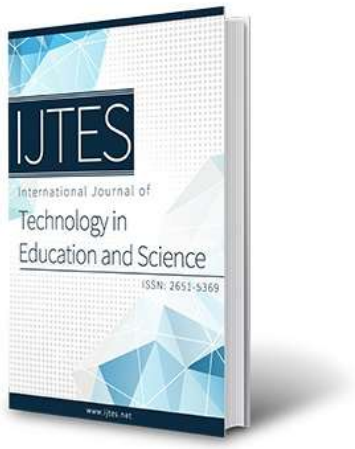

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Reflections on the Merit and Perils of AI in Higher Education: Five Early Adopter's Perspectives

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Reflections on the Merit and Perils of AI in Higher Education: Five Early Adopter's Perspectives

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Abstract

The rapid integration of generative artificial intelligence (GenAI) tools into higher education has prompted both enthusiasm and concern among faculty members. While AI tools such as ChatGPT, Claude, and Scite.ai offer significant pedagogical benefits—including enhanced efficiency, personalized learning, and automated instructional support—they also introduce challenges related to academic integrity, cognitive engagement, and ethical considerations. This study investigates the beliefs and practices of five early-adopter faculty members from diverse disciplines regarding the adoption of GenAI in teaching and learning at a research intensive university in the United States. Utilizing a collaborative action research methodology, the study examines faculty motivations, challenges, strategies and reflections for responsible AI integration. Findings reveal that faculty members recognize AI's potential to automate administrative tasks, support student learning through personalized assistance, and foster creativity in instructional design. However, concerns persist regarding over-reliance on AI, diminished student critical thinking, and the ethical implications of AI-generated content. Participants underscore the need for structured faculty training, robust institutional policies, and interdisciplinary collaboration to ensure AI is used responsibly and effectively. The study highlights the evolving role of faculty in an AI-driven educational landscape, shifting from content delivery to mentorship and critical engagement. As higher education institutions navigate the complexities of AI adoption, the research underscores the importance of AI literacy, ethical guidelines, and assessment redesign to mitigate risks and maximize benefits. This study contributes to the growing discourse on AI in higher education by offering evidence-based recommendations for sustainable and responsible AI integration. By fostering informed discussions among faculty and administrators the findings aim to guide the development of strategic frameworks that balance innovation with ethical considerations in higher education.

Introduction

GENAI tools such as ChatGPT, Claude, and Scite.ai rapidly enter classrooms, they bring transformative potential alongside complex challenges to academic integrity, pedagogical practices, and institutional policies. Yet, the

varied ways these tools are being integrated across disciplines reveal substantial gaps in both understanding and managing AI's influence on the educational mission. Faculty who serve as early adopters of these technologies are, in essence, at the front line of exploring both the promises and pitfalls of AI in education. While studies that focus on students' use of GENAI tools have been conducted (Arowosegbe, Alqahtani & Oyelade, 2024: Mironova, Riiascshenko, Bondarenko, Kinderis & Verdenhofa, 2024), to our knowledge only a limited number of studies have focused on professor's adoption and use of AI tools. A lack of discipline-specific understanding of GenAI risks leading universities to uncritical adoption. This could negatively impact cognitive development, educational equity, and academic standards while reinforcing technological hegemony. In this study, we provide an in-depth analysis of five professors' (who are the early adopters of GENAI tools in teaching) experiences with the use of these tools and the impact they think these tools may have on their profession and their students. Participants in this study represent diverse disciplines, providing unique insights into how AI tools can be adapted to diverse educational contexts. Faculty in education explore AI's role in scaffolding learning, providing equitable support for marginalized students, and fostering critical thinking in future educators. Business faculty examine how AI tools align with industry practices, preparing students for a rapidly evolving workforce while addressing concerns about automation and job displacement. Engineering faculty contribute perspectives on using AI to solve complex technical problems, streamline instructional design, and prepare students for innovation-driven careers. By using a collaborative action research approach and by analyzing these varied approaches, the study uncovers patterns of adoption, identifies barriers and facilitators, and illuminates the broader implications of AI for higher education. Through a combination of qualitative data analysis and thematic synthesis, the study examines key issues such as the pedagogical affordances of AI, the ethical considerations of its use, and strategies for sustainable integration. This study is essential for higher education faculty leaders who must navigate the ethical complexities and policy considerations inherent in AI use as they explore and evaluate the pedagogical affordances of the AI tools for teaching and learning. By examining the beliefs, experiences, and adaptive practices of these early adopters, the research addresses a critical gap, offering informed recommendations to guide sustainable and responsible AI integration. The research question guiding this inquiry is:

> How do faculty experiences with adopting and implementing GenAI tools across disciplines reveal common opportunities and challenges in higher education teaching?

Literature Review

The adoption of generative artificial intelligence (GenAI) tools in higher education represents a transformative moment in pedagogy, offering opportunities for innovation while raising critical questions related to critical thinking, student agency, academic integrity and ethical adoption. This literature review synthesizes existing research across three themes: the pedagogical potential of GenAI, ethical considerations surrounding its use, and frameworks for responsible integration.

Pedagogical Applications of GenAI

Potential Benefits

Scholarly studies conducted to explore the impact of GENAI on teaching and learning has pointed to both positive

pedagogical benefits and has warned the educational community about the potential harms to student learning. The pedagogical potential of GENAI tools are two-fold: benefits to the instructors and benefits for learners. Instructors can use GENAI tools for such tasks as syllabus preparation, activity or assignment development, and personalized feedback on student performance (Crompton, H., & Burke, D., 2023). The use of GENAI tools for syllabus preparation and assignment preparation can reduce professors' preparation time, enabling professors to develop more creative assignments (Authors, 2023). For instance, professors can use GENAI to develop rubrics both to guide student learning and assess their performance more efficiently. Similarly, professors can use GENAI to provide more detailed, timely and individualized feedback to their students, giving students opportunities to reflect on their performance and potentially take the necessary actions to address the gaps in their knowledge or improve their problem-solving skills (Lee &Moore, 2024) research studies highlight its ability to tailor educational materials to individual students' needs, facilitating improved engagement and retention (Laak & Aru, 2024; Pesovski et al., 2024). Moreover, tools like ChatGPT and Claude enable educators to streamline grading, automate feedback, and generate problem sets, allowing them to focus on more substantive mentoring and critical thinking development (Chan & Colloton, 2024). The potential pedagogical benefits for students are abundant as well. For instance, students can use GENAI tools for brainstorming while working on a project or paper writing and use it as a tutor to overcome the lack of prior knowledge, experience or cognitive barriers while solving mathematical or computational problems (Phung, Padurean, Cambronero, Gulwani, Kohn, Majumdar, Singla, Soares, 2023). AI-driven simulations and gamified learning environments have proven particularly effective in making complex STEM concepts more accessible and interactive, fostering a deeper understanding among learners (Wong & Looi, 2024). Similarly, they can use it to develop study plans and as a tool to effectively collaborate on group projects. Some scholars have emphasized the ability of GenAI to act as a "possibility engine," which can advance creativity and innovation in both instructional design and learner outputs (Sharples, 2023). For instance, tools like ChatGPT enable students to explore alternative research designs, refine their arguments, and engage in collaborative problem-solving (Li et al., 2024). These tools also offer benefits for accessibility, particularly for marginalized learners, by providing personalized support in real time (Darvishy et al., 2024). While these potential benefits are possibilities based on evidence shared from early studies, these benefits do not come out of a vacuum. These potential pedagogical benefits for students will become reality only if we can guide students to adopt effective strategies in their interactions with GENAI tools. While AI tools offer numerous pedagogical advantages, their use is not without risks. These risks, particularly around student reliance and academic integrity, warrant close examination.

Potential Harms of Generative AI (GenAI) Tools on Student Learning

Generative AI (GenAI) tools offer innovative learning opportunities, yet recent scholarly work highlights several potential harms they pose to student learning (Farhi et al., 2023). Researchers argue that these technologies may inadvertently undermine critical thinking and problem-solving skills by providing quick, automated answers that discourage deep engagement with course material (Green & Thompson, 2021). This reliance can lead students to bypass the iterative learning process, reducing opportunities for reflective thought and robust knowledge construction—a core element of academic growth (Chen et al., 2022). The potential harms of GenAI tools on student learning are varied. First, early research findings indicate that students' overreliance on these tools may

lead to reduced cognitive effort, thereby hindering their ability to develop critical thinking and problem-solving skills (Gustilo et al., 2024; Kasneci et al., 2023). Similarly, concerns have emerged regarding academic integrity, as students may use AI-generated content in ways that allow them to bypass meaningful engagement with learning materials (Zawacki-Richter et al., 2023). This phenomenon, often referred to as "cognitive laziness" (CITE), results in a loss of problem-solving skills. Cognitive laziness occurs when students rely excessively on GenAI tools to complete assignments without actively engaging in the learning process. Instead of independently formulating responses, they unquestioningly accept the outputs provided by AI chatbots, effectively disengaging from cognitive effort. For example, a recent study by Elon University and the Association of American Colleges and Universities (AAC&U) (2025) found that students used AI to generate outlines for their writing assignments and then structured their papers around these AI-generated outlines. Many students perceived this as an acceptable practice, outsourcing the cognitive activity of structuring their arguments to AI rather than actively constructing an outline that reflects their own knowledge, critical thought, and academic perspective. This practice not only diminishes students' cognitive engagement but also erodes their epistemic agency—the ability to take ownership of their own learning and knowledge construction (Sosa, 2015). In this way, ChatGPT and similar tools risk establishing an implicit hegemony over student learning, as they shape students' intellectual processes rather than serving as mere assistive tools. Furthermore, concerns persist regarding GenAI tools' inability to replicate the complexity of human interactions, which are integral to dialogic and peer-mediated learning (Hollan et al., 2000). Research suggests that meaningful learning often emerges from student discussions, collaborative problem-solving, and the negotiation of ideas—elements that AI tools struggle to facilitate effectively. Additionally, some scholars argue that the use of GenAI tools diminishes students' metacognitive engagement with learning, potentially leading to shallow learning outcomes. When students fail to reflect on their thought processes and learning strategies, their ability to transfer knowledge to new contexts is compromised. Finally, another significant risk is that GenAI models can reinforce biases and provide inaccurate or misleading information, potentially leading to misconceptions and misinformation in students' understanding of key concepts (Bengio, 2023). Without proper oversight, students may internalize incorrect information without questioning its validity, further exacerbating learning challenges. These findings collectively suggest that students need structured guidance on when and how to use GenAI tools productively and ethically. As GenAI continues to shape educational environments, developing clear ethical standards and cognitively effective methods for integrating AI into learning is an urgent need that requires systematic study.

Ethical Considerations in GenAI Use

The ethical implications of GenAI adoption in education are both multifaceted and urgent. Early studies have predominantly focused on issues of academic integrity, such as plagiarism and cheating (Perkins et al., 2024). However, this narrow focus has been criticized for overlooking broader concerns, including equity, transparency, and accountability (Noble, 2018; Taddeo & Floridi, 2018). For example, research has shown that the use of biased datasets in AI development can perpetuate systemic inequities, marginalizing underrepresented groups (Kooli, 2023). Freire's (1970, 2000) concept of "banking education," where knowledge is passively deposited into students, provides a critical lens for examining the risks of GenAI tools. Without thoughtful integration, these technologies may reinforce traditional power dynamics, undermining efforts to create equitable and inclusive

learning environments. Ethical use of GenAI demands a commitment to principles such as fairness, accountability, and privacy, as articulated by Dignum (2018) and Floridi & Cowls (2019). Transparent AI systems that elucidate decision-making processes and prioritize inclusivity are essential for fostering trust and equity. However, these aspects of GENAI tools may not be immediately accessible to the students therefore, instructors need to make an investment in making these aspects of GENAI tools visible to their students so they can engage with AI using a critical lens. Issues of data privacy and equitable access further complicate its adoption, with disparities in technological resources threatening to exacerbate existing inequalities in education (Karan & Angadi, 2024). Addressing these challenges requires a deliberate approach, emphasizing ethical guidelines, rigorous quality control of AI-generated content, and fostering AI literacy among educators and learners alike (Yu & Guo, 2023; Yusuf et al., 2024).

Frameworks for Productive and Responsible Integration

Frameworks for integrating GenAI ethically and productively into higher education are beginning to emerge, drawing from theories of critical pedagogy and collaborative learning. Freire's (2000) pedagogy of critical consciousness, emphasizing dialogue, reflection, and action, provides a foundation for developing equitable AI practices. Complementing this, Vygotsky's (1978) sociocultural theory underscores the importance of socially mediated learning, advocating for the use of GenAI as a dialogic partner rather than a substitute for human interaction.

Recent studies (Ruiz-Rojas et al., 2024) propose actionable strategies for embedding GenAI into problem-based learning (PBL) curricula (Hmelo-Silver, 2004; Schmidt et al., 2007). These strategies include requiring students to document their interactions with GenAI, encouraging iterative reflection, and designing assignments that prioritize process over product. For example, positioning GenAI as a Socratic opponent can challenge students to defend their claims to knowledge, evidence, methodologies, deepening their critical engagement (Sharples, 2023). Moreover, incorporating GenAI into collaborative projects has been shown to enhance transparency and accountability, fostering a shared understanding of ethical principles (Salas & Larrain, 2024). On the curriculum side, discussions around Critical AI Literacy being the cornerstone of undergraduate education is populating thought pieces published in popular media. However, in this study we focus only on the pedagogical aspect of GENAI in higher education. More precisely, we focus on professor's lived experiences as teachers.

Gaps in the Literature on Faculty Use of GENAI Tools

While the pedagogical and ethical implications of GenAI adoption have been explored, significant gaps remain. Further, most of studies published so far either focus on a small group of students in a particular discipline, consist of metanalyses, therefore, there is need for in-depth studies that rely on faculty and students' lived experiences. While use of GENAI tools among faculty members is high (Mowreader, 2024), little research exists to provide details on how faculty members use GENAI tools for productivity, creativity and assessment purposes. According to Tyton's report, GENAI has not been all that good to the professors. For instance, twenty-eight percent of instructors say generative AI has increased their workload. That is because professors now have to work harder

than they did before to monitor student plagiarism and to redesign their assessments to overcome the GENAI threat to academic integrity (Tyton, 2024). Nevertheless, the need for in-depth studies of faculty member's experiences is called for.

The discussion provided so far shows that Generative AI has emerged as a transformative force in higher education, reshaping traditional pedagogical practices by offering personalized learning experiences, adaptive assessments, and dynamic content creation. However, the integration of generative AI is not without challenges. Ethical considerations surrounding academic integrity and the potential misuse of AI-generated content pose significant hurdles. The best source to acquire the potential pedagogical benefits and potential harms to student learning is the early adaptors of GENAI. In this study, we shed light on five professors' experiences through collaborative action research.

Methodology

We adopted collaborative action research (Bleicher, 2014; Gordon, 2008; Green, Napan, Julich et al,. 2023) methodology for this inquiry. Action research can be defined as systematic and reflective inquiry on one's actions in pursuit of change or transformation in one's beliefs or practice (McNiff, 2013; Rowell, Riel & Polush, 2016). Change or transformation requires not only a deeper probing into one's belief systems, and practices but also a deeper understanding of how others within the system experience a certain practice (Jensen & Dikilitas, 2023). Therefore, it requires multiple critical perspectives (Fine, 2018; Zuber-Skerritt & Wood, 2019). In this study, we explored how different professors from different disciplines thought about and used GENAI tools to improve their instruction and increase their students' engagement with course materials. Since all of these professors are GENAI enthusiasts, and early adopters, their beliefs, experiences and reflections upon their experiences are likely to enrich our understanding of the role of AI in higher education, the evolving role of university professors as well as challenges around students' cognitive and ethical engagement with GENAI tools.

Given our focus on faculty perceptions and iterative learning from practice, action research provided a structured and flexible approach to capturing evolving insights. This method allowed us to systematically document faculty experiences, test emerging ideas, and refine our understanding through continuous reflection and feedback. By actively engaging participants as co-investigators in the inquiry process, we were able to surface both the opportunities and constraints of GenAI integration in real teaching environments.

Participants and Setting

This study took place at a research-intensive university in the southeastern part of the United States that serves 30,000 undergraduate and 8,000 graduate and professional students. In response to GenAI applications, in the fall of 2022, the university developed a taskforce to support faculty as ChatGPT entered academia's use. Participants were part of the taskforce, serving on different AI-related committees: policy, pedagogy, research and technology committees. The university has since made significant investments in the AI infrastructure and organized multiple series of workshops to help faculty members adopt and use AI tools for teaching and research.

Participants were five tenure-track and tenured faculty members with various years of experience in higher education: two full professors, two associates, and one assistant professor. Three of the participants were from the college of education; One of them specialized in literacy, was at the rank of associate professor and had more than 10 years in higher education. The second one specialized in science education, was at the rank of professor and had more than 15 years of experience. The third participants had 1.5 years of experience as an assistant professor. One participant was at the rank of full professor from the college of engineering with 17 years of experience, and one at the rank of associate professor from the college of business with nine years of experience in higher education.

All participants had engaged in the inclusion of GenAI tools in their instruction and in their research. Based on their disciplines, colleagues from Business and Engineering had followed a route of full integration of AI in their instructional practice. The colleagues from the College of Education had engaged in a moderate use that required students to use AI but within parameters. In the following section we explain the ways that each participant utilized AI tools.

Data, Data Collection and Analyses

Participants were asked to respond in writing to a set of 10 questions. The questions asked them to share their perspectives on AI integration, their experiences with AI integration, and reflection on how the use of AI changed their perspectives on teaching and learning. The survey questions were developed in alignment to the research questions. While the questions mainly focused on the participants' experiences, because of their involvement with the university committees on GENAI adoption, they often drew from their interactions with colleagues on campus. This was especially visible when they talked about the perceived barriers to GENAI adoption on campus.

Procedures

Our analysis proceeded through three iterative rounds to ensure depth and validity. In the first round, each author independently analyzed responses to identify preliminary themes. In the second round, we compared and refined these themes, discussing divergent interpretations and aligning our coding framework. In the final round, we reached a consensus on the key patterns and assertions, ensuring that our findings accurately reflected both individual perspectives and collective insights on AI adoption. After three iterations, the authors came to consensus on the following themes and assertions: 1) Optimism about AI's Transformative Potential, 2) Focus on Efficiency and Productivity, 3) AI as a Creative and Pedagogical Tool, 4) Risk Management and Ethical Concerns, 5)Barriers to Adoption, 6) Need for Training and Community Support, 7)The Role of Professors in the AI-Driven Future, 8) Reflection on Student Learning and Agency, 9) Ethical and Systemic Challenges and 10) Student-Centric Focus.

Coding Techniques

We employed a thematic analysis approach, drawing on grounded theory techniques to identify patterns across

faculty experiences. Initial open coding was used to extract recurring concepts, followed by axial coding to establish relationships between themes. Through this process, we distilled faculty insights into ten key assertions that reflect the individually unique ways in which AI is being integrated into higher education pedagogy.

Results

The analyses of our data resulted in several assertions related to the implications of AI in higher education. 1) Optimism about AI's Transformative Potential, 2) Focus on Efficiency and Productivity, 3) AI as a Creative and Pedagogical Tool, 4) Risk Management and Ethical Concerns, 5)Barriers to Adoption, 6) Need for Training and Community Support, 7)The Role of Professors in the AI-Driven Future, 8) Reflection on Student Learning and Agency, 9) Ethical and Systemic Challenges.

The patterns across all participants show a shared optimism about AI's potential to enhance education, though tempered with a realistic acknowledgment of the risks and challenges. All participants stress the importance of training, ethical considerations**,** and supporting faculty adoption to ensure that AI is used responsibly and effectively. There's a general agreement that AI should serve as a tool for enhancing creativity, efficiency, and personalized learning, but careful thought must go into its integration to avoid over-reliance, ethical issues, and loss of student agency. The role of the professor is likely to evolve, with a greater emphasis on mentoring, guiding, and facilitating rather than simply delivering content. The patterns of responses are explained in the following section:

Optimism about AI's Transformative Potential

All participants are optimistic about AI's potential to revolutionize education. They see AI as a tool that can increase efficiency in teaching, enhance productivity, improve learning outcomes, and change the role of teachers and students. Most envision AI enabling more personalized, flexible learning environments and transforming traditional teaching models. There's also a belief that AI will fundamentally alter the structure of higher education, potentially making the role of professors more about framing learning objectives, while the AI handles content delivery and assessment. One participant shared the following as response to the questions related to the impact of GENAI on teaching and learning.

> *These technologies are transformative because they have all the data they need, they have the compute power and we have the algorithmic flexibility to cater to the students and professor's' needs and wants. These technologies give us the power to transform the way we plan our lessons, design our assignments, design and implement and evaluate our students' engagement with the course material and with each other. If we can get the professors on board, give them the tools they need, the design support they need and the motivation they need, the professor as we know it will be gone, the student as we know it will be gone, and how they work together will be gone. There will come times when the professor and students will not need to see each other but students will have a rigorous curriculum, an engaged and personalized learning journey along with seamless integration of assessment.*

Another participant put a different spin and made connections between college curriculum and skill turnover. He said:

> *The AI tools are very powerful, and they can provide instantaneous responses to a wide range of questions, which enables students to receive immediate feedback on tasks such as writing, coding, problem-solving, and answering questions. Their versatility and accessibility make them a game-changer in education. However, this is not just about speed and accessibility; it also reflects a broader shift in the skills required for the future workforce. Consequently, educational approaches, metrics, and pedagogy will need to evolve to prepare students for a future where AI plays a central role in their work environments. At the same time, critical skills such as analytical reasoning, critical thinking, and problem-solving will remain vital, but they will need to be taught in new ways.*

Focus on Efficiency and Productivity

AI is seen as a time-saving tool, allowing educators to streamline their workload, such as automating administrative tasks, developing rubrics, developing assessments, grading, answering student questions, and updating course materials. This improves overall productivity for both faculty and students. For students, AI is viewed as an enabler of efficiency, assisting them in their learning processes, from personalized content generation to academic support. The following answer from one of the participants summarizes the focus on the role of GENAI to increase professor productivity across all participants.

> *A major potential of generative artificial intelligence is the significant boost it can provide to our productivity. By integrating this technology with course materials, teachers can receive assistance with various tasks, such as updating syllabi, creating customized homework assignments, summarizing student feedback, answering student questions, and even automatically grading submissions. While the outcomes might not always be perfect or completely satisfactory due to certain technological limitations, they can be revised more quickly to meet our expectations, ultimately saving time and effort.*

> *Similar productivity-boosting potentials exist for students as well, but there might be additional challenges for student-oriented developments compared with teacher-oriented developments. The content generated by current artificial intelligence models are not always accurate or reliable. Teachers can discern what is useful and revise the outputs whenever necessary. However, students in a learning environment may not have such ability to distinguish between right and wrong, and may dangerously accept whatever artificial content as authoritative.*

AI as a Creative and Pedagogical Tool

While AI is often viewed as a time-saving tool, there is also a recognition of its potential for creativity in teaching. Educators appreciate how AI can diversify content, create new learning strategies, and offer more engaging assessments. This can enhance the creativity and flexibility of both the teaching process and the learning

experience. Professors, especially those who were early adopters, highlight the creative freedom AI allows them to experiment with new teaching methods and course structures that would be difficult or time-consuming without it. The following answer from one of the participants notes that AI-enabled tools have opened new possibilities for designing interactive and dynamic course content that better engages students.

> *Instructionally, those tools can support personalized and adaptive learning to support different learners and cater to their needs. Students can receive immediate feedback on their work, reflect, and revise so that the quality is higher and their learning and understanding. Learning can take the form of self-tutoring (see Grammarly). Learners who may need additional support may be provided with additional resources and support, while others may receive different resources. The multimodality of AI (if this is a term I could use), supports the creation of engaging resources and also of resources that can be more interactive.*

At the heart of AI's pedagogical innovation is its ability to function as a *cognitive scaffold*—a tool to *extends human intellectual effort*. In research methodology courses, for instance, AI can act as a *dialogic partner*, prompting students to refine research questions, test hypotheses, or critically engage with multiple sources of evidence. Instructors can use AI to model expert-level inquiry, demonstrating how to interrogate data, challenge assumptions, and synthesize complex findings. This helps with creating a more *iterative and inquiry-driven approach* to learning, reinforcing higher-order thinking rather than passive content consumption.
Reflecting on this potential, *P3* notes:

> *AI should not be seen as a shortcut to knowledge, but as a catalyst for deeper intellectual engagement. If we design AI-integrated courses with intentionality, we can move beyond rote learning to cultivate a generation of students who question, analyze, and innovate with these tools—rather than being shaped by them. The future belongs to those who can learn and unlearn, moving beyond static knowledge acquisition toward fluid, iterative thinking.*

However, as AI reshapes *the creative and pedagogical approaches*, faculty must remain *critical architects* of its integration. Without *intentional design and scaffolding*, AI risks reinforcing *cognitive shortcuts*, leading students toward *algorithmic dependency rather than intellectual autonomy*. The challenge, then, is *not merely to integrate AI for efficiency, but to leverage its creative potential in ways that support genuine intellectual engagement, epistemic curiosity, and deep learning*. The same (P3) instructor emphasizes:

> *We cannot afford to be passive adopters of AI in education. Our role as educators is to interrogate these technologies, deconstruct their biases, and guide students in using AI as a tool for inquiry rather than as an unquestioned authority. Pedagogical creativity with AI cannot just be about efficiency. As educators, our focus needs to be on shaping an academic culture where students remain in control of their learning.*

Overall, AI's role in pedagogy needs to be focused on *amplifying* human creativity—enabling *faculty and*

students alike to engage in richer, more generative learning experiences. Whether through *personalized instruction, multimodal content creation, interactive assessment, or metacognitive scaffolding*, AI's creative potential offers a *new paradigm for education. How it will be leveraged depends a lot on the educators***.**

Risk Management and Ethical Concerns

There's a recognition that the ethics of AI in education is complex. Participants stress that AI ethics should be a part of the curriculum, not just a separate discussion. The need for a holistic approach to AI training—one that includes ethical considerations, critical thinking, and an understanding of biases—is emphasized across the board. All participants express concern over the risks associated with AI, particularly regarding students' reliance on AI-generated content without critical thinking or reflection. Many emphasize the importance of guiding students to understand the limitations and potential biases of AI tools. Ethical concerns also arise, particularly regarding the transparency and responsible use of AI. Participants call for comprehensive training on AI ethics for both students and educators to mitigate risks such as misinformation, academic dishonesty, and over-reliance on AI. On the perceived risk for the students, one participant said the following.

> *An important lesson [I learned] is recognizing the danger of unquestioningly trusting AI's authority and accepting AI-generated content without critical assessment and reflection. We must inform students about these risks and equip them with effective strategies to mitigate them. With these observations in mind, I am committed to carefully designing activities and assignments that enable AI to enhance productive learning rather than make learning efforts redundant.*

Another participant said:

> *AI tools, while immensely powerful, can act as a double-edged sword. On one hand, they provide immediate access to knowledge and resources, but on the other, they risk diminishing students' motivation to cultivate essential soft skills if overused or relied upon too heavily. Therefore, the way we teach and learn must adapt to balance the advantages of AI with the need to develop independent, critical thinkers. The key will be integrating AI into education in a way that enhances, rather than undermines, students' cognitive and problem-solving skills.*

Motivations for and Barriers to Adoption

Resistance to change is a significant theme, especially among faculty who are not as familiar with AI. Some professors fear the learning curve and feel uncomfortable integrating new technologies, particularly if they perceive a lack of direct ROI or fear that AI could undermine their authority or relevance. Lack of institutional support is also mentioned as a barrier, with some participants highlighting that institutions must provide not only tools but also guidance, training, and incentives to encourage adoption. Comfort with the status quo is noted as another barrier, with some educators feeling no urgent need to innovate or change their pedagogical methods, particularly if they are not in fields where AI could immediately show benefits. Across all answers one theme was

obvious. Personal motivation, exposure and community facilitates professors' adoption of new technologies. One participation said:

> *The awareness about the technology, knowledge of what it can do for me and for my students motivated me to adopt it for my teaching. I have an entrepreneurial mindset anyways so it was easy for me to get on the wagon. I think mindset plays a key role in whether one chooses to try or not but being part of the AI community was the biggest motivator for me. Because when you are part of the community, you feel obligated to contribute something to the community and you feel accountable to deliver something valuable to your community. Experimenting with ChatGPT and Co-pilot gave me conceptual resources that I could then bring to the table and discuss with other community members. I think this sense of responsibility and accountability to the community combined with excitement got me into the AI.*

Another participant shared the following in his response related to the personal barriers to GENAI adoption:

> *Belief systems can be a major barrier to AI adoption in education. Our perceptions are often shaped by our initial impressions of new technology. For example, when ChatGPT was first introduced, its obvious limitations led many to conclude that it could not write, think, or reason at a human level, making it unsuitable for critical activities such as teaching and learning. However, technology is constantly evolving. In particular, generative AI tools are significantly improving as their underlying models learn from user feedback and various application data. Therefore, maintaining an open mind and adopting a proactive strategy is essential for keeping pace with technological innovations.*

Yet another participant took a different take on the potential barrier to adoption and said the following:

> *Some educators may be hesitant to integrate AI into their teaching due to concerns about the accuracy, reliability, or ethical implications of AI-generated content. There is also a fear that AI might replace traditional teaching methods, leading to a loss of personal interaction and the human touch in education. Another barrier is the lack of awareness or understanding of how AI can be effectively used in education. Many faculty members may not be familiar with the educational applications of generative AI tools and may feel overwhelmed by the prospect of learning to use these technologies. Moreover, concerns about academic integrity and the potential for students to misuse AI tools are valid. The possibility of students outsourcing their work to AI or using it to cheat can undermine the educational process and diminish the value of the learning experience.*

Belief systems emerged as to be a common theme across all participants. This extreme case reflects the role of belief systems in AI adoption in teaching.

> *I participated in a teaching group on AI within the University. I believe the most "risk" was telling colleagues to incorporate AI as some reacted in surprising ways. One I recall shared that people who use AI are not ethical. Of course this was at the very first stages of these discussions, and I have seen a*

> *tremendous shift in their comments since then. Risk was getting out of my comfort zone and considering "what if" and trying out as a learner something different so I could tell what it was and consider how it could be used or not.*

Need for Training and Community Support

Training is a recurring theme in all responses. Most participants agree that for AI to be integrated successfully, educators need proper training, not only in how to use the tools but also in understanding their ethical implications and pedagogical applications.

Community support plays a crucial role in bridging this gap. Participants who are involved in AI-focused academic communities find it easier to integrate AI into their teaching, as these spaces foster collective experimentation, shared problem-solving, and ongoing discourse on best practices. The evoluation o AI advancement necessitates continuous engagement with such networks—through faculty learning groups, interdisciplinary AI workshops, and collaborative research initiatives. These spaces can serve as hubs for knowledge-sharing as well as critical sites for interrogating AI's implications in higher education.

P3 notes:

> *AI literacy must extend beyond technical know-how to include ethical reasoning, student engagement strategies, and a deep understanding of AI's role in shaping knowledge production itself.*
>
> *Faculty adoption of AI requires a mindset shift. The most effective professional development will not just focus on teaching professors how to use AI, it should help them critically evaluate when, why, and under what conditions AI should be integrated.*

Another participant emphasized this further:

> *To overcome these barriers, it's crucial to provide faculty with training and resources to understand the benefits and limitations of AI in education. Additionally, clear guidelines and policies should be established to ensure that AI is used ethically and responsibly, with an emphasis on enhancing critical thinking and problem-solving skills rather than replacing them.*

Another participants said:

> *I believe that ongoing training is an important and crucial factor for integration of AI tools in instruction. Faculty should be trained and should be given opportunities to "safely" try out those tools. Developing Collaborative Communities of Learning can remove any stress and barriers faculty may have so they can consider how to use such tools. Some may be resistant to change, may worry about their own value as an instructor, may worry even about job security, or may overall be concerned about credibility and*

> *effectiveness of AI tools. Such concerns can be shared and through dialogue and collaborative exchanges confidence can be built.*

Additionally, universities must move beyond isolated AI training sessions and invest in sustained, interdisciplinary AI learning communities. The most effective AI training models mirror the principles of good pedagogy itself—they are iterative, collaborative, and deeply contextualized within faculty members' teaching and research needs.

One participant emphasizes:

> *If AI is to serve as an instructional tool in higher education, institutions must go beyond surface-level training and build intellectual communities around AI literacy. Faculty need spaces to explore AI's possibilities and limitations—faculty need support to experiment not just in their classrooms but in ways that inform policies around learning and equity in learning.*

To sum, training alone is not enough. The future of AI in education depends on the strength of faculty learning communities, the depth of institutional support, and the ability of educators to critically shape AI adoption with help of the academic community and administrators in higher education.

The Role of Professors in the AI-Driven Future

Instructors considered that the role of the professor would be redefined. Many participants envision a future where the role of the professor changes. While AI can automate many tasks (grading, content generation, etc.), professors are seen as curators or facilitators of learning who guide the process, set learning objectives, and oversee the ethical use of AI. Some believe this could even lead to AI-driven models where the traditional "professor-student" relationship evolves or disappears entirely, with AI acting as a virtual learning assistant. They also considered AI as a supplement and not as a replacement. While some predict AI could replace certain aspects of teaching, there is a general consensus that AI should not replace the human element of teaching. Rather, it should enhance and support educators, allowing them to focus on higher-order tasks like mentorship, personalized feedback, and fostering critical thinking.

The professor's role in higher education is not merely changing—it is being *fundamentally redefined*. As AI automates content generation, grading, and even aspects of student feedback, professors are no longer the primary dispensers of information. Instead, they are being repositioned as *critical architects of learning experiences*, responsible for *curating, contextualizing, and interrogating AI-driven knowledge production*.

Yet, this shift is far from benign. AI presents a paradox: it promises efficiency, but at what cost to *pedagogical rigor, disciplinary expertise, and human intellectual authority*? There is a *growing tension* between AI as an enabler of deeper learning and AI as a catalyst for academic complacency. The risk is not that AI will replace certain instructional tasks—it is that professors, if not critically engaged, may *cede control over fundamental*

academic judgments to algorithmic systems that are neither neutral nor infallible.

One professor critiques this impending reality:

> *The professor's role is to interrogate the integration of AI beyond simply adapting to/adopting it. A professor should question the foundational assumptions that govern its design, deployment, and epistemic authority. Who builds these systems? Whose knowledge is prioritized? What assumptions shape the 'correct' answers AI provides? The danger is not AI itself, but the uncritical adoption of AI in ways that strip away the intellectual labor of teaching and learning.*

This study's findings suggest a *critical divide* in how faculty perceive AI's role in the classroom. Some envision AI as a *supplementary assistant*, streamlining administrative burdens and freeing up time for *higher-order pedagogical work—mentorship, deep inquiry, and ethical deliberation*. Others, however, warn that *AI's encroachment into cognitive and evaluative domains may erode the very foundations of academic integrity and intellectual independence*.

The same professor highlights the hidden cost of AI reliance:

> *There is a fine line between using AI as a tool and surrendering to it as an authority. The moment we allow AI to dictate how learning unfolds—what counts as 'good writing,' which historical narratives are 'most relevant,' or what solutions are 'best'—we risk outsourcing academic judgment to systems designed without disciplinary nuance or human values.*

Another professor emphasized:

> *Another risk is that professors may become overly reliant on AI, potentially neglecting to verify the accuracy of the information generated by these tools. This over-reliance could lead to the dissemination of incorrect or misleading content, particularly if the professor lacks the expertise to critically assess AI-generated outputs. Additionally, there is a risk that assignments or teaching modules may not be well-designed to foster critical thinking if AI is used improperly. For instance, if assignments are too simplistic or if AI tools are used as shortcuts, students might complete tasks without engaging deeply with the material, undermining the development of their analytical skills.*

This concerns are *not speculative*. AI's current limitations—hallucinated sources, embedded biases, and an inability to engage in genuine epistemic struggle—make it *a dangerously seductive alternative to critical pedagogy*. The allure of AI's instant feedback and effortless content generation *tempts both students and faculty to prioritize speed over depth, convenience over intellectual rigor*. Yet, *this moment also presents an opportunity*. If integrated with *intentionality and critique*, AI can elevate the role of professors from content providers to *intellectual provocateurs*—guiding students through the complexities of *AI-generated knowledge, challenging algorithmic assumptions, and modeling the critical thinking that AI, by design, cannot replicate*.

Reflection on Student Learning and Agency

Student agency is a key concern, with many participants noting the potential for students to lose control of their learning if they overly rely on AI tools. Educators stress the importance of designing AI-integrated assignments and activities that still require student input, reflection, and critical engagement. Another pattern referred to students' responses that were mixed. Some participants noted that students generally respond positively to AI tools, particularly when they understand the tool's capabilities and limitations. Others, however, worry about students misusing AI or not engaging with the material deeply enough, particularly in settings where AI-generated content could be seen as a shortcut. One participant shared the following on student learning and agency.

> *I noticed that some students became overly dependent on AI to complete assignments, which ultimately led to a superficial understanding of the material. Instead of using AI to enhance their learning, they sometimes used it to bypass the effort required to engage with the content. This emphasizes the importance of designing assignments that encourage critical thinking and independent problem-solving, even in the presence of AI tools. The integration of AI into teaching requires a rethinking of course design, pedagogy, and assessment. As an instructor, I realized that traditional metrics may not fully capture the learning outcomes in AI-supported environments. Course content and evaluation methods need to evolve to ensure students are not just completing tasks with AI but are also developing deeper learning skills.*

Several responses focus on the student perspective, with a shared concern that AI can enhance learning and engagement. However, there is a strong call to ensure that AI tools support students' development of critical skills rather than undermine them. Educators seem concerned that students could become passive recipients of AI-generated content unless there are carefully crafted strategies to maintain active engagement with the material.

> *When considering the adoption of AI in my teaching, I recognized several potential risks. One immediate concern was student acceptance. Would students be open to a new teaching methodology that incorporates AI in both classroom activities and homework assignments? Gaining their buy-in was a clear risk. Another, perhaps more significant, long-term risk was the possibility of students developing an over-reliance on AI. There is a real danger that students might use AI to complete their work more easily, without putting in the necessary effort to truly learn and grow. Instead of leveraging AI to enhance their abilities, they could use it to simply meet the minimum requirements, which would be counterproductive to their development.*

Another participant said:

> *I learned that the clearer my explanations are, the better my students' understanding is and the lower their stress is. I ask my students for their feedback and seek suggestions for improvements of my instruction, too. Their comments help me shape the level of explanations but offer clarity on expectations.*

Systemic Challenges

Institutional readiness is another recurring theme. Participants see a gap between the rapid advancements in AI and the slow pace of institutional adoption. They argue that institutions must overcome this lag to allow for a more seamless and effective integration of AI into educational practices.

> *organizations should prioritize providing ongoing training and support to faculty members. This includes offering professional development opportunities to help educators understand AI's potential, best practices, and limitations. In addition, deploying resources such as AI infrastructure, tools, and technical support is essential to enable faculty to experiment with and integrate AI into their teaching. This will encourage innovation while ensuring that both faculty and students have access to state-of-the-art AI technologies.*
>
> *Some professors may overuse AI tools in their class and in grading or content generation. That can definitely affect quality and feedback as the critical role of the human (see point made earlier about cognition remaining with the human) is undermined.*
>
> *A significant challenge remains in securing the necessary resources—both financial and technological—to support widespread AI integration. Institutions should allocate sufficient funding to build the necessary infrastructure and provide access to cutting-edge AI tools for faculty and students alike. Additionally, offering support services to train both students and faculty in using these tools effectively will be crucial for the successful adoption of AI in education.*
>
> *One of the main challenges in integrating AI into courses is that the understanding of AI within educational institutions often lags behind the rapid pace of technological development. This creates a gap between the capabilities of AI tools and the readiness of the organization to support their implementation effectively. To address this, institutions need to develop clear and comprehensive guidelines for both instructors and students regarding AI policies. These guidelines should define ethical standards, permissible uses of AI in coursework, and boundaries to prevent misuse, ensuring consistency across the organization.*

As these quotes indicate ethics and systematics challenges are central to both students and professors' use of GENAI tools.

Discussion and Implications

GENAI tools have entered into academic life and they offer significant pedagogical benefits and pose important risks at the same time. Taking advantage of GENAI tools to achieve pedagogical efficiency and creativity is very appealing to the professors. However, achieving efficiency and creativity in teaching with AI tools is a complex endeavor. It requires extensive scaffolding or "pedagogical engineering". The five cases presented in this paper

highlight the role GENAI tools can play in helping professors to become efficient in syllabus, lesson and assignment preparation, and provision of timely and detailed feedback to the students. Similarly, the responses highlight opportunities for increasing student engagement, designing more interactive and authentic assessments. Their responses also highlight the potential risks both for professor and the students. Considering these professors are the first adopters of these tools, many of the pedagogical benefits may not be visible to the professors. Their use of GENAI tools for teaching allowed them to see both the benefits and the risks. While the evidence from these cases is promising, the pedagogical benefits and potential cognitive, privacy and ethical risks need to be empirically validated through large scale studies. The contributors have identified pedagogical potentials, tested some practices, identified potential challenges based on their experiences and future research directions for this fast-developing socio-technological space.

Opportunities for AI Integration in Teaching and Learning

The integration of Generative AI (GENAI) tools in higher education presents several opportunities that enhance teaching efficiency and personalize learning. AI-driven automation allows instructors to streamline essential tasks such as syllabus development, assignment creation, and feedback provision, thereby optimizing instructional time and enabling faculty to focus on higher-order pedagogical strategies (Luckin et al., 2018). Additionally, AI enables personalized learning experiences by adapting content delivery to individual student needs, facilitating differentiated instruction across various disciplines (Chen et al., 2020).

Students also benefit from AI as a tool for brainstorming, research exploration, and interactive learning. AI-powered systems can generate prompts, suggest relevant literature, and provide real-time feedback, fostering intellectual engagement and deeper inquiry (Zawacki-Richter et al., 2019). Furthermore, AI technologies support students with disabilities and language barriers by providing assistive features such as speech-to-text conversion, real-time translation, and adaptive learning pathways, thereby promoting educational equity (Holmes et al., 2021). These innovations suggest that AI has the potential to enhance pedagogical strategies while creating more inclusive learning environments.

Challenges in AI Adoption in Higher Education

Despite these benefits, the adoption of AI tools in academia presents notable challenges. A primary concern among professors is the potential for over-reliance on AI, which could diminish students' critical thinking and problem-solving abilities. As AI-generated responses become more sophisticated, there is a risk that students may substitute algorithmic outputs for original thought, reducing engagement with complex cognitive processes (Selwyn, 2019).

Paulo Freire (1970, 2000) cautioned against the 'banking model' of education, where students passively receive information rather than actively constructing knowledge. The findings from this study suggest that GenAI tools, if not critically engaged with, could reinforce a similar passive dynamic—where students default to AI-generated outputs rather than interrogating or refining them. This shift risks reducing epistemic agency, as students may disengage from the intellectual labor of questioning, synthesizing, and critically evaluating ideas. However, when

designed with intentionality, AI can also be used to *cultivate critical consciousness*—prompting students to challenge biases in AI outputs, recognize the socio-political implications of algorithmic decision-making, and take a more *active role in shaping their learning processes*.

Similarly, Vygotsky's (1978) sociocultural theory posits that learning is most effective when students are supported through scaffolding. AI, when designed thoughtfully, can function as such a scaffold, offering guidance, personalized feedback, and dynamic learning pathways. However, scaffolding is only effective if it is gradually removed, ensuring that students internalize and master the learning process rather than becoming perpetually reliant on external supports.

The findings contribute to a growing body of research that seeks to inform institutional policies, develop actionable frameworks, and empower educators to harness the potential of AI responsibly. This study highlights the immediate benefits of AI adoption, such as enhanced efficiency and accessibility as well as underscores the long-term need for adaptive pedagogy that prepares students for an AI-driven future. By providing evidence-based recommendations and cultivating interdisciplinary dialogue, the research serves as a critical resource for higher education leaders, faculty, and policymakers seeking to navigate the opportunities and challenges of AI integration. Moving forward, we need to understand how to position AI literacy as a core competency while retaining intellectual authority of the professors.

Positioning AI Literacy as a Core Competency in Higher Education

Just as digital literacy became an essential skill in the 21st century, AI literacy must now be viewed as a core competency in higher education (Zawacki-Richter et al., 2019). This study suggests that faculty are uniquely positioned to shape students' AI literacy—not just in terms of usage, but in fostering critical engagement with AI's limitations, biases, and ethical implications. Institutions must support this shift by investing in:

(1) AI literacy training for faculty—ensuring educators can navigate AI affordances while mitigating risks.
(2) Curricular integration of AI ethics and critical evaluation—embedding AI critique into coursework across disciplines.
(3) Assessment redesign that resists over-reliance on AI—e.g., prioritizing process-based assignments over AI-generated outputs

This places the responsibility not just on students, but on faculty and institutions to design AI-enhanced learning environments that cultivate critical, adaptable thinkers. As a way of taking on this responsibility, it is important to understand and reclaim the intellectual authority of professors in these changing times.

AI and the Intellectual Authority of Professors

The integration of AI into higher education presents a *technological shift with deep epistemic implications*, forcing institutions to reconsider the nature of intellectual authority and academic labor. While AI offers undeniable efficiencies, its widespread adoption risks reinforcing *a mechanized approach to knowledge production*, where

automation, predictive analytics, and algorithmic convenience overshadow the iterative human processes of inquiry, debate, and critical engagement. The professor's role must extend beyond incorporating AI into pedagogy; it requires *a deliberate interrogation of its epistemological foundations*. What qualifies as valid knowledge in an AI-mediated classroom? Who defines the boundaries between *augmentation and substitution*? If AI-generated responses shape the intellectual landscape, does the professor become a *curator of algorithmic knowledge rather than its primary interpreter, critic, and co-creator*?

Higher education must resist the assumption that AI functions as a neutral tool and instead recognize it as a *sociotechnical system embedded with biases, assumptions, and ideological frameworks that shape learning, cognition, and academic legitimacy*. Freire (1970) warned against the passive transmission of knowledge in the "banking model" of education, and AI in pedagogy risks fostering a new form of *intellectual automation*—one that encourages students to bypass *the struggle of meaning-making* in favor of AI-generated simplifications. The findings from this study emphasize the *urgency of AI literacy as an essential framework for critical engagement*. Professors must reclaim their role as *curators of disciplinary thought***,** *architects of cognitive rigor, and defenders of intellectual autonomy* in a time increasingly influenced by machine intelligence. Institutions, in turn, must recognize that AI integration demands more than *technical implementation*—it requires a commitment to preserving *the principles that define higher education as an arena for deep thinking, ethical reasoning, and the continuous refinement of human knowledge. Overall, institutions must support their faculty members in leading this paradigm shift in teaching and learning***.**

Conclusion

The adoption of AI in higher education is inevitable, but whether it enhances or diminishes the learning experience depends on how it is integrated. This study highlights that without faculty training, ethical guardrails, and a rethinking of pedagogical design, AI risks undermining critical thinking rather than fostering it. Institutions must act swiftly to provide frameworks that ensure AI serves as an enabler of deep learning rather than a shortcut to superficial knowledge.

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