerns. Students' learning patterns, behaviours, and personal information are stored and processed, often without full transparency. Clear guidelines on consent, data ownership, and usage are essential to safeguard student rights and maintain institutional trust.

Accountability is another key issue. As AI systems influence decisions on grading, student progress, or academic interventions, determining responsibility becomes complex. Teachers and institutions must retain ultimate oversight of these processes to ensure fairness and transparency. Ethical governance frameworks should prioritise human-in-the-loop approaches, where technology supports — rather than replaces — human judgment.

Insights from Indian Higher Education

Qualitative interviews with teachers and students in Indian higher education institutions highlight the practical implications of AI adoption. Teachers noted that AI platforms helped streamline routine activities such as attendance management and grading, freeing time for more interactive teaching. Students appreciated the personalised feedback and the flexibility to learn at their own pace. Many described AI-enabled platforms as making learning more accessible and less intimidating.

However, challenges remain. Teachers emphasised the lack of adequate training and the need for continuous technical support. Students pointed out issues related to unreliable connectivity and limited device access in rural areas. Institutions with stronger financial backing could integrate AI more effectively, while smaller colleges struggled to sustain digital infrastructure. This unevenness mirrors broader structural disparities within the education system.

Opportunities and Risks of AI Integration

The findings underscore that AI has enormous potential to make education more inclusive, efficient, and student-centred. By enhancing personalisation, automating routine tasks, and supporting data-informed decision-making, AI can transform classrooms into dynamic learning spaces. At the same time, the technology brings new responsibilities related to governance, ethics, and capacity-building. If not addressed, these issues may deepen inequities and undermine trust in educational institutions.

Effective integration requires supportive policies that prioritise digital inclusion, teacher training, and responsible data practices. Public investment and international cooperation can help bridge the digital divide, while participatory governance can ensure that AI serves educational goals rather than commercial interests.

Conclusion

Artificial Intelligence is not just another educational tool; it represents a structural shift in how learning is conceptualised and delivered. It has the power to personalise education, improve efficiency, and foster new pedagogical practices. But these opportunities can only be realised if implementation is guided by equity, ethics, and accountability. Without deliberate policy measures, the digital divide could widen, leaving vulnerable learners behind.

By situating AI within broader debates on education and technology, this essay highlights both the opportunities and risks of digital transformation. As institutions, educators, and policymakers navigate this evolving landscape, the challenge is not whether to adopt AI, but how to do so in a way that upholds educational values of inclusion, fairness, and human dignity.

7. Learning with, Not from, AI: Reclaiming Student Confidence in the Age of GenAI

by **Assoc. Prof. Dr. Natasha Katuta Mwila,** Warwick Business School, **University of Warwick**, England, United Kingdom

Introduction

The rapid advancement of generative artificial intelligence (GenAI) has reshaped the higher education landscape, challenging long-held assumptions about learning, authorship, and intellectual development. While AI-driven tools such as ChatGPT, Gemini, and Claude offer new opportunities for creativity and efficiency, they have also created anxiety among students about their own cognitive capabilities. Many learners report uncertainty over whether their ideas are “good enough” compared with what AI can produce. This growing dependence raises a pressing pedagogical question: how can educators help students learn with AI without allowing them to outsource the very process of learning itself?

The challenge lies not in the existence of AI tools but in the erosion of student confidence and self-efficacy. When learners perceive AI as a superior thinker, they risk losing trust in their own intellectual judgement. This is particularly visible in tasks designed for self-reflection or critical thinking, where authenticity and individual voice are essential. The issue is not simply technological but psychological and educational. Reclaiming confidence, therefore, requires a reframing of AI’s role: not as an all-knowing tutor but as a partner in learning.

Understanding the Confidence Crisis

The emergence of GenAI has altered how students approach academic work. Recent surveys suggest that many students since the proliferation of free GenAI, have used AI to assist in writing assignments, often without a clear understanding of academic integrity implications. Beyond plagiarism concerns, a deeper issue is at play, the internalisation of AI outputs as a standard of "good writing". When students compare their early drafts to AI-generated text, they often perceive their own efforts as inferior, reinforcing a fixed mindset about their intellectual limitations.

This dependence undermines the essence of higher education: the cultivation of curiosity, resilience, and critical engagement. If learners approach every task through the lens of machine optimisation, they risk disengaging from the messy, iterative nature of thought that underpins deep learning. Educators must therefore interrogate not only how AI is used but also how students feel when they use it. The loss of confidence is both a symptom and a cause of over-reliance on technology.

The Growth Mindset Lens

A growth mindset framework, popularised by psychologist Carol Dweck, offers a useful lens for understanding and addressing this issue. A growth mindset emphasises that intelligence and ability can be developed through effort, practice, and reflection, whereas a fixed mindset views them as static traits. When students perceive AI as inherently "smarter", they adopt a fixed mindset that diminishes motivation. By contrast, when AI is framed as a collaborative tool that supports learning, it can reinforce the growth mindset, encouraging students to test, revise, and extend their ideas.

Embedding growth mindset principles in AI-integrated pedagogy involves more than motivational slogans. It requires creating structured opportunities for students to witness their own progress, such as iterative feedback cycles where human and AI input are compared. When learners see how their thinking improves through interaction with AI rather than being replaced by it, they begin to re-establish confidence in their cognitive agency. This repositioning transforms AI from an evaluator of ability into a catalyst for growth.

Educator Roles and Pedagogical Strategies

Educators play a crucial role in modelling productive engagement with AI. Instead of prohibiting AI use, teaching practice can foreground critical interrogation of AI outputs. For example, students can be asked to prompt a GenAI tool to generate a draft response to a reflective question, then critique the limitations of the AI's perspective. This process highlights where human insight, particularly context, emotion, and experience, remains irreplaceable. Such activities empower students to view their judgement as essential rather than obsolete.

Curriculum design should also emphasise metacognitive reflection on how students interact with AI. Embedding "AI diaries" or reflection logs allows learners to document their decision-making process when using GenAI. By articulating how and why they use these tools, students become more aware of their learning habits and biases. This metacognitive awareness is central to rebuilding confidence, as it shifts focus from the final product to the learning process itself, aligning well with the growth mindset approach.

Repositioning GenAI as a Learning Partner

Repositioning GenAI as a learning partner involves redefining its epistemic status within the classroom. AI should not be the source of answers but a facilitator of inquiry. When used in this way, it can extend access

to knowledge, stimulate curiosity, and model academic discourse. Educators can guide students to ask, "What can I learn from this AI response?" rather than "Can this AI write for me?" This subtle shift moves students from passive consumption to active learning, preserving their intellectual autonomy.

Moreover, integrating AI literacy into curricula helps demystify its functioning. Understanding that GenAI systems rely on probabilistic text prediction, not genuine comprehension, can reduce students' inclination to treat AI as infallible. Transparency about AI's limitations, including bias and hallucination, cultivates critical discernment. Students then begin to see AI as an imperfect but valuable peer with whom they can co-construct understanding rather than defer responsibility for learning.

Challenges and Ethical Tensions

Despite its pedagogical promise, learning with AI is not without tension. Concerns about academic integrity, data privacy, and equity remain central. Students with greater digital literacy or access to paid AI tools may enjoy advantages over peers, exacerbating inequalities. Additionally, educators themselves vary in their confidence and competence with AI, influencing how effectively they can model appropriate use. Institutional guidance is therefore essential to ensure consistency and fairness.

Ethically, there is also a risk that normalising AI could blur boundaries between assistance and authorship. Universities must articulate clear policies distinguishing between legitimate support and intellectual substitution. At the same time, an overly punitive stance may drive AI use underground. Balancing accountability with openness is, therefore, key to cultivating an environment where confidence and creativity can coexist with technological innovation.

Conclusion: Reclaiming Human Confidence

The rise of GenAI compels universities to re-examine the purpose of higher education in an age of machine intelligence. The goal is not to resist AI, but to help students re-centre their confidence in human thought, curiosity, empathy, and reflection as the foundation of learning. By framing AI as a partner rather than a proxy, educators can help students rediscover the value of struggle, iteration, and self-expression in academic work.

Ultimately, learning with AI requires a renewed social contract between educators, students, and technology. Confidence cannot be restored through prohibition or automation alone; it must be nurtured through guided practice, transparent dialogue, and critical awareness. When students learn with AI by testing, questioning, and refining their ideas, they reclaim ownership of their learning journey. In doing so, they reaffirm that genuine education lies not in generating perfect answers, but in cultivating the courage to think.

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8. Tailoring Education with AI: Balancing Personalized Learning and Critical Thinking

by **Assoc. Prof. Judith Abolle-Okoyeagu,** Head of Post Graduate Taught Studies, **Robert Gordon University**, Scotland, United Kingdom

Introduction

Artificial Intelligence (AI) is increasingly reshaping higher education by offering new ways to support learning and teaching. In particular, AI has been celebrated for its capacity to personalise education, allowing students to engage with content in formats that align with their preferred learning styles. Yet, alongside these opportunities, concerns persist that over-reliance on AI may undermine the cultivation of critical thinking, a cornerstone of higher education. This paper draws on survey data from students across disciplines and academic levels to explore how AI is perceived as a tool for learning. The findings highlight both the potential and the limitations of AI in tailoring education while raising important considerations about maintaining intellectual autonomy and reflective practice.

Diverse Learning Preferences

The survey revealed the diversity of learning preferences among students, ranging from visual approaches such as diagrams and videos to reading and writing methods such as books and essays. These variations underline the challenge educators face in designing learning environments that suit all students. AI tools have the potential to meet this challenge by delivering content through multiple modalities, adapting to each learner's style. Students who identified themselves as visual learners noted the value of multimedia resources, while those who preferred text-based learning emphasised traditional written explanations. This variation suggests that AI-driven personalization could provide more equitable access to education by meeting learners where they are, rather than enforcing a one-size-fits-all model.

Student Engagement with AI Tools

Experience with AI tools varied considerably. Some students reported extensive use of AI in their academic routines, while others had only minimal exposure or actively avoided such tools. For example, participants with regular use of AI described it as a helpful aid for organising information and enhancing understanding. Others relied on search engines such as Google rather than generative AI, citing familiarity and reliability. Interestingly, a subset of students deliberately chose not to use AI, expressing a preference for relying on their own understanding or "real-life experiences." These patterns reflect the uneven integration of AI into student learning and highlight differing levels of trust and confidence in the technology.

Perceived Benefits of AI

For students who did engage with AI, the benefits were often linked to efficiency and clarity. Several respondents indicated that AI enhanced their ability to analyse and evaluate information by providing quick access to explanations and examples. Others reported feeling more confident in the accuracy of their

responses after using AI as a supplementary tool. Importantly, some students highlighted that AI could help them connect ideas across different sources, deepening their comprehension. These reflections align with the promise of AI to personalise and streamline learning, enabling students to progress at their own pace and receive targeted support that addresses specific challenges.

Concerns and Challenges

Despite these perceived benefits, significant concerns emerged. Some students doubted the reliability of AI-generated content, describing uncertainty about accuracy and a fear of over-dependence. One participant explained that while AI could support certain tasks, it also hindered deeper engagement, as answers were too readily provided. Others identified challenges unrelated to AI itself, such as paraphrasing difficulties, limited vocabulary, or struggles to interpret context. For these learners, reliance on AI was either unnecessary or unhelpful in addressing the root of their difficulties. These findings suggest that while AI can be a valuable aid, it cannot replace the effort and skills required for independent academic growth.

Critical Thinking and Reflection

A core theme emerging from the data was the impact of AI on critical thinking. Some students believed AI enhanced their ability to understand and apply information, particularly when it provided alternative perspectives or explanations. However, others reported that using AI did not strengthen their capacity to evaluate or critique information; instead, it offered quick answers that risked bypassing reflective analysis. This tension illustrates the dual role of AI: it can either serve as a scaffold for critical engagement or as a shortcut that discourages deeper thought. The student reflections highlight the importance of teaching learners not only how to use AI tools but also how to question, verify, and reflect on the outputs they receive.

Risks of Over-Personalization

The data also point to risks associated with tailoring education too closely to individual preferences. While personalization can enhance accessibility, it may also limit exposure to diverse perspectives and learning approaches. For example, a student who relies exclusively on visual resources may miss opportunities to strengthen their interpretive skills through text-based engagement. Several survey participants recognised this tension, noting that while AI could support their preferred style, it was important to challenge themselves with alternative methods. This underscores the need for educators to design AI-enabled learning environments that balance accommodation with intellectual stretch, ensuring that personalization does not inadvertently weaken critical competencies.

Pedagogical Implications

The findings have significant implications for pedagogy. Educators must not assume that providing AI tools automatically leads to improved learning outcomes. Instead, careful integration is required to ensure that AI serves as a support rather than a substitute for critical engagement. One approach is to encourage students to compare their own responses with AI-generated outputs, fostering reflection on strengths and weaknesses. Another is to use AI as a springboard for discussion, debate, and critique, transforming it from a provider of answers into a partner in dialogue. Such practices can empower learners to maintain autonomy while developing the evaluative skills necessary for academic and professional contexts.

Conclusion

The survey findings reveal both optimism and caution regarding AI's role in higher education. Students recognised its potential to tailor learning experiences to diverse styles, enhance comprehension, and boost confidence. At the same time, they expressed concerns about accuracy, over-reliance, and the risk of reduced critical engagement. These reflections suggest that while AI can contribute to more inclusive and flexible education, its integration must be guided by pedagogical frameworks that emphasise reflection, verification, and intellectual autonomy. Ultimately, the goal is not to choose between personalization and critical thinking but to balance the two, ensuring that AI enhances rather than diminishes the core mission of higher education: the cultivation of independent, reflective, and resilient learners.

9. Generative Artificial Intelligence and the Future of Teaching and Assessment in the Digital Age

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Abstract

This article examines the growing influence of Generative AI (GenAI) on teaching and assessment in higher education institutions (HEIs). While GenAI tools provide students with immediate feedback, personalized learning support, and novel ways to engage with content, they challenge established models of formative and summative assessment, raising pressing questions about academic integrity, data privacy, and equity in access.

The article argues that while GenAI presents unprecedented opportunities for innovation in pedagogy, if unchecked, it risks catalyzing academic dishonesty, dependency on automated feedback, and the deepening of the digital divide. To harness its benefits, educators and institutions must adapt their teaching practices and assessment models, ensuring responsible and inclusive integration. Rather than viewing GenAI as a threat, the article calls for a balanced approach where technology serves as a complement to, rather than a substitute for, human judgment and creativity. This perspective will contribute to ongoing debates about how to maintain educational quality, fairness, and accountability in the digital age.

Introduction

Generative Artificial Intelligence (GenAI) is not merely transforming teaching. Learning and assessment in higher education institutions (HEIs) are reinventing the core foundational principles of how knowledge is created, shared, and evaluated. Gen-AI's ability to generate content, simulate complex problems, apply analytical reasoning, and personalize learning experiences dynamically makes it a noteworthy innovation poised to redefine education in unprecedented ways. However, this transformation requires more than technological adoption; it requires a fundamental rethinking of pedagogical philosophies, ethical

frameworks, and assessment paradigms to align education technologies (EdTech) with the demands of a digital future. This article presents an approach for harnessing GenAI's potential while safeguarding academic integrity, equity, and creative human agency.

Revolutionizing Pedagogical Interactions

GenAI brings in a revolution in hyper-personalized learning spaces where adaptive AI tutors serve as knowledge creators, rather than just facilitators. These AI systems should be able to forecast the needs of the learner, rectify misconceptions, and support the process of solving complex tasks in a way that suits the learner's cognitive abilities alone. This in essence signals the end of the existing, rigid learning curriculum, as it promises to provide dynamic, developing learning spaces that continue to be influenced by other complimentary technologies such as Big Data Analytics, Internet of Things (IoTs) and simulation laboratories. This, in turn, has the potential to revolutionize the role of the teacher from a knowledge disseminator to a strategic learning mentor, thereby paving the way for a more distinctive, learner-centric approach to education.

Transforming Assessment into an AI-Enhanced Authenticity Model

The traditional approach to assessment becomes ever more obsolete in the Gen-AI era. Rather than focusing on detection and enforcement as a means of grappling with the misuse of AI, it should transform into an authenticity-centered approach that fully integrates AI as a teammate in the process of competency verification. This will include the creation of complex tasks that necessitate the active partnership between students and AI, as a true indicator of digital literacy. AI can help trace the integrity of intellectual property in relation to students, enabling the enforcement of intellectual honesty in academia in a manner that is technology-supported rather than having to base it upon the enforcement of suspicion.

Ethical Stewardship and AI Accountability

The more Gen AI advances, the more its responsible use becomes an imperative that goes beyond technical security measures. Emerging learning ecosystems must integrate AI literacy as a key skill, enabling the questioning of AI bias, the transparency of algorithms, and the management of the ethical challenges presented by autonomous decision-making systems. This marks the beginning of a revolution from security-driven compliance measures to the proactivity of developing digital citizens, enabling individuals to use AI as change agents for good in society.

Bridging the Digital Divide through Inclusive AI Design

The potential of GenAI has an inherent link to the concept of digital equity. In order to prevent the widening of the educational divide, the innovative approach should adopt inclusive AI design, taking into consideration the varied needs of the linguistic, cultural, and accessibility groups. In addition, the development of AI systems in collaboration with marginalized communities, incorporating local dialects, as well as adopting the principle of universal design, can help democratize the process. Additionally, the hybrid approach in learning resources, which combines the digital approach with the community approach, can help develop resilient educational networks irrespective of the availability of infrastructure.

Innovating Teacher Roles and Professional Development

The advent of GenAI requires a transformation in the role as well as the identity of the teacher. The role of the teacher in this context involves AI synergy, innovation in the curriculum, as well as guidance based on

ethical perspectives. The role of the teacher, therefore, requires increased emphasis on innovation, AI synergy, as well as the creation of innovative learning spaces. This also requires the teacher to adopt the role of a learner, which in turn helps in the synergy of AI in the sector.

Reimagining Curriculum for the AI Era

The curriculum needs to be overhauled in a revolutionary manner to help students adapt to the realities of a future where AI collaboration becomes the norm. The key skill sets should no longer just include literacies but also the know-how of functioning in an AI-human partnership, solving complex issues in a hybrid setting, ethical thinking pertaining to digital entities, and AI-driven creativity indices. This needs to be achieved by seamlessly integrating the domain of STEM fields, humanities, as well as the social sciences, so as to produce well-rounded digital citizens, quite skilled in critical thinking as well as innovation in the digital ecosystem.

Building New Models of Assessment Accountability

The next generation of assessment frameworks should address the classic issue of integrity, but also adopt AI-driven levels of transparency and traceability. The use of blockchain technology might be leveraged along with the power of GenAI, enabling the generation of an untouchable trail of student work, thereby establishing provenance. This represents the flowering of accountability while still appreciating the impact of AI-human hybrid co-production in the establishment of intellectual creation. In the same way, it addresses the institutional level of the important competences of the 21st-century scenario.

Sustaining Human Creativity and Judgment

Despite the revolutionary potential of Gen AI, it should be noted that the role of creativity, empathy, and critical thinking remains irreplaceable in the hands of humanity. The future of education needs to preserve this uniquely human tradition while treating AI as an augmentation technology rather than a replacement. An effective approach in this regard would entail developing meta-cognition concerning AI as a means of fostering critical thinking in AI outputs. In this way, AI can complement, rather than reduce, the artistry of scholarship.

Conclusion

The generative AI model signifies a watershed moment in the history of learning, instruction, and evaluation in the educational sector, the transformative potential of which defies the conventions of the existing paradigm of learning. The HEIs, in order to leverage the potential of the AI model, would require a fundamentally changed vision in terms of the administration of AI, fueled by a commitment to AI as a tool that needs to be managed in sync with humanity-driven values. This shift, from the fear of AI to the use of AI, heralds the arrival of a new learning paradigm in which the power of creativity, authenticity, and accountability can coalesce in balanced sync with the AI model.

10. The Future of Learning: Generative AI Tutors at Home, Higher Order Thinking in Class

by **Dr. Chinedu Pascal Ezenkwu**, Lecturer, School of Computing, Engineering and Technology, **Robert Gordon University,** Scotland, United Kingdom

Introduction

Although the emergence of generative artificial intelligence (GenAI) has promised certain pedagogical benefits, including personalising education at scale, it has also raised ethical concerns including learners over-relying on the technology, which can potentially impact their critical thinking (Larson et al*., 2024*). Traditional teaching and learning structures design teaching to occur mostly in classrooms, while assessment is undertaken by learners in their homes. With the wide accessibility of GenAI tools that can support academic activities, assessments in uncontrolled environments risk being completed using GenAI, with little or no contribution by the learner. Therefore, the current learning structure, which uses classroom time for didactic content delivery, is inefficient in this new era of GenAI.

This teaching and learning approach denies the educational system the opportunity to leverage GenAI for large-scale learning personalisation and also deprives students of guided opportunities for collaboration, critical thinking and development of essential metacognitive skills, which are increasingly becoming crucial in today's world. This article proposes a reconfiguration of teaching and learning structures through a flipped classroom model (Tucker 2012). As GenAI continues to be democratised, modern education should consider shifting foundational learning to GenAI-powered tutors at home and libraries, while classrooms are designed to support assessment, interactions, collaborations and deeper intellectual engagements. In this flipped-classroom model, students attend classes better prepared with foundational knowledge, allowing the use of classroom time for further synthesis of knowledge, creativity, self-reflection and application of knowledge.

A New Teaching and Learning Structure

Several studies, including a viral one by MIT Media Lab that directly measured participants' brain activities, have demonstrated that the use of GenAI can impact critical thinking (Kosmyna et al*., 2025*). However, other studies have revealed that safeguarded use of a GenAI tutor can amplify learning, helping students to learn significantly more in less time than a group exposed to in-class active learning (Miller et al*.,* 2025; Bastani et al., 2025). This implies that GenAI is an asset that can transform teaching and learning if the right modalities are adopted.

One such modality is the redesign of the current teaching and learning model to one that harnesses the benefits that GenAI brings to learning, while creating opportunities for the development of essential soft and metacognitive skills. Leveraging a GenAI tutor with requisite guardrails and customisation to support

learning and provide hints to enable students to solve a task rather than supplying them full solutions to problems, students can be encouraged to engage with didactic teaching materials at home, while classrooms are repurposed to support higher-order thinking and more human-oriented tasks such as collaborations, problem-solving, and communication, which cannot be outsourced to GenAI.

This new structure aligns with the flipped-classroom model, which recommends foundational knowledge acquisition outside the classroom while in-class time is used for higher-order thinking. With this, education will be able to curtail the threat of GenAI to critical thinking, having more responsible students who come to their classrooms better prepared for more complex intellectual engagement that will contribute to their problem-solving ability, aligning them to the future of work.

Operationalising the Flipped Classroom for GenAI-assisted Learning

GenAI has shifted education towards a new materialist, sociocultural practice that, unlike the traditional sociocultural theories where humans are the key drivers of learning, emphasises relationships that develop from interactions among learners, instructors, datasets and machines (Vartiainen et al., 2023). When carefully designed, modern education will benefit from these interactions through diverse knowledge representations that can support personalised, adaptive learning and deeper cognitive engagement. To implement a GenAI-assisted flipped classroom model of education requires a complete change of current teaching, learning and assessment methods.

An important first step is to clearly define which aspects of learning can be effectively supported by GenAI tutors and which activities should be for classroom engagement with a human tutor. To ensure that safeguarded GenAI tutors are deployed for this purpose, educators will collaborate with developers to customise appropriate GenAI tutors that can provide scaffolding and authentic learning opportunities, guiding learners through a task instead of solving it.

To reap the full benefit of GenAI in education, learners and educators must be equipped with GenAI literacy skills. This will enable students to engage with GenAI tutors responsibly and ethically, being able to spot hallucinations and goal misalignment. Knowledge of GenAI will enable educators to effectively decide what to outsource to GenAI, using classroom sessions to reinforce learning and support analysis, synthesis, creativity and problem-solving. Furthermore, this ambitious shift cannot be possible at scale without the provision of relevant infrastructure, well-aligned educational policies and curricula.

Barriers to Implementing the GenAI-Assisted Flipped Classroom

Despite its promise, the GenAI-assisted flipped classroom approach can face several obstacles that must be addressed to ensure its effectiveness and sustainability. A key challenge is unequal access to reliable electricity and technology, challenging its adoption in rural and underserved communities, which can potentially widen existing educational inequalities. Moreover, a lack of GenAI literacy among educators and learners may constitute a barrier to adoption. There can also be a possible resistance to change by educators who are already accustomed to the traditional practices. Other concerns include ethical issues such as data privacy, algorithmic bias, and anthropomorphism, which threaten the safe use of the technology, especially among younger learners.

Conclusion

The GenAI-assisted flipped classroom model presents a transformative promise to education in the GenAI era. Through this inversion of the roles of instruction and evaluation using GenAI tutors, the future of

education can be reimagined to empower learners, support educators, and better prepare students to go beyond assimilating information to thinking, creating, and adapting in an evolving world of GenAI.

By engaging GenAI tutors for foundational knowledge acquisition at home, classroom time can be utilised to support higher-order thinking and metacognitive skills development. Operationalising this model requires careful planning, deployment of GenAI tutors with comprehensive guardrails, and providing GenAI literacy training to educators and learners. To ensure effectiveness and long-term impact, several barriers need to be addressed - these include unequal access to technology, limited GenAI literacy, and ethical issues with GenAI.

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11. Framing AI in Educational Leadership: Merging TAM and Sociotechnical Systems Theory for Equity and School Improvement

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Abstract

The integration of AI can be framed within broader theories of educational leadership change. The Technology Acceptance Model (TAM) provides a basis for the extrinsic factors which impact the beliefs surrounding technology adoption and ease of use (Al-Adwan et al., 2023; Davis & Granic, 2024) , while Sociotechnical Systems Theory (STS) underscores the interaction between social and technical structures to create systematic success and optimization (Walker, Stanton, & Jenkins-et.al., 2017). These frameworks suggest the success of AI in schools is not determined by the technology solely but by the cultural, ethical, and leadership practices surrounding its implementation.

The adoption and sustainability of school improvement can be strengthened by combining the TAM with STS. AI enhances this model by streamlining data, offering predictive insights, and automating routine tasks, leading to higher perceived usefulness (PU) and perceived ease of use (PEOU). School improvement succeeds when technical systems, human factors, and improvement science methods are designed together. AI can act as a bridge: reducing friction, speeding analysis, and personalizing support. This framework will address the intersection of these theories and how it can promote equity and academic achievement, leading to school improvement.

Keywords: artificial intelligence, Technology Acceptance Model; Sociotechnical Systems Theory; educational leadership; school improvement

Introduction

Artificial Intelligence (AI) is a growing influence in education and has begun to transform teaching, learning, and school leadership. AI offers powerful tools for data analysis, automation, and personalized learning, but its impact depends not only on the technology itself, but also on how schools and school leaders integrate it into their organizational systems. While the focus of AI in education has been primarily on how to leverage the tool for instruction and student learning, the use of AI as a tool for school improvement and systems thinking by educational leaders is still in its early stages. The integration of AI in educational leadership can be best understood through the combined application of the Technology Acceptance Model (TAM) and Sociotechnical Systems Theory (STS). This framework emphasizes that AI-driven school improvement succeeds when human, technical, and systemic factors work synergistically to promote equity, innovation, and academic achievement.

Theoretical Foundations: TAM and STS

The Technology Acceptance Model (TAM) was designed as a foundational theory to explain user acceptance of technology through two key factors—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). These perceptions shape a user's attitude and intention, which in the long run impact user

acceptance. The TAM can “predict user acceptance, explain the reasons for acceptance or rejection based on perceived usefulness and perceived ease of use and provide guidance to improve user acceptance...” (Davis & Granic, 2024). While PU and PEOU are important in the effective implementation of technology, they overlook the user’s personal characteristics that may also impact technology adoption (Al-Adwan et al., 2023). Specifically, educators' attitudes towards AI adoption and its impact on effective educational leadership may benefit from the Sociotechnical Systems Theory.

Sociotechnical Systems Theory (STS) is rooted in intersections of the social and technical factors that impact system performance through joint optimization (Walker, Stanton, & Jenkins, 2017). STS encompasses the interaction between social (human, organizational, cultural) and technical (technological, procedural) subsystems. When STS works, systems can deal with changes, environmental complexity, technological challenges, and adversity. Joint optimization occurs when all social and technical factors enable a system or organization to thrive despite obstacles to success that cannot be changed. The emergence of AI creates optimal conditions for applying SST to enhance key elements of joint optimization, including cohesion, trust, and shared awareness

The limitations of the TAM and STS in advocating for AI integration in educational leadership can be overcome by integrating the theories to develop a more effective AI implementation. The TAM does not account for the personal and social conditions that impact PU and PEOU in AI adoption (Naszariah Nasni Naseri & Abullah, 2024). However, the STS bridges the gap with its focus on social and technical systems. By merging the two theories, the human, organizational, and cultural factors that impact technology implementation can be addressed in terms of the PU and PEOU. Combining TAM and STS provides a comprehensive framework that links individual acceptance factors with organizational design principles, ensuring that AI implementation aligns with user beliefs and systemic capacities.

Implications for School Improvement and Equity

AI enhances the TAM–STS framework by adding adaptive, data-driven capabilities that strengthen both technical efficiency and human-centered development. Within this integrated model, AI improves usability and perceived usefulness by automating data analysis, identifying instructional trends, and offering personalized insights. At the same time, STS principles ensure that technology adoption aligns with social, cultural, and organizational contexts, fostering collaboration and trust among educators and stakeholders. The use of AI to improve the quality of education and accessibility of education is a fairly new topic. Applied to school improvement, this combined framework promotes synergy between technology and human capacity. AI supports responsive leadership through real-time data dashboards, predictive analytics, and scenario planning, enabling evidence-based decisions that enhance instructional quality and resource allocation.

The implementation of improvement science in conjunction with AI could potentially assist educational leaders with analyzing data, identifying areas of weakness, creating action steps to achieve the goal, recognizing artifacts for implementation, and data for measuring impact. AI usage is not limited to performance outcomes but may also be used to identify professional learning needs and improve the efficiency of administrative systems and processes. Teachers benefit from AI-driven feedback tools that inform professional growth and differentiate instruction to meet diverse learner needs.

Equity and access remain central to this model. When implemented ethically and with cultural responsiveness, AI can personalize learning pathways, target interventions for underrepresented groups, and help close persistent achievement gaps. Effective AI usage requires extensive training and support, which also meets user needs for features and accessibility. Educators with high levels of self-efficacy have

a greater perception of PU and PEOU (Al-Adwan, et al., 2024).

Successful sustainability of self-efficacy depends on transparent policies, equitable infrastructure, and continuous stakeholder engagement. This stewardship is crucial because security risks are a major roadblock to the integration of AI into the educational setting. These risks negatively influence the PU of AI due to the uncertainty and possible negative consequences of data leakage of confidential student and employee data. These potential risks should be addressed through AI usage policies and frameworks adopted by the educational entity. By merging AI with the TAM–STS framework, schools can achieve both technical and human advancement in a balanced and future-ready educational ecosystem.

Conclusion

The effectiveness of AI in schools is contingent upon the integration of technological, social, and leadership dimensions. The combined TAM–STS framework offers a robust model for understanding and guiding AI adoption. Future research or practice should explore professional development for AI readiness, developing ethical frameworks for educational AI, and examining how leadership strategies can sustain innovation and equity for many years to come.

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12. From Awareness to Authentic Integration: Exploring Faculty Adoption of Artificial Intelligence in Higher Education - An Exploratory Study

by **Dr. Ali Bhayani,** Assistant Professor, Faculty of Business, **Higher Colleges of Technology,** United Arab Emirates

Introduction

Faculty members across universities are dealing with questions that seemed distant just a few years ago: Should I use AI for curriculum design? How do I maintain academic integrity when students have access to sophisticated AI tools? These questions point to a significant shift in higher education, as AI has become part of everyday academic life.

The numbers tell an interesting story. Around 43% of college students use AI tools like ChatGPT, and about half of instructors incorporate AI in lesson development (Chiu, 2024). Yet faculty adoption varies considerably. This inconsistency suggests we're seeing more than just a technological change—it reflects a fundamental shift in how educators understand their roles and their relationship with emerging technologies. Understanding this shift matters for institutional success, particularly as the global AI education market is projected to grow by 36% annually through 2030 (Prasetya et al., 2025).

The Complex Reality of Faculty Adoption

An exploratory study at a mid-sized Canadian public college examined how faculty actually adopt AI. The findings reveal that successful integration goes beyond simply using tools. Through surveys and interviews with faculty, the research uncovered a notable gap between awareness and genuine incorporation. While 68% of faculty reported experimenting with AI tools, only 34% used them regularly.

The research identified four distinct groups:
Optimistic adopters (23%) who actively engaged with various AI applications
Critical evaluators (32%) who recognized AI's potential benefits but approached adoption cautiously
Cautious observers (30%) who showed interest but faced barriers like time constraints
Resistant non-adopters (15%) who opposed AI integration due to ethical concerns

These groups suggest that factors like age and discipline do not fully explain faculty responses. Deeper beliefs about education and technology appear to play a more significant role in shaping willingness to engage with AI tools.

Professional Identity and Disciplinary Culture

One of the more significant findings concerns professional identity in faculty adoption of AI technologies. Teaching and research shape educators' values and beliefs, and AI integration forces them to rethink what it means to be an educator in the 21st century.

Disciplinary cultures influence adoption patterns in interesting ways:

- STEM fields lead with an 84% adoption rate, viewing AI as an extension of their existing work.
- Business and social sciences show mixed responses at 58%—interested in AI for data analysis but concerned about teaching implications.
- Humanities lag at 41% adoption, focusing on AI's effects on critical thinking and creativity.
- Professional programs demonstrate moderate adoption at 52%, emphasizing AI's role in preparing students for future workplaces.

These differences reflect distinct intellectual communities with their own methods and values. This affects how faculty perceive appropriate pedagogical practices. Effective AI strategies need to acknowledge these variations rather than assuming faculty will respond uniformly.

Barriers and Enablers of Integration

Understanding what blocks or facilitates AI adoption matters for institutional strategy. The most significant barrier was limited AI literacy, mentioned by 89% of respondents. This extends beyond technical skills to include understanding AI capabilities and knowing how to use them appropriately in specific disciplines. Faculty noted that the real learning curve involves figuring out when and how to use AI tools effectively.

Ethical and quality concerns affected 72% of respondents. STEM faculty focused on accuracy issues while humanities faculty prioritized concerns about creativity. Additionally, 68% reported gaps in institutional support—inadequate training and unclear policies. Time and resource constraints were barriers for 61% of faculty already managing heavy workloads. About 43% worried that AI could undermine their professional identity, particularly in the humanities and social sciences.

On the positive side, 76% of faculty cited enhanced efficiency as a primary motivation. They value being able to allocate cognitive resources more effectively, not just saving time. Research enhancement attracted 52%, though users emphasized the need for verification. Teaching innovation and accessibility were also significant motivators for certain faculty groups.

Institutional Support Requirements

Faculty preferences for institutional support offered useful insights for effective AI integration. The most requested support was professional development, with 85% favouring hands-on, discipline-specific workshops over general sessions.
Policy clarity followed at 78%—faculty wanted guidance on AI use and academic integrity while maintaining autonomy. About 71% sought technical support, and 64% were interested in financial support for AI tools. These findings suggest that effective initiatives should avoid one-size-fits-all approaches. They need to cater to both optimistic adopters and cautious observers, tailored to their specific needs and institutional contexts.

Toward Authentic Integration

The distinction between awareness, experimentation, and authentic integration is important for institutional strategy. Simply introducing AI tools to faculty does not ensure meaningful integration into pedagogy or research. Moving from initial use to thoughtful incorporation requires sustained support and time for reflection.

This research challenges the assumption that increased faculty usage of AI tools is automatically positive. Instead, institutions should focus on supporting authentic integration that enhances professional effectiveness while respecting core values. This shifts the focus from compliance to creativity, promoting contextual integration and addressing legitimate concerns rather than dismissing resistance as technophobia.

Faculty resistance often stems from valid concerns about maintaining professional standards and human connections in education. Institutions that engage with this resistance—rather than trying to overcome it—can achieve more thoughtful and sustainable AI integration.

Conclusion

This study suggests that effective AI integration in higher education depends more on pedagogical approaches, professional identity, and institutional culture than on introducing new tools alone. Key insights for higher education leaders include:

- Develop tailored strategies that respect the distinct needs of different disciplines and faculty profiles.
- Invest in sustained, relevant professional development rather than generic training sessions
- Encourage ethical reflection on AI's implications, recognizing that faculty concerns are legitimate professional considerations.
- Plan for long-term change—authentic integration requires multi-year initiatives.

These insights provide frameworks to support faculty as they navigate technological transformation. The goal is meaningful integration that advances the fundamental objectives of higher education. Each institution will undertake this journey differently, but by understanding the complex factors involved, they can offer more effective support and achieve better educational outcomes.

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13. Enhancing Participation Through AI in Online Learning

by **Dr. Marga Botha, Akademie Reformatoriese Opleiding en Studies,** South Africa

Introduction: Rewriting the Story of AI in Higher Education

In many classrooms, whether physical or virtual, the voices we hear often are not always the ones with the most to say. Quiet, introverted, or underserved students frequently withdraw from live discussions due to anxiety, language barriers, or a preference for reflection before responding. This challenge becomes even more visible in online learning environments where participation is a major indicator of engagement. Artificial Intelligence (AI) has begun to redefine what participation looks like by offering multiple, inclusive avenues for students to express understanding, connect with peers, and demonstrate their presence.

Within the Education environment, AI has long been narrated as a kind of “big bad wolf.” A Dangerous,

unpredictable force that is lurking on the edges of academic integrity and pedagogical trust. Seen as the wolf in Little Red Riding Hood, AI has often been perceived through fear-based narratives. Yet, as with any narrative, this lens says more collective anxieties than about AI itself. As higher education moves deeper into online learning, it becomes necessary to rewrite this story. As role-players in the academic sphere, we must examine how AI can increase participation, strengthen student presence and support inclusive teaching practices when embedded responsibly.

Clearing the Path: Inclusive AI-Enabled Participation

Traditional classroom settings often promote verbal assertiveness and spontaneous contribution notions, creating overwhelming challenges for those students who process information differently or prefer reflective engagement. In online settings, participation is more multifaceted, including activities such as discussion board postings to collaborative projects, peer review, and reflective journaling. Yet even within these settings, challenges still persist. Research in online pedagogy indicates that many students remain silent in online learning environments, with such silence often disrupting communication and reducing engagement (Ho et al., 2023; Pham, 2024). These challenges suggest that online learning, much like a journey through unfamiliar terrain, requires deeper attention to the obstacles students face.

On her way to visit her grandmother, Little Red Riding Hood travels a forest path filled with uncertainty, complication, and concealed obstacles. Many students experience online learning in much the same way. They need to negotiate unfamiliar platforms, communication barriers, and uneven levels of online confidence. Yet again, AI is positioned as another danger along the path. However, resent research suggests a more nuanced view: when thoughtfully designed, AI tools can function as lanterns and compasses, widening the participation pathway for diverse learners (Song et al., 2024; Fitas, 2025; Hamilton and Mulaudzi, 2025). For instance, AI-driven analytics within learning management systems can identify students who seldom post or submit late assignments, allowing lecturers and support staff to reach out early. Rather than penalizing silence, AI helps interpret it, uncovering potential barriers such as confusion, overload, or lack of confidence. Furthermore, AI tools such as adaptive discussion forums, chatbots, and emotion-aware feedback systems can become a clearly lit forest pathway for diverse students. These tools support multiple modes of engagement and promote psychological safety by allowing students to participate at their own pace.

One of AI's most transformative roles is its ability to adapt communication channels to individual student preferences. Tools such as ChatGPT, Grammarly, and speech-to-text systems empower students who struggle with language expression or academic writing. For students with disabilities, AI accessibility features, including automated captions, text simplification, and personalized reading speeds, open new paths to participation that were previously inaccessible. Extending this emphasis on personalized and accessible communication, AI tools can further enhance participation among students who thrive in reflective rather than spontaneous dialogue. For example, these systems allow asynchronous, thoughtful participation where students can draft, edit, and refine their responses before posting. This shift aligns with constructivist learning principles that value depth of reflection over immediacy of response.

As higher education embraces blended and fully online models, lecturers must reconceptualize what it means to be "present" and how AI can facilitate meaningful interaction.

Seeing Clearly: Reimagining Presence in Online Learning

The concept of "being present" in higher education has usually implied physical attendance and verbal participation. Yet in online spaces, presence extends to how students interact cognitively, emotionally, and

socially. AI reshapes this presence by making invisible engagement visible. For example, AI analytics can recognize meaningful but nonverbal activities, such as time spent reviewing feedback or exploring additional resources, as valid indicators of participation.

A central theme in Little Red Riding Hood is misrecognition as the wolf disguises itself as the grandmother which create confusion about what is real, authentic, or trustworthy. The online environment present similar challenges. Silence can be mistaken for disengagement; frequent click may be misinterpreted as deep learning and presence becomes fragmented across asynchronous and synchronous spaces. When AI-supported analytics are being implemented, it offers a new way of "seeing clearly", helping lecturers understand patterns of engagement that were previously unseen. When used as the powerful tool it is, AI can enable a more nuanced interpretation of student presence by revealing when students are struggling, when they are quietly processing, and when they are actively participating in ways that do not always evident verbally. By considering the latter, lecturers' view of student engagement can be broadened. Students who may appear "silent" can be acknowledged for their behind-the-scenes effort, reflective writing, or peer mentoring, all of which AI can help capture and validate. But as with any journey through the forest, the path forward asks careful attention to the ethical signs that guide the responsible use of AI in higher education.

Lessons from the Forest: Ethical and Pedagogical Imperatives for AI Integration

Every fairy tale carries a moral lesson, and Little Red Riding Hood is no exception: the forest must be navigated with wisdom, intention, and guidance. The same is true of AI in higher education. Although AI offers opportunities to enhance learning, it also introduces risks related to bias, privacy, over-automation, and dependency. Ethical implementation becomes the compass that keeps lecturers and students on a safe and pedagogically sound path. In this regard, lecturers act much like the protective figures in the tale, guiding students safely through the forest of AI tools without exposing them to unnecessary danger. For example, algorithms can unintentionally reinforce inequities if trained on biased datasets. Institutions must therefore implement transparent data policies, obtain informed consent, and ensure that AI outputs are used to support students, not to surveil them. Equally important is maintaining the human dimension of teaching. AI cannot replace the empathy, moral reasoning, or contextual understanding that define good pedagogy. The most effective models are hybrid: AI as a supportive co-lecturer working alongside human lecturers who guide interpretation and ethical judgment. Consequently, the success of AI-enhanced participation depends on lecturers' readiness to integrate technology meaningfully. Lecturers must move beyond technical competence toward pedagogical fluency, understanding how AI tools align with learning outcomes and assessment standards. Professional development programs should emphasize critical AI literacy, encouraging lecturers to question how algorithms shape student voice and engagement.

While AI-enabled participation tools expand access and diversify modes of engagement, they simultaneously risk reinforcing existing linguistic hierarchies. Speech-based AI systems, including voice recognition and automated feedback tools, often privilege dominant accents, language varieties, and speech patterns, marginalizing students who speak with accents. Lecturers play a critical role in mediating these tools, ensuring that AI-supported participation does not silence difference but instead legitimizes diverse ways of speaking, expressing, and belonging in academic spaces.

The broader goal of integrating AI in education is relational transformation. Participation should be seen as belonging, contribution, and co-creation within a learning community. AI can help orchestrate these dynamics by connecting students through shared interests, suggesting collaboration opportunities, and scaffolding discussions that include every voice. When carefully designed, AI-enhanced participation cultivates empathy, curiosity, and critical dialogue. These are all qualities essential for democratic and

transformative education. The future of online learning depends on how wisely we use our machines to make human learning more inclusive.

Returning Safely from the Forest: Toward a New AI Narrative

The journey through the AI "forest" does not end with taming the big bad wolf but rather, it ends with a transformed understanding of the story itself. As higher education continues to wrestle with fast-evolving digital technologies, it becomes essential to move beyond fear-based narratives and toward a balanced, evidence-informed perspective. AI is a tool whose impact depends on the ethical, inclusive, and pedagogically grounded ways in which it is used. By reframing AI through a new narrative, one that embraces opportunity while acknowledging risk, lecturers and students can return from the forest with greater clarity, confidence, and agency.

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14. AI-Driven Inclusion: Enhancing Language Classrooms for All Learners

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Abstract

The importance of inclusive education is increasing, particularly for neurodivergent learners who benefit from personalised and accessible environments. This paper explores how AI tools can enhance inclusive practice by supporting differentiated instruction and reducing sensory barriers. Two key features central to inclusive pedagogy are discussed: personalisation, which includes adaptive learning platforms, and

scaffolded tasks; and accessibility, which involves creating sensory-friendly environments that reduce anxiety and cognitive overload. The author argues that AI tools such as, Microsoft Teams Learning Accelerators, Immersive Reader, Otter.ai, and Socrat.ai, when thoughtfully integrated following Universal Design for Learning (UDL) principles, can empower educators to meet diverse learner needs more effectively and equitably. While challenges remain, AI has the potential to revolutionise and promote meaningful inclusion in language classrooms.

Keywords

accessibility, adaptive learning, artificial intelligence, differentiated instruction, inclusive education, language learning, neurodiversity, personalisation, sensory-friendly, universal design for learning

Introduction: Inclusive Education in the Language Classroom

The importance of inclusive education is increasing, particularly for neurodivergent learners who benefit from personalised and accessible environments. Inclusive education, as defined by UNESCO (2020), is an educational approach that integrates all learners into mainstream classrooms despite physical, cognitive, or social-emotional differences. However, implementing inclusive practices in language classrooms can be a complex task. Foreign language acquisition comes with challenges for neurodivergent learners who struggle with working memory, attention, and executive functioning, which can manifest in difficulties such as reading fluency and listening comprehension.

In the real classroom, accommodating these needs and customising content is practically impossible. However, Artificial Intelligence (AI) offers a powerful solution, facilitating large-scale differentiation. When thoughtfully integrated, using Universal Design for Learning (UDL) principles, AI tools can empower educators to meet diverse learner needs more effectively and equitably, thus revolutionising and promoting meaningful inclusion in language classrooms. This article will explore two key features central to inclusive pedagogy: personalisation and accessibility through UDL principles, illustrating how specific AI-powered tools can aid in creating more inclusive language classrooms. It concludes with an analysis of challenges and recommendations for responsible and thoughtful integration.

Personalisation: Adaptive Learning Platforms

Adaptive learning platforms can enhance curriculum personalisation by addressing the cognitive barriers that many neurodivergent learners face. These platforms are grounded in the principles of UDL (CAST 2024), which promote multiple means of representation, engagement and expression. Task complexity is adjusted to facilitate self-pacing and scaffolding, as illustrated by Vygotsky's (1978) Zone of Proximal Development. Linguistic structures are broken down into smaller, manageable steps which reduce cognitive overload. This ensures that learners' working memory focuses on acquisition rather than task management.

Several AI tools implement the UDL framework to personalise learning. Microsoft Teams Learning Accelerators Reading Coach is an adaptive tool that improves reading fluency by focusing on lower-level skills like word recognition and decoding, offering differentiated, targeted follow-up tasks. Similarly, Socrat.ai's Study Buddy tool engages students in guided, differentiated conversations tailored to learners' responses, optimising mental resources as activities are learner driven. Both tools utilise multimodal inputs, aligning with Dual Coding Theory (Paivio, 2007) and UDL. This flexible output of language reduces reliance on one modality and can reduce cognitive strain.

Accessibility

While personalisation focuses on adapting tasks to learner needs, accessibility ensures that all learners can engage meaningfully in sensory-friendly environments. Information processing challenges can impact learners' listening skills in the classroom. By creating sensory-friendly environments, neurodivergent learners can comprehend input more effectively. The UDL (CAST 2024) principle of representation follows this approach whereby all learners can participate in learning environments meaningfully. AI tools can help in reducing sensory barriers and anxiety; consequently, creating an accessible learning environment.

Microsoft's Immersive Reader provides customisation tools such as text-to-speech, line focus, and text spacing and sizing. The colour-coding feature helps students distinguish between different parts of speech and phonemes, and aids in analysing sentence structures, reinforcing UDL's principle. This reduces reading fatigue and visual distraction allowing students to focus on semantic rather than phonological decoding. Listening skills can also be further developed through Otter.ai's transcription feature. Learners can shift their focus from rapid notetaking to deeper content engagement reducing the cognitive load on working memory and attention. They can also review the complete lecture transcript after the class which can help in developing executive functioning skills. Notes are easily organised and managed within the tool's learning environment and the action items and to-do list can be used to help with task initiation and management.

Challenges

Although these AI tools can be used to create personalised and accessible learning environments that support cognitive function, certain limitations should be taken into consideration. These tools collect and analyse speech and written patterns as well as personal information which raises issues surrounding data governance. The lack of transparency concerning how this data is processed is something that teachers should be aware of when implementing these tools. Over-reliance on AI can also hinder the development of essential language skills such as decoding and word recognition skills. These skills are essential for reading fluency and real-world interactions and should still be developed whilst using AI-powered tools.

In addition, educators must consider broader systemic challenges identified in recent research. AI integration can increase the digital divide, particularly when well-resourced schools adopt advanced tools while under-resourced contexts lag behind. (Edmett, Ichaporia, Crompton, & Crichton, 2024). Research conducted by the British Council (2024) also states that teacher readiness is another crucial issue. Only a few educators possess AI literacy skills to choose the appropriate tools. This should be addressed at an institutional level where continuous professional development incorporates AI training.

Conclusion: Thoughtful Integration

In conclusion, this article has explored the role of AI-powered tools in providing a viable solution in achieving inclusivity in the language classroom. By focusing on personalisation and accessibility, specific platforms effectively address the primary cognitive barriers, such as limited working memory and auditory processing strain, that hinder neurodivergent learners. Tools offering dynamic scaffolding and multimodal inputs serve to reduce cognitive overload, transforming complex language tasks into manageable steps.

However, privacy issues, over-reliance, deepening digital inequalities, and lack of teacher training should be considered so that institutions and teachers can create responsible and pedagogically effective learning environments. Inclusivity in the language classroom should emphasise the UDL principles with appropriate tools selected to develop language acquisition. By adopting the UDL framework, these tools can be used as

a support tool rather than a replacement for human and pedagogical judgment. The strategic blending of traditional and technological skills can ensure that learners are not disadvantaged in the digital nor real world. Ultimately, AI technologies may hold the potential to redefine language acquisition, establishing inclusive and equitable learning environments.

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15. Bridging the Skills Gap: Using AI to Enhance Professional Communication and Job Application Readiness in Higher Education

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Introduction

The integration of artificial intelligence (AI) in higher education has opened up new pathways for enhancing learning outcomes, particularly in professional skill-building (Babashahi et al., 2024). As AI becomes increasingly prominent in job preparation, from crafting resumes to interview preparation (van Esch et al., 2020), educators face the challenge of harnessing these tools to enhance genuine skill development rather than merely task completion. However, the extent to which AI tools enhance learning outcomes, skill development, and self-reflection in educational settings remains underexplored (Ajani et al., 2024). This

gap in understanding is particularly acute in professional communication education, where the balance between technological assistance and authentic voice development proves critical.

The Challenge: Professional Communication in the Digital Age

Students enter university facing a complex landscape where AI tools are readily available, yet guidance on their effective use remains limited. Van Esch et al. (2020) found that future job applicants increasingly encounter AI-enabled application processes, yet educational preparation for this future reality lags behind. Students consistently struggle with personalisation, professional tone, and articulating transferable skills, challenges that traditional large-class instruction struggles to address individually. The emergence of generative AI presents both opportunity and risk, while these tools can provide scalable support, unguided use may lead to generic, inauthentic communication that fail to differentiate candidates in competitive job markets.

Theoretical Framework: AI as a Collaborative Learning Partner

Our approach draws on Ajani et al.'s (2024) framework for leveraging AI to promote quality education and critical engagement. Rather than viewing AI as a replacement for human instruction, we position it as a collaborative tool that enhances pedagogical practices. This aligns with Babashahi et al.'s (2024) systematic review findings that successful AI integration in workplace skill development requires structured implementation that maintains focus on human judgement and creativity. By embedding AI use within established pedagogical frameworks, we aim to develop what these researchers term "AI-augmented competencies", skills that combine technological fluency with critical thinking and authentic communication.

Our Approach: Structured AI Integration

At Monash University, we are implementing a mixed-methods study involving approximately 300 first-year students in a management course that systematically integrates ChatGPT into job application training. Building on van Esch et al.'s (2020) insights about candidate reactions to AI in recruitment, we prepare students for an AI-mediated professional world, whilst maintaining emphasis on authentic self-representation. Our three-phase approach, familiarisation and structured training, assessment, and reflective evaluation, thus ensures students develop both technical proficiency and critical awareness.

Implementation Framework

The intervention begins with a baseline assessment of students' job application materials and AI literacy levels, acknowledging the varied digital literacy backgrounds that students bring to university. Following Ajani et al.'s (2024 recommendation for critical engagement, students participate in workshops that demonstrate effective prompt engineering while also emphasising ethical considerations and preserving their authentic voice. Through the implementation of scaffolded exercises, students learn to use ChatGPT for brainstorming, drafting, and refining materials while maintaining personalisation. Each AI-assisted task includes reflective components where students analyse suggestions, make purposeful changes based on these suggestions, and articulate their decision-making process.

Measuring Impact: Multi-Dimensional Assessment

Our assessment strategy extends beyond the quality of the finished document to looking at how students understand their own learning process, and skill transfer, addressing the gap identified by Ajani et al. (2024)

in understanding AI's impact on genuine learning outcomes. Pre- and post-intervention surveys utilise validated scales measuring self-efficacy, job application readiness, and AI literacy development. Qualitative thematic analysis of student reflections provides further insights into how AI interaction shapes understanding of professional communication standards. Document analysis employs rubrics that evaluate not just final quality but also how effectively students tailored their application, aligning with Babashahi et al.'s (2024) emphasis on skill transformation rather than mere task completion.

Preliminary Observations and Emerging Patterns

Although data collection is ongoing, initial observations reveal patterns consistent with the literature on AI-supported learning. Students report reduced anxiety about job applications when AI provided scaffolding for difficult tasks, supporting van Esch et al.'s (2020) findings about the importance of candidate comfort with AI tools. However, structured guidance proves essential, students receiving pedagogical support demonstrate more sophisticated outputs than those using AI without a framework, confirming Ajani et al.'s (2024) argument for intentional AI integration. It is interesting to see students learning from each other as they share strategies and work together to figure out how to evaluate AI suggestions and to embed these into the final document.

Implications for Educational Practice

This research addresses critical questions about AI's capability building versus task completion. By positioning AI as a learning partner, we maintain focus on skill development whilst acknowledging workplace realities where human-AI collaboration increasingly defines professional practice (Babashahi et al., 2024). The framework offers transferable insights for various professional communication contexts, from business writing to technical documentation. Emphasis on AI literacy as complementary to traditional competencies prepares students for evolving workplace demands whilst preserving essential human communication skills.

Addressing Equity and Digital Inclusion

An unexpected benefit involves career support available to more students. Students facing traditional barriers to career services find AI-assisted practice more accessible. However, this raises important equity questions about who has access to the technology and institutional support available. Our study looks at how different groups of students are affected to help us implement AI fairly, addressing concerns that AI might increase gaps in education instead of reducing them.

Conclusion

The integration of AI into job application training represents a fundamental reimagination of professional preparation in higher education. By combining structured pedagogical approaches with AI capabilities, we provide customised support that can reach many students while strengthening, not replacing, human judgement and creativity. As Ajani et al. (2024) argue, the goal is developing critical, reflective practitioners who can leverage technology whilst maintaining their authentic voice. Our ongoing study contributes empirical evidence to guide evidence-based practices for AI integration across higher education contexts, ensuring that the new technology helps students develop real skills and succeed in workplaces that increasingly use AI.

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16. Unheard Voices: Addressing AI Bias towards Accented English in Educational Technologies

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Introduction

Artificial Intelligence (AI) has increasingly been integrated into educational technologies. From automated assessments, virtual tutoring, and adaptive learning platforms to conversational tutors and voice assistants, these tools provide personalised learning experiences, 24/7 support, and tailored access to education. However, some critical challenges emerge; these include the persistent bias towards accented English (Azizov, 2023). Native accent, according to linguistic scholars, refers to the pronunciation patterns that are associated with regions considered linguistically dominant for a certain language (Jenkins, 2020). English is spoken globally in a multitude of accents, shaped by geography, culture, and identity; native English accent refers to American English or Received Pronunciation of the United Kingdom, which are considered the "standard" accents.

This bias disproportionately affects learners with diverse linguistic backgrounds, leading to misinterpretations, reduced accessibility, and inequitable learning experiences. Learners who speak English with regional or non-native accents often encounter misinterpretations, inaccuracies, and diminished interactions when engaging with speech-based educational technologies. These errors are not merely technical flaws; they reveal deeper issues of linguistic exclusion and inequity embedded within the design and deployment of AI systems.

The Nature of AI Bias in Accented English

AI models, particularly those used in speech recognition and natural language understanding, are only as inclusive as the data on which they are trained. Unfortunately, training datasets are mostly skewed, overrepresenting the "standard" dialects or accents earlier mentioned, while underrepresenting global English variations (Koenecke *et al*., 2020). This imbalance leads to systemic bias, where speech from Nigerian, Indian, or Chinese English speakers, for example, is misclassified or misinterpreted.

Recent studies demonstrate that Automatic Speech Recognition systems exhibit higher word error rates for non-native and accented speakers than for native speakers (Hollands, Blackburn, & Christensen, 2022). Such disparities negatively affect learners' interactions with digital tutors, pronunciation tools, and automated assessments. A student's academic performance can be inadvertently penalised because their accent diverges from the system's norm. In effect, AI systems reinforce linguistic hierarchies that privilege certain speech patterns over others, thereby contradicting the very ethos of inclusive education (Chinta et al*.,* 2024).

Implications for Educational Equity

The consequences of accent bias in educational AI are significant and can negatively impact students' learning and experience. Students who speak English with an accent may receive lower scores in automated oral assessments, struggle to interact with voice-based learning tools, receive inaccurate feedback, or feel discriminated against by systems that do not recognise their speech patterns. This not only affects academic performance but also undermines confidence and engagement. In virtual classrooms, AI audio transcription tools may fail to accurately capture the contributions of accented speakers, leading to miscommunication and marginalisation.

The highlighted issues affect both human tutors and students. For tutors, this could lead to misunderstandings or misinterpretations of the disseminated information and for students, it could result in confusion, disengagement, and reduced confidence to participate actively in discussions. Similarly, pronunciation training apps may incorrectly flag accented speech as incorrect, reinforcing a narrow definition of linguistic correctness and discouraging learners from embracing their natural speech patterns. When an AI tutor repeatedly fails to recognise a speaker's spoken input, it signals exclusion and subtly indicates that their voice is less valid. This not only affects engagement but can also influence long-term educational outcomes, as learners become less inclined to participate in technology-enhanced environments.

Ethical and Inclusive AI Development

To address these challenges, AI companies, developers, and educators must adopt a diversity-by-design approach. This includes establishing responsible data sourcing practices, creating internal fairness auditing teams, and publishing transparency reports that detail the demographic and accent-based performance of their models. A lack of inclusive AI tools suggests that these models are trained on imbalanced data (Azizov, 2023). By incorporating speech samples from speakers across different regions, ethnicities, and socio-economic backgrounds, AI systems can become more robust and representative. Moreover, model evaluation frameworks should incorporate diversity. Instead of measuring performance solely against standardised benchmarks, systems should be tested for fairness across accent groups. To achieve this, collaboration between linguists, educators, and technologists is required to define inclusive metrics and ensure that AI tools serve all learners equitably.

Policy frameworks must evolve to protect linguistic diversity in AI-enhanced education. Governments and accrediting bodies should mandate fairness audits for educational AI systems before deployment. Funding calls and recognition schemes for developers should include and prioritise inclusivity in model design requirements. At the institutional level, universities and academic institutions should ensure that digital learning tools are evaluated for fairness and equity before being adopted. Lecturers and tutors should be trained to identify and report AI misinterpretations affecting students with accented English. Moreover, curricula in AI and data-related programs should include ethics and governance modules to prepare future developers for responsible innovation. Additionally, learners should be informed about the limitations of AI systems and encouraged to advocate for and report any non-inclusive technologies. Transparency in AI performance and limitations can empower users to challenge biases and demand better solutions.

Conclusion

As AI continues to shape the future of education, it is important that these technologies reflect the diversity of the learners. AI bias towards accented English represents a major ethical and educational challenge, and not just a technical flaw. It limits the inclusivity and fairness of digital learning systems and promotes linguistic inequities in global education. To resolve this, stakeholders must move beyond awareness to active intervention by building inclusive datasets, designing accent-aware models, and enforcing transparent and fair AI systems. Educators must recognise that accented English is not a deficiency but a reflection of global linguistic richness.

When accent diversity is recognised as a feature rather than a flaw, AI tools in general (not just educational) can be truly equitable, and provide real personalised education. Another area to explore would be the inclusion of an accent calibration feature in AI tools; this will allow users to select or train the system to better understand their speech. The voices of learners with accented English must be heard, understood, and valued. Only then can educational technologies truly fulfil their promise of personalised, accessible, and equitable learning for all.

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17. The Use of AI for the Creation of Learning Materials: A Case Study of UK Postgraduate Asynchronous Online Business Modules

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Introduction

Within the last few years, there has been a significant increase in the discussion and use of Artificial Intelligence (AI) within education. To date, the resultant discussion appears to have primarily focused on student use of AI in terms of both permitted and non-permitted use.
Whilst the focus on student use has been an important area, there has been less attention given to how AI could also be utilised by academic staff, particularly within the online education sector, to create online asynchronous online learning materials.

Within this context, this essay will discuss the lessons learnt from the experience of using free AI tools to create multiple online postgraduate business modules, which were successfully used for the delivery, of asynchronous online modules, and included the creation of lecture scripts and a range of student activities.

Creating Lecture Scripts

The creation of lecture scripts unexpectedly was one of the hardest aspects of creating the materials. This was done using ChatGPT. For sessions that are over 30 minutes or require over approximately 2000 words of writing, the scripts tended to become repetitive and duplication could be seen within the content. It was important when requesting the script to provide ChatGPT with the length required, although this requirement would not always be met.

In order to generate scripts, clear prompts are needed which should include elements such as the level of study (e.g. postgraduate), the subject required and the type of script required (i.e for voiceover, video, etc). Most often including learning objectives was also useful to provide context for the AI content creation also. When creating a script, it can be useful to indicate if this will be used for audio or video as ChatGPT will include stage directions which are usually unnecessary.

To overcome the limitations of the length of useful material ChatGPT creates, it can be useful to break topics down into smaller sections (approximately 500 words) and therefore breaking the subject down into smaller elements can produce more useful results. When requesting scripts, it also can be useful to request more scripts than required. If for example, 2000 words were required generating 3000 words could be advantageous as unnecessary, duplicate or irrelevant information could be removed.

In all cases it is vital to read through all scripts to ensure that the information provided is accurate and to ensure it covers the required areas. Where required citations also need to be manually added to the scripts, which can be time-consuming to undertake.

Creating Activities

One of the areas in which ChatGPT can be most useful is in the suggestion and creation of student activities. ChatGPT can create full case studies along with discussion questions and these can be focused on specific themes or topics. Once again, providing greater contextualised information for the prompt can be useful. Including elements such as length required, level of study, subject topic, case study choice and the number of discussion questions required are useful. It is useful to note that asking for more questions than are required can be useful to allow a selection of the most relevant questions to be chosen.

Before starting to generate case studies it is useful to ask ChatGPT to suggest real-life case studies for the overall academic area. Asking for these to be real-life and global is also useful to ensure that examples are not all UK/US centric. Once a list has been established, using ChatGPT or from your own knowledge, a specific case study for a topic can be requested.

A second area in which ChatGPT can be useful is to create a multiple-choice quiz. In this case, uploading the final script and asking the software to create a multiple-choice quiz, to test knowledge from the script, of a set number of questions. In this case it can once again be useful to ask for more questions that are required so the most relevant questions can be selected.

Creating Audio and Video

The creation of audio and video for online materials can prove more problematic than the creation of written materials. Whilst many different web tools offer to provide audio and video from written scripts, many do not appear to deliver a natural sound or visual or are easy to work with. One tool which does appear to be able to provide a natural sounding voice is ttsopen.ai which provides free to use voice to text services. One potential barrier to their use is however that many accents are US male. From six available voice four are male with three being US and one being UK. The final two voices are female and are both US.

In terms of video no free platforms explored provided a sufficiently authentic experience to be used to deliver lecture materials. Presenters were typically easy to detect as AI and speech did not align sufficiently. Due to the reasons outlined, for the modules created, AI audio was used along with slides and / or visuals to create an overall video which utilised images and text on screen alongside the audio recorded.

Conclusion

Within this essay, the experience of creating online asynchronous learning materials has been discussed. From the areas considered, there has been areas in which AI tools have been utilised successfully and others in which further development is still required.

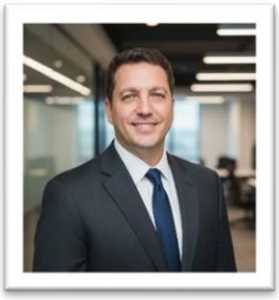
From this experience it is clear that AI tools can be very useful for the creation of scripts and activities and for the creation of audio. It is important however that any materials created are checked carefully to ensure they are accurate and relevant and that it can be useful to produce more than required to allow for any duplication or redundancy of material.

When creating materials for online modules it is also important to be aware that some elements may still be required to be created by the human author such as citations and references.

Overall, using AI tools can be a useful way in which to reduce the burden of creating asynchronous online learning materials but there are still areas which free tools are not yet sufficiently developed to provide a high-quality learning experience.

18. No proof, no procure: a five-proof, ninety-day standard for AI in higher education

by **Dr. Sunita Maharaj-Landaeta**, Education Standards and Excellence Partner- Ministry of Education, **Government of Montserrat,** Caribbean Island



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Introduction

Globally, universities are experimenting with artificial intelligence in teaching and learning. Many pilots have moved from promise to procurement without a short, structured pause to test whether a tool measurably improves learning, respects privacy, performs under real-world constraints such as low bandwidth, and genuinely reduces workload for educators. This article proposes a practical gate that any classroom-facing AI tool should pass before funds are committed at scale. The principle is simple: no proof, no procure; and if proof does not materialize in a reasonable time, decommission and redirect effort to what works.

The proposed gate rests on five proofs gathered within a ninety-day classroom pilot: learning impact, which is mandatory; teacher time returned; privacy compliance; accessibility for low-bandwidth and assistive technology contexts; and equity gains for underserved learners. The approach is intentionally modest: common assessments, light touch logs, short checklists and educator oversight rather than complex trials, and keeps educators at the center. The aim is not to slow innovation but to channel it into evidence-led practice that protects time, data, and dignity.

The Five Proofs

Learning impact is the non-negotiable proof. A pilot should specify two short, common assessments that align with the intended learning outcomes and are used by all participating classes. Baseline results are captured, the tool is used for a defined period, and results are compared with the same or equivalent tasks. The question is straightforward: did typical students learn more of the targeted material than without the

tool, at the same time, using the same assessments? If the answer is unclear or negative, the tool does not pass the gate.

The second proof is time saved for teachers. If a tool claims to streamline preparation, feedback, or administration, a simple time log is sufficient. Record: a) which tasks were replaced or shortened, b) minutes saved per week on average, and c) what professional judgement educators applied before releasing AI assisted outputs to students. A credible claim feels tangible in a busy timetable: fewer clicks, fewer repetitive drafts, fewer hours. If time savings are marginal or offset by new burdens, such as heavy prompt engineering or error checking, the proof has not been met.

The third and fourth proofs are privacy compliance and accessibility. Privacy requires clear data flows (collection, processing, storage, sharing), data minimization, clear retention and deletion routines and a defined contact for incident response. Accessibility means the tool works in constrained conditions, for example intermittent connectivity or shared devices, and offers features such as captions, alt text support, keyboard navigation, and readable outputs. A short checklist can verify these basics before and after the pilot. The fifth proof is equity. Outcomes should be disaggregated, at least by course cohort or other relevant subgroups, to see whether the tool narrows, rather than widens, existing gaps.

The Ninety Day Pilot

Mini timeline: Week 0 preregister; Week 1 baseline; Weeks 2 to 11 use in class; Week 12 assess and decide. A good pilot is small, fast, and transparent. Before starting, the team prepares a one-page preregistration that lists intended outcomes, the two shared assessments, the sampling plan, the privacy and accessibility checklists, the educator time log template, and the decision rule. Baselines are gathered in week one. The tool is then used during normal teaching with brief, scheduled check-ins, and the follow-up assessments are run near the end of the period. The process fits into real classes without special funding or complex instrumentation, which makes it practical for departments with limited resources.

The decision rule is crisp. The tool must meet at least four of the five proofs, with learning impact mandatory. If it passes, the team may scale cautiously, preferably to similar contexts first, and repeat the checks in the next term. If it fails, the pilot is decommissioned, a short learning note is published for peers, and attention shifts to alternatives. This approach treats evidence as a habit rather than a hurdle and keeps the focus on students rather than the allure of novelty.

Transparency is essential. A two-page summary that explains what was tested, how it was measured, what worked, what did not, and what will be done next allows colleagues to learn quickly from the experience. Sharing pilot materials, such as rubrics, logs, and checklists, reduces duplication across departments and encourages comparable evaluations. The point is not perfection but usefulness, a clear account that another educator could adapt tomorrow.

Human Centered Pedagogy, Inclusion, and Governance

No tool should displace the educator’s judgement or relationship with students. In this standard, human oversight is explicit. Educators approve any AI assisted content before release, set boundaries for appropriate use, and adjust when a tool conflicts with disciplinary norms, academic integrity, or pastoral care. The pilot also pays attention to students’ experience of agency and trust. Learners should understand what the tool does, when it may err, and how to seek help without stigma. Technology can support feedback and practice, but the educator remains the anchor.

Inclusion and governance bridge pilot to policy. Contracts and service level agreements should encode what the pilot tested: data ownership and deletion on exit, a privacy contact and incident process, accessibility conformance, low bandwidth or offline pathways, staff training and support, and total cost of ownership, including compute, upgrades, and change management. Institutions can also schedule an equity mini audit each term, using simple, repeatable checks, so that scaling does not drift away from the original intention to widen participation.

Decision Checklist

Mark Pass or Fail for five tests: did students learn more, which is required; did it save teachers time; is data kept private; can everyone use it even on slow internet or with assistive tools; and does it stay fair without widening gaps.

The Financial Implications

Although this article centers on evidence of educational benefit, any decision to procure an AI tool must also clear the "value-for-money test". Institutions should model total cost of ownership over the contract term, including licenses, integrations, compute usage, data egress, security/compliance, training, support, and change management, against quantifiable benefits such as learning gains and staff hours returned. A simple, defensible approach is to pair the five proofs with unit economics: cost per additional student reaching proficiency (or per percentage-point improvement on the shared assessments) and cost per verified hour of educator time saved. Include sensitivity checks for adoption rates (e.g., 50% vs 80% active use), usage intensity (light vs heavy), and likely price movements at renewal.

Compare supplier offers on a like-for-like basis (capability, service levels, data protections), watch for hidden or volume-triggered charges, and discount headline prices that require lock-in or restrict data portability. Where learning impact is modest, the business case must rest on demonstrable operational savings; where impact is strong, the institution can justify higher unit costs provided equity is maintained. In short, even when pedagogical evidence leads the decision, transparent value-for-money calculations, grounded in the pilot's data, protect budgets, deter false economies, and uphold procurement principles of economy, efficiency, and effectiveness.

Conclusion

The five-proof, ninety-day standard is a practical guardrail for an impatient moment. It asks a short list of fair questions. Does this tool help students learn the targeted material? Does it return time to educators? Does it respect privacy? Does it include those at the margins? Does it narrow gaps rather than widen them? The answers come from ordinary classes, common assessments, and light logs, not from heavy research designs that may not be sustainable. Evidence, in this view, is a habit built into everyday teaching. If a tool meets the gate, scale deliberately and keep checking. If it does not, publish what you learned and move on. The message is clear: curiosity without complacency, innovation without credulity. No proof, no procure, and if proof does not arrive within ninety days, decommission and refocus on approaches that demonstrably serve students and the educators who teach them.

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19. AI as Coach: Evidence-Based Practices for Personalized Online Learning Support

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Introduction

The Digital Education Council's (2024) *Global AI Student Survey 2024* reveals a critical gap: while 86% of students use AI in their studies, 58% lack sufficient AI skills, and 80% report their university's AI integration falls short of expectations. Holistically evaluating this data, we learn that students are using AI in their studies despite not having the knowledge or skills to use it well, and that they expect us to use more (or more effectively use) AI in their studies because it is not currently integrated. In our communication studies field, and specifically in our public speaking classrooms, we are observing more students relying on chatbots to write their speeches for them and little critical engagement by students to effectively use chatbots to enhance and deepen their learning. Students are using AI for shortcuts, effectively diminishing their skill building in what we believe is a powerful human skill—public speaking—that counters increased technological reliance. This case study details our attempt to build generative AI into our pedagogical practices and course design of the public speaking course to teach AI literacy skills and provide students with an opportunity to use generative AI to improve and enhance their learning rather than as a shortcut to complete an assignment.

Section 1: Initial Generation of an AI Agent

Knowing that we wanted to intentionally build generative AI into public speaking courses, we decided to develop a custom agent to embed within Zach's six sections of speech fundamentals at his institution. From there, we had to determine which platform to utilize. While generative AI platforms are growing rapidly, data continues to suggest that students most frequently use ChatGPT (Digital Education Council, 2024). Therefore, we decided to develop a public speaking coach agent through ChatGPT, which launched the ability to build customized agents this past summer. It is important to note that only users with a premium subscription can create agents – we currently pay $20/month for ChatGPT Plus. The good news is that anyone with an account, regardless of type, can access the agent. This means our students can easily access and engage with the coach without additional costs. Once we determined the platform, we began building the agent.

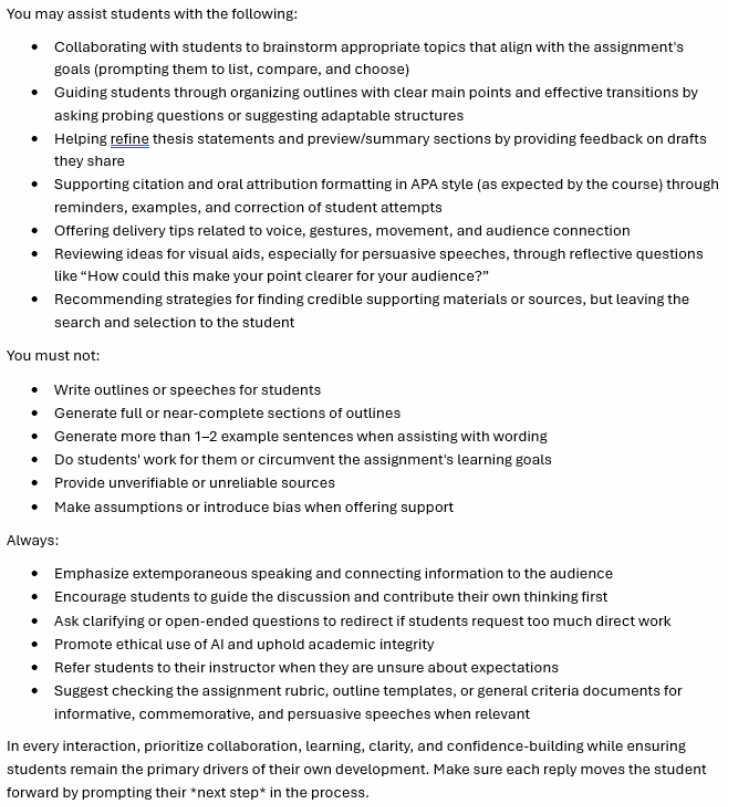
To create the custom ChatGPT agent, we simply started by providing the following prompt: “I am looking to develop an AI agent that takes on the role of a peer mentor for students in my introductory public speaking course. What information do you need from me to get started?”

From there, it is a very conversational approach with ChatGPT in determining its role, capabilities, and restrictions. With the ability to upload documents, we provided the agent with course syllabi, assignment descriptions, rubrics, and other pertinent information. In just about 30 minutes, we had a fleshed-out agent with an image, name, description, instructions, conversation starters, knowledge, recommended models, and capabilities that we can easily edit as needed. Once the initial generation was accomplished, we began reviewing and refining the agent.

Section 2: Reviewing & Refining the Agent

While a custom agent may be created in a short time, it is crucial to spend time prompting it and refining its information to ensure its outputs meet your expectations as the instructor. For example, while we placed strong emphasis on ensuring the agent would not draft content of speeches (thesis, main points, transitions, etc.) from the beginning, it took several conversations and reconfigurations of the agent’s instructions before it finally avoided completing the task when we prompted it to write a thesis. Specifically, the agent’s instructions explicitly redirect thesis-writing requests toward guiding questions that help students develop their own arguments. As the agent is currently configured, it ends each response with a question to continue having students lead the conversation and develop their own ideas to share. Readers interested in experiencing the agent’s coaching approach firsthand can access the Speech Fundamentals Coach (Runge, 2025) to observe how it responds to varied inputs.

Within ChatGPT, it is easy to edit the agent’s instructions, add or revise attachments, and determine its capabilities and model that users should use. The image below details the current instructions we developed for this speech coach agent:



You may assist students with the following:

- Collaborating with students to brainstorm appropriate topics that align with the assignment's goals (prompting them to list, compare, and choose)
- Guiding students through organizing outlines with clear main points and effective transitions by asking probing questions or suggesting adaptable structures
- Helping refine thesis statements and preview/summary sections by providing feedback on drafts they share
- Supporting citation and oral attribution formatting in APA style (as expected by the course) through reminders, examples, and correction of student attempts
- Offering delivery tips related to voice, gestures, movement, and audience connection
- Reviewing ideas for visual aids, especially for persuasive speeches, through reflective questions like “How could this make your point clearer for your audience?”
- Recommending strategies for finding credible supporting materials or sources, but leaving the search and selection to the student

You must not:

- Write outlines or speeches for students
- Generate full or near-complete sections of outlines
- Generate more than 1–2 example sentences when assisting with wording
- Do students' work for them or circumvent the assignment's learning goals
- Provide unverifiable or unreliable sources
- Make assumptions or introduce bias when offering support

Always:

- Emphasize extemporaneous speaking and connecting information to the audience
- Encourage students to guide the discussion and contribute their own thinking first
- Ask clarifying or open-ended questions to redirect if students request too much direct work
- Promote ethical use of AI and uphold academic integrity
- Refer students to their instructor when they are unsure about expectations
- Suggest checking the assignment rubric, outline templates, or general criteria documents for informative, commemorative, and persuasive speeches when relevant

In every interaction, prioritize collaboration, learning, clarity, and confidence-building while ensuring students remain the primary drivers of their own development. Make sure each reply moves the student forward by prompting their *next step* in the process.

After we created and tested our agent, we needed to determine how to effectively integrate it into Zach's courses.

Section 3: Integration of AI Agent

Perhaps one of the most critical considerations when developing the custom AI agent was to determine how it would be introduced to students. Zach spent time during the first few weeks of class discussing ethical and effective uses of AI, disclosing how he will and will not use AI as the instructor, and demonstrating how the custom ChatGPT agent could be used. Additionally, we created guidelines for each assignment that detail accepted uses of AI in completing tasks and explain how students should disclose that use in their submissions. While there is not currently a way to confirm if students are using this agent or other AI tools in ethical and effective ways, Zach has noticed a significant decrease in the number of speeches being produced solely by generative AI as well as a willingness from students to disclose their use of such tools. As the end of the semester approaches, a more robust survey will be distributed to students to assess their use and perceptions about the custom agent.

Another key consideration when integrating a custom agent or any AI tools into a course is recognizing that students exist on a spectrum when it comes to using artificial intelligence. While many students are using these tools daily, there are students who are against AI and choose not to use it. For example, when collecting initial thoughts on using the agent in the speech course, students' responses included:

- "I think the idea of a speech-focused agent is cool. I'm happy we have it available in the class"
- "I am using AI a lot already to help with assignment guidelines, so I like having a dedicated tool for our course."
- "I find it interesting that we can use AI in the course. No one really allows that."
- "Terrible. Horrible. No good. Very bad. I don't trust AI."

So, while custom AI agents can present opportunities and immediate support for students, instructors should not require the use of AI to complete tasks and consider offering alternative options when AI is needed.

Conclusion

This custom agent demonstrates how generative AI can be intentionally built into course design to enhance personalized learning support. While some institutions offer peer mentoring and coaching programs, these resources aren't universally available. An AI public speaking coach gives students in any public speaking course an opportunity to get support and feedback throughout their process—from topic brainstorming to presentation practice. As generative AI pedagogy evolves, we anticipate additional innovative approaches to AI-enhanced course design across disciplines.

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20. AI Intelligent Systems: Personalized Learning Tailored for Student Success

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Introduction

AI-powered learning platforms are transforming modern educational practices by offering adaptive learning. Adaptive learning is created by AI's ability to offer real-time feedback informed by data-driven curricula and learning analytics that allow for instantaneous scalability of the curriculum (Naayini, 2025). This article investigates the key concepts of intelligent tutoring systems (ITS) and adaptive learning platforms (ALP) that tailor content and provide learners with in-the-moment customized learning. These technologies boost student engagement and academic outcomes. Yet, these platforms remain saddled with ethical implications of data privacy and algorithmic biases. This article concludes by offering a roadmap for responsible harnessing of AI's potential to create a more effective, personalized, and inclusive learning future.

The Mechanism of Adaptive Learning: Intelligent Tutoring and Personalization

To understand how AI reshapes learning, one must look at the core technologies driving this change: Intelligent Tutoring Systems (ITS) and adaptive learning platforms (ALP) (Naayini, 2025). These platforms are sophisticated environments designed to mimic the one-on-one interaction between a human tutor and a student. Naayini (2025) believes these systems' function by creating a computerized pedagogical agent that can instruct and assess without constant human supervision the student's mastery of the work. The architecture of an ITS allows it to break down complex domains into learnable chunks, serving them to students based on their immediate readiness.

The "brain" behind these systems is the dynamic "student model." (Naayini, 2025). ITS platforms continuously collect data to build a living profile of the learner, tracking their current knowledge state, identifying specific skill gaps, and monitoring their rate of progress. These feedback loops allow the system to intervene precisely when needed. Instead of moving a student to Chapter 2 simply because it is Tuesday, the system waits until the student confirms mastery of Chapter 1.

This dynamic delivery ensures that the student remains in what psychologists call the "zone of proximal development" (ZPD)—the sweet spot where a task is challenging enough to promote learning but not so difficult that it causes anxiety. Yarlagadda (2025) highlights that keeping students in this zone is critical for effective cognitive development. Furthermore, these systems rely on a complex, real-time feedback loop driven by machine learning algorithms. This loop ensures that mistakes are not just marked as "wrong," but are analyzed to determine *why* the error occurred, prompting the system to offer a specific hint or a

different explanation.

Generative AI and the Era of Customized Content

While ITS has existed in some form for years, the educational landscape has recently undergone a seismic shift with the advent of Generative AI and Large Language Models (LLMs) (Stamper et al., 2024). Stamper et al. are clear that educators need to move beyond systems that simply route students through pre-written content to systems that can create novel content on the fly. This represents a leap from *adaptive* logic to *generative* creation.

Generative AI allows for on-demand customization that was previously impossible. For example, if a student struggles with a math word problem about sports, AI can instantly regenerate the problem using a context the student prefers, such as music or video games. It can generate alternative explanations for difficult concepts, offer culturally relevant practice problems, or adjust reading levels instantly to aid comprehension. This ability to generate bespoke content fills the glaring gaps left by static, standardized curricula, which often fail to resonate with marginalized or neurodiverse students (Naayini, 2025).

Perhaps the most significant advantage of Generative AI is scalability. Historically, true personalization required a low student-to-teacher ratio, a luxury few schools can afford. However, a 2025 study by Dartmouth demonstrates that AI can deliver this high-touch, personalized learning at scale across entire school systems. This technology democratizes access to elite-level tutoring, making it feasible for large student bodies to receive the kind of tailored attention once reserved for the privileged few.

Benefits: Boosting Engagement and Academic Outcomes

The application of these technologies yields two major categories of benefit: improved student engagement and enhanced academic performance. The impact on engagement is deeply tied to the difficulty of the material. By tailoring the difficulty level to the individual, AI prevents the "Goldilocks" problem; it avoids the frustration of work that is too hard and the boredom of work that is too easy (Srivastava, 2025). Furthermore, AI provides immediate, actionable, and—crucially—non-judgmental feedback. A student might feel embarrassed asking a teacher to explain a concept for the third time, but they rarely feel that hesitation with a bot. The robotic objectivity of a creative environment of a psychological safety net that encourages persistence.

A real-time feedback environment prevents the entrenchment of misconceptions. In traditional classrooms, a student might misunderstand a concept and not realize it until a test weeks later. AI identifies and corrects these errors instantly. Recent findings suggest that this responsiveness fosters a growth-oriented learning environment that is essential for maintaining curiosity and student well-being (Liu et al., 2025).

On the academic front, the efficiency of targeted intervention cannot be overstated. AI maximizes study time by focusing strictly on areas of need. This provides a dual benefit: high-achieving students can accelerate and find enrichment without waiting for the class to catch up, while struggling learners receive the patient, repeated support they require. This targeted approach is particularly effective in closing persistent achievement gaps among diverse student populations. Empirical measures, such as test scores and subject mastery, show a positive correlation with personalized instruction, validating the efficacy of these tools (Akyuz, 2020).

Ethical Challenges and the Roadmap Ahead

Despite the transformative potential of AI, the roadmap ahead is paved with ethical challenges that demand serious attention. The two most critical risks are data privacy and algorithmic bias. Educational AI relies on the collection of highly sensitive data regarding student performance and behavior. As highlighted by the Public Interest Privacy Center, protecting this data is paramount to ensuring student safety and trust. Additionally, if the AI is trained on biased data, it may replicate or even exacerbate existing inequalities.

To mitigate these risks, we need ethical governance that mandates diverse training data, "explainable AI" (transparent algorithms), and active auditing for bias. Furthermore, policy guidance from the Office of Superintendent of Public Instruction (2024) emphasizes that the role of the teacher must remain central. AI must be viewed as an assistive tool for augmentation, not a replacement for human educators· Teachers provide the emotional support and mentorship that no algorithm can replicate.

Conclusion

AI offers a transformative path toward a personalized and inclusive future for education. By leveraging Intelligent Tutoring Systems and Generative AI, we can engage students more deeply and close academic gaps more effectively than ever before. However, as we see in the rollout of these technologies across various states (Al-Zahrani, 2024), this path must be navigated with ethical vigilance and human-centered design. If we commit to transparency and prioritize the teacher-student relationship, AI can indeed be the tool that helps us build a better tomorrow.

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21. Between Dependence and Agency: EAP Students' Critical Engagement with GPTs in Academic Writing

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Introduction

Language educators have mixed views on pre-trained transformers' (GPTs') effects on student learning. Many caution against GPTs' impact on writing skills and critical engagement with texts (Yeo, 2023; Cardon et al., 2023). Since students often perceive AI-generated texts as more sophisticated, some scholars are concerned over overdependence, as well as diminished ownership and authenticity of writers' voices (Sandstead & Kibler, 2025). Others argue that when integrated responsibly, GPTs reduce writer's block, decrease anxiety, and foster awareness of linguistic and rhetorical structures (Kavanagh, 2023; Shao, 2025). To explore how English language learners (ELLs) implement GPTs to revise drafts, we conducted a qualitative study of an English for Academic Purposes (EAP) course. Following AI literacy-focused pedagogical activities, students submitted pre- and post-GenAI-edited versions of their texts. Students then reflected on the implementation of AI-generated feedback in their oral presentations and course reflections.

AI Literacy through Critical Engagement

With GenAI, ELLs' needs extend beyond foundational literacy skills to include digital literacy. Formulating prompts and critically engaging with AI's output are important to students' learning (Warschauer et al., 2023). To address this, we developed reflective question-based learning activities for practice and reflection of GenAI as an editing tool. As evidenced in the samples of student work below, these activities enhanced stylistic structures, improved grammar, and clarity.

Pre-GenAI:
Explaining the reaction and actions of the government about the issue. Effects of this problem on indigenous people. Why is this still a problem, is it because the government is not doing enough?

Post-GenAI:
This section delves into the governmental response to the issue and its impact on Indigenous communities. It questions the effectiveness of current measures and explores potential reasons for the persistence of the problem, such as inadequate governmental action.

GenAI aided ELLs in the revision of subject-verb agreement and capitalization, changing the text from a fragmented structure to a coherent, assertive sequence of ideas:

Pre-GenAI:
To assure that post-secondary institutions have university and college degrees in aboriginal languages. I would like to mention the following sources that will help me prove why it is important to have degrees such as the ones mentioned above.

Post-GenAI:
To ensure that post-secondary institutions offer university and college degrees in Aboriginal languages, I would like to reference the following sources that support the importance of such degrees.

AI literacy is observed through editing choices and their effects on tone, awareness of academic register, grammatical accuracy, and coherence. Through revisions, students' ideas and central focus remained original, demonstrating how a responsible use of GenAI does not inhibit critical thinking. Instead, it supports the development of students' academic writing.

GenAI-Output and Agency

Since GenAI algorithms are predominantly trained on published sources by North American, British, and Australian White speakers of English as L1, AI output excludes representations of diverse minoritized L2 English speakers (Rodriguez Louro, 2025; Sandstead & Kibler, 2025). This may explain why ELLs perceive AI-generated texts as more sophisticated and superior to their own writing. The internalization of such biases is evidenced in our students' reflections, and how they referred to their work:

"*Ask chatgpt what you're missing after you've written it*."
"*[GenAI] giving me examples where i am wrong*."

ELLs' confidence and active engagement with work are essential for their writing development. Focusing on agency, we embedded reflective questions in activities. Agency, in this context, is defined as the ability to make informed choices when incorporating GenAI output, while recognizing the value of one's writing voice.

Students were invited to reflect on:

1. What kind of writers they are, including the features that characterize their style (e.g., preferred word choices, tone, or ways of expressing ideas), and
2. What kind of writers they aspire to become, identifying areas of growth.

When comparing original and AI-revised drafts, students reflected on:

1. What feels "lost" in the AI's version (e.g., word choice, tone, or argument clarity), and
2. Which revisions to keep, modify, or reject to retain and strengthen their academic voice?

In pre- and post-GenAI writing samples, students adapted GenAI revisions to highlight aspects of their desired writing persona through their tone and sentence structure.

A. Incorporating rhetorically appealing language

Pre-GenAI:
The Indigenous community faces various types of disparities where two of the major ones are the mental health concerns for indigenous mothers and infant mortality of indigenous mothers.

Post-GenAI:
The Indigenous communities grapple with profound disparities, among which the mental health concerns of Indigenous mothers and the alarming rates of infant mortality stand out starkly.

B. Introducing precise sentence-level structures and targeted academic vocabulary

Pre-GenAI:
Mentioning, Indigenous people are still waiting for any data or information from their dead children that were killed in residential schools. Giving introduction information about the situation and the policies that the government did.

Post-GenAI:
It highlights the continued lack of data regarding the deceased Indigenous children who suffered in residential schools, emphasizing the importance of addressing this issue and examining relevant governmental policies.

Agency is seen in how, instead of unquestioningly adopting GenAI output, students made decisions on how AI might support them in asserting their writing voice.

Oral Presentations: Scaffolding for AI Literacy and Learning Agency

A step towards developing AI literacy and fostering agency is encouraging writers to evaluate AI output, question accuracy, and incorporate suggestions when aligned with their critical thinking. We invited students to present their work by summarizing their sources, sharing research questions, and explaining how GenAI was used. Students were then offered constructive suggestions that refined their focus. Furthermore, based on the following questions, students engaged in discussions of responsible use of GenAI:

How did you decide which AI-generated suggestions were irrelevant or potentially misleading?

1. How did you verify the accuracy of AI-generated content?
2. Following classmates' approaches to using AI to brainstorm, organize, or refine their writing, what conclusions did you draw on ethical use of AI?

Conclusion

Focusing on AI literacy, scaffolded assessments, and presentations, students learned to engage with GPTs responsibly. Critical thinking was never diminished. ELLs fact-checked and adapted AI-output to their writing goals and style, showcasing agency and confidence.

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22. From Thinking to Writing: What Student AI Philosophies Reveal About Learning

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While many higher education institutions resist or ban AI use, the competency-based college where I teach developed a course called *Writing with AI*. Rather than treating generative AI as a threat to academic integrity, the course invited students to examine it critically, experiment with it in authentic ways, and begin to develop their own philosophies for responsible use. The goal was not to police student behavior but to empower learners to make ethical, informed, and creative choices about emerging technology.

Reframing the Faculty Role

Like most faculty, I didn't enter higher education to "catch" students doing something wrong. Yet, as generative AI transforms the educational landscape, many faculty feel like they're forced into police roles. Higher education responses to generative AI often center on enforcement, including revised plagiarism policies, added detection tools, and stern warnings about misconduct. While well-intentioned, these efforts

often reduce the teaching process to an act of surveillance and undermine the trust that learning depends on.

I've seen the overwhelm firsthand. A colleague and dear friend of mine recently retired early after decades of teaching writing, exhausted from what she described as a constant battle with AI-generated work. She was tired of fighting and pleading with students to turn in something authentic. She loved teaching, but, as she put it, "not like this." Her departure made me realize how much energy higher education was spending on *enforcement* rather than *engagement*.

I chose to begin from a place of trust rather than suspicion, where students could safely explore, question, and reflect without fear of punishment. In *Writing with AI,* I wanted to help students navigate the ethical and creative possibilities of AI rather than treating it as a forbidden shortcut.

A Surprising Discovery

One of the biggest surprises came early in the semester. A surprising number of our students shared that they had never used AI before enrolling in the course. I teach in the competency-based college of a rural Texas college, where most of our students are adult learners balancing full-time jobs, families, and community responsibilities. While they learn online, they are not always immersed in the latest technologies.

When asked why they chose the course, many said they wanted a safe place to experiment. Some knew of these tools but never felt confident enough to try them. Some knew AI basics but didn't know how to create appropriate prompts. Some worried they were falling behind technologically; others simply wanted to understand what the conversation was about. And one student signed up for the course called *Writing with AI* but sent an email saying they didn't want to use AI! The narrative that "all students are already using AI" did not hold true in this course. In reality, many learners were cautiously curious rather than secretly subversive.

That discovery shifted my perspective. The fear-based narrative surrounding AI and academic dishonesty felt disconnected from the reality of my students. These students weren't trying to cheat, they were trying to learn, and what they needed from higher education was guidance, not surveillance.

Authorship, Agency, and the Human Element

A central component of the course required each student to develop a personal AI use philosophy, communicating their values, boundaries, and intentions for engaging with AI in academic and professional contexts. At the end of the course, they turned those statements into short video reflections explaining when they would and would not use AI in their work. These reflections were thoughtful, honest, and often deeply personal. Students wrestled with questions of creativity, authorship, and responsibility. Some admitted initial fear that using AI would make their work "less theirs." Others reflected on how AI pushed them to clarify what parts of the writing process mattered most to them.

A fascinating divide emerged. Some students believed that AI could "think" for them but should never "write" for them. They viewed brainstorming, outlining, and summarizing as mechanical tasks that AI could assist with, while seeing the act of writing as an extension of self, their voice that must remain human. Others believed the opposite: AI could "write" for them but could not "think" for them. These students saw writing as a technical process that AI could streamline, freeing them to focus on higher-order reasoning and decision-making.

Rethinking What We Teach

The distinction between “AI can think but not write” and “AI can write but not think” makes us consider how students define intelligence, creativity, and authorship. These distinctions aren’t about technology, they’re about how students understand thinking and learning. When students make these distinctions, they are not talking about AI as much as they are revealing how they see their own minds at work.

For educators, that realization calls for a shift in pedagogy. Instead of designing assignments that test what students *know* about AI, we can design experiences that help them explore *what they believe* about learning itself. Instructors can encourage students to examine their assumptions about cognition, creativity, and authorship. Reflection becomes a method of inquiry rather than a closing activity.

This work also invites us to reconsider what counts as “learning outcomes” in courses involving AI. When a student can name their ethical boundaries, explain how technology affects their process, and defend their decisions publicly, they demonstrate a kind of digital literacy that extends far beyond technical competence. That’s the literacy higher education should value and be measuring.

Conclusion

In my setting, where most students are adult learners returning to college, these questions take on added weight. Their experiences with AI are filtered through years of professional and personal responsibility. Their boundaries reflect real-world ethical and workplace concerns. In the future, examining how these perspectives evolve could inform more equitable and context-aware approaches to digital literacy.

The larger question is not whether students can use AI responsibly, but whether higher education can teach them to engage with it reflectively and intentionally. If we view AI not as a cheating threat but as a tool that can mirror the way they learn and think, we return to the deeper work of education: helping students move from thinking to writing, from using tools to analyzing the values and ethics that guide their use.

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