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FACTORS INFLUENCING EDUCATORS' ADOPTION OF AI IN HIGHER EDUCATIONS

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Abstract:

The rise of Artificial Intelligence (AI) in higher education is significantly altering the ways in which knowledge is delivered, accessed, and assessed. As AI tools become more embedded in academic settings, their acceptance by educators is influenced by several critical factors: pedagogical beliefs, which affect their willingness to embrace AI enhanced teaching methods; self-efficacy, which indicates the confidence and skills necessary for effective AI utilization; and the speed of technological Advancement, which impacts the availability and relevance of AI tools in educational contexts. This research utilized a qualitative case study approach to investigate these factors within specific higher education institutions. The data collection process included the examination and thematic analysis of curriculum design documents, faculty development frameworks, and institutional AI strategy reports. This methodology yielded rich, contextual insights into how educators' perceptions and institutional preparedness affect AI adoption in teaching and learning. The results indicate that the successful integration of AI relies on cultivating positive pedagogical attitudes, improving digital self-efficacy, and aligning institutional strategies with swift technological advancements. Ongoing adaptation and support are essential to ensure that educators are equipped and motivated to integrate AI into pedagogical practices that prepare students for the future.

Keywords:

Pedagogical Beliefs, AI Adoption, High Education, Educators, Artificial Intelligence, Technology Advancement

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Introduction

The advancement of technology has significantly impacted teaching management, educational innovation, and the analysis of learning behaviour s (Nelson et al., 2019). Notably, the progress in speech recognition, natural language processing, and deep learning has heightened educators' interest in artificial intelligence (AI) technologies. Artificial Intelligence (AI) is defined as the use of computers to replicate human cognitive functions, such as thinking, learning, and problem-solving (Hwang, 2003; Nilsson, 2014). These AI technologies are capable of analysing students' learning processes, offering adaptive learning resources, and providing evaluations and recommendations based on individual performance, thereby acting as diagnostic tools for learning (Colchester et al., 2017; Hwang et al., 2011; Timms, 2016).

As AI technologies evolve, they are progressively transforming the role of educators in the learning environment. Teachers can now choose suitable AI tools to oversee students' learning journeys and deliver personalized, timely support (Edwards et al., 2018). Researchers have suggested that creating virtual laboratories, intelligent teaching platforms, or AI-based learning tools can enhance various learning methodologies, offering personalized guidance, prompts, and feedback, while also aiding students in developing higher-order thinking skills (Hwang, 2014; Lin et al., 2018; McArthur et al., 2005). Furthermore, the rise of communication and computing technologies has made Artificial Intelligence in Education (AIEd) a critical topic within the educational landscape (Hwang et al., 2020c; Chen et al., 2020b).

From the viewpoint of precision education, artificial intelligence (AI) technologies have the potential to analyse and forecast students' academic performance. Intelligent tutoring systems (ITSs) can offer tailored instruction and support by assessing learners' progress and behaviours, diagnosing their learning conditions, and providing automated feedback, thereby aiding teachers in evaluating instructional effectiveness (Chen et al., 2020a; Hwang et al., 2020c; Hwang et al., 2014; Lin et al., 2021). The field of Artificial Intelligence in Education (AIEd) is heavily reliant on technology and spans multiple disciplines. Despite the integration of AI technologies into educational settings, challenges persist in their application for teaching.

For instance, researchers may struggle to effectively implement AI in education tools and activities if they lack a comprehensive understanding of AI's role in education and the specific functions of these technologies (Hwang et al., 2020a). Furthermore, educators who grasp the capabilities and characteristics of AI technologies can select appropriate AI applications for their classrooms, thereby enhancing students' motivation, engagement, and academic success (Chen et al., 2020a; Hwang et al., 2020c; Hwang et al., 2021). In this context, it is essential to comprehend teachers' perspectives on the use of AI in education, including their attitudes and intentions regarding its application, as their acceptance or resistance will significantly influence the integration of AI into the teaching process (Popenici & Kerr, 2017).

While recent studies, such as those by Guillén-Gámez et al. (2023), have investigated the factors that affect the incorporation of technological tools in academics, the specific application of AI tools in academics has not been thoroughly examined. This lack of empirical investigation highlights a significant gap that warrants attention. It is crucial to comprehend the distinct challenges and incentives that influence educators' adoption of AI tools for academic purposes, as this understanding can guide institutional policies and foster environments conducive to integration. By addressing elements such as pedagogical beliefs,

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self-efficacy, and advancements in technology, universities can improve research output, fully utilize the capabilities of AI, and enhance the quality and efficiency of academic research in an increasingly competitive academic environment.

The current research, entitled Factors Influencing Educators Adoption of AI in Higher Education examines the primary elements that impact educators' willingness to accept and utilize AI tools in their scholarly activities. This study emphasizes three fundamental factors is pedagogical beliefs, self-efficacy, and technological progress to explore how these aspects influence educators' choices regarding the adoption and integration of AI technologies into their academic research methodologies

Literature Review

Artificial Intelligence in Higher Educations

Advancements in computer technology have facilitated the creation of intelligent systems that closely replicate human reasoning, decision-making, and problem solving abilities. Artificial Intelligence (AI), commonly known as machine intelligence or computational intelligence, seeks to emulate human cognitive functions. It is characterized as a computer-controlled system that possesses the ability to learn, reason, and self-correct (Chen et al., 2020b; Hwang, 2003; Nilsson, 2014; Shi & Zheng, 2006). In recent decades, AI has found successful applications in various fields, such as chess, speech recognition, poetry creation, intelligent personal assistants (IPAs), and medical diagnostics (Aibinu et al., 2012; Hwang et al., 2020c; Russell & Norvig, 2003).

In the realm of education, AI in Education (AIEd) has emerged as a ground-breaking sector within educational technology. By utilizing mobile and adaptive technologies, AIEd removes barriers related to time and location, allowing learners to access resources and engage in practice at their convenience. AI-enhanced learning systems offer personalized assistance by adjusting to the specific context and requirements of each learner (Hung et al., 2014; Liu et al., 2019). A review conducted by Zawacki-Richter et al. (2019) identified four primary areas of application for AIEd: profiling and prediction, assessment and evaluation, adaptive systems and professionalization, and intelligent tutoring systems (ITSs). These systems tailor content according to the characteristics and progress of learners, providing timely support to improve educational outcomes (Chen et al., 2020a; Huang & Chen, 2016; Hwang, 2003; Van Seters et al., 2012). Additionally, adaptive and intelligent web-based learning environments can respond to both cognitive and emotional states of learners, enhancing performance, especially among those who are lower-achieving (Hwang et al., 2020b). With the incorporation of big data analytic, researchers are also creating user learning models that utilize extensive data from educational settings (e.g., Rau et al., 2017).

Pedagogy Beliefs

Pedagogical beliefs significantly influence how teachers utilize technology in their classrooms. These beliefs can act as both facilitators and obstacles to the effective integration of technology. Ertmer (2005) identified these beliefs as second-order barriers or enablers in the context of technology integration. In contrast, first-order barriers refer to external challenges such as limited access to necessary infrastructure and software, a lack of time for instructional planning, and insufficient technical and administrative support. Second-order barriers, on the other hand, are internal to the educator and encompass factors such as their beliefs about

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teaching and learning, their attitudes towards information and communication technology (ICT), and their willingness to embrace change.

Simultaneously, the evidence indicates that the utilization of technology can result in the formation of new, restructured, or reinforced beliefs (Tondeur et al. 2017). The connection between pedagogical beliefs and technology usage appears to be reciprocal. Generally, research suggests that educators who embrace more constructive beliefs are more likely to be active users of technology (Ertmer 1999). Furthermore, they tend to employ technology in ways that are more centred on student engagement. For instance, teachers with constructive beliefs have been noted to utilize

Technology as a tool for information management (such as retrieving, selecting, and presenting informal Pedagogical beliefs significantly influence how teachers utilize technology in their classrooms. These beliefs can act as both facilitators and obstacles to the effective integration of technology. Ertmer (2005) identified these beliefs as second-order barriers or enablers in the context of technology integration. In contrast, first-order barriers refer to external challenges such as limited access to necessary infrastructure and software, a lack of time for instructional planning, and insufficient technical and administrative support. Second-order barriers, on the other hand, are internal to the educator and encompass factors such as their beliefs about teaching and learning, their attitudes towards information and communication technology (ICT), and their willingness to embrace change.

Thus, it can be concluded that educators are likely to adopt computer practices that align with their teaching beliefs. On and as a means to foster students' development of higher-order thinking and problem solving abilities. Specifically, these educators leverage technology to enhance students' ability to apply knowledge and skills for analysis, reasoning, and effective communication as they identify, address, and interpret problems across various contexts. In contrast, teachers with more traditional, teacher cantered beliefs are significantly more inclined to use information and communication technology (ICT) as a learning tool rather than as an information tool, where the focus is on independent interaction between students and the subject matter. When ICT is employed for research and information processing, students are afforded greater autonomy compared to when it is used for online drill and practice activities (learning tool). Thus, it can be concluded that educators are likely to adopt computer practices that align with their teaching beliefs.

Self -Efficacy

In the realm of information technology, self-efficacy (SE) is frequently characterized as an individual's confidence in their ability to utilize technology effectively to accomplish specific tasks (Compeau & Higgins, 1995; Teo, 2019). Research has shown that SE not only has a direct Impact on users' perceived usefulness of technology but also influences their attitudes toward adopting it (Motaghian et al., 2013; Teo & Zhou, 2014; Yeşilyurt et al., 2016). For educators, SE is defined as their confidence in their skills, which can enhance student learning and is crucial for the successful integration of technology in teaching (van Dinther et al., 2013). Studies have demonstrated that teachers with higher levels of SE are more likely to effectively incorporate technology into their instructional practices (Bai et al., 2019). For instance, during flipped classroom activities, university instructors' SE significantly affects their attitudes toward technology use (Lai et al., 2018). The aforementioned research highlights that teachers' SE regarding technology reflects their belief in its application in teaching, which in turn

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influences their perceived ease of use and overall attitude (Teo & Zhou, 2014; Yeşilyurt et al., 2016).

Technology Advancement

Advancements in technology are significantly transforming the teaching and learning environment in higher education through the implementation of AI-driven platforms and digital resources. As highlighted by (Bozhko et al.2016,) it is crucial for educators to adopt digital tools that are in line with modern educational standards and methodologies. AI technologies are increasingly vital in facilitating these advancements by providing adaptive learning experiences, personalized feedback, and automated assessments.

The incorporation of AI-based educational tools brings forth new responsibilities for teachers, compelling them to develop more flexible, interactive, and collaborative learning settings. This evolution promotes greater student autonomy while fostering teamwork and ongoing feedback. As AI becomes more integrated into higher education, the importance of digital literacy and technological competence rises for educators, who must not only adeptly utilize these tools but also assist students in mastering them.

Methodology

Research Design

This research employs a qualitative case study methodology to investigate the elements that affect educators' integration of Artificial Intelligence (AI) within higher education. The case study approach is suitable for producing a comprehensive, contextual insight into intricate phenomena, especially when the study emphasizes processes, beliefs, and institutional practices in actual environments.

Site and Participant Selection

The case study was carried out at specific higher education institutions recognized for their involvement in AI-related initiatives. The selection of these institutions was made through purposive sampling, relying on the accessibility of public documents, including curriculum outlines, faculty development programs, and strategic planning documents pertinent to AI adoption. Although no human interviews were performed, the study concentrated on insights derived from documents that represent both institutional and educator-level perspectives.

Purposive sampling was employed to choose higher education institutions recognized for having implemented or planned AI related educational initiatives. This approach is particularly advantageous for exploratory qualitative studies aimed at obtaining profound insights into a specific issue rather than generalizing to a wider population.

In contrast to conventional case sampling, which emphasizes average or representative cases, purposive sampling enables the researcher to deliberately select information-rich cases that are most pertinent to the research questions. It also provides greater flexibility to incorporate institutions with varied AI strategies, thus enhancing the contextual depth and thematic richness of the analysis.

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This methodology guarantees that the selected cases can shed light on critical factors such as pedagogical beliefs, self-efficacy, and institutional readiness that directly affect the integration of AI in teaching and learning.

Data Collection Procedure

Data were gathered from three main sources:

i) Curriculum Design Documents – to analyse the incorporation of AI-related elements in educational plans.

ii) Faculty Development Plans – to evaluate how institutions equip educators for the utilization of AI.

iii) Institutional AI Strategy Reports – to comprehend long-term objectives, policies, and pathways for technological adoption.

All documents were sourced from official university websites, internal academic publications, and policy archives. The documents were examined to extract narrative and policy-related information pertinent to pedagogical beliefs, self-efficacy, and technological progress.

Analytic Framework

The collected documents were analysed using thematic content analysis. A coding framework Was established, focusing on three key factors.

Main Themes	Sub-Themes	Sample Evidence	Data Resources	Analytic Purpose
1.Pedagogy Beliefs	a)Teaching Philosophy (Constructive vs. Traditional) -Willingness to embrace technology-driven instruction - Compatibility of AI with educational methods	-"AI enhances my student-focused teaching approach." -"Automation is not compatible with my instructional style"	-Curriculum frameworks, Statements of teaching philosophy, Course development documents	-Comprehend the role of value-based education in the adoption of AI.
2.Self-Efficacy	b)Confidence in Digital Skills - Participation in faculty training programs - Perception of technological complexity	-"I feel uncertain about utilizing AI tools." -"Workshops have increased my confidence in using AI."	-Faculty enhancement plans, Educational resources, Digital competency assessments	-Examine the influence of educator preparedness and training on the adoption process.

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	- Familiarity with educational technology			
3.Technology Advancement	c)Access to AI Platforms - Availability of infrastructure and digital resources - Support systems from IT departments - Institutional commitment to investment	"The university offers access to an AI lab." "There is no technical assistance available for AI platforms."	-Artificial Intelligence strategy papers, Information Technology investment analyses, Institutional regulations, Technology audit summaries	-Analyse the effect of institutional resources and frameworks on the integration of AI.

Figure 1.0 shows the Thematic Analysis for this Case Study

Ethical Considerations

This research entailed the gathering and examination of institutional documents, including curriculum frameworks, faculty development strategies, and digital strategy reports. All documents were either publicly accessible or obtained with official consent from the respective institutions. To ensure confidentiality, the identities of the institutions and individuals referenced in internal documents have been anonymize. The data collected were utilized solely for academic research and were stored in a secure manner. Since the study did not engage directly with human participants, ethical approval was not necessary; nonetheless, the research adhered rigorously to institutional guidelines regarding responsible research practices.

Findings

Pedagogical Beliefs and Teaching Approaches

I) Institution A prioritized inquiry-based, student-centred learning in its curriculum documents, integrating AI for formative assessments and adaptive learning pathways. Educators were encouraged to utilize AI-driven tools to foster exploration, including AI simulations and personalized feedback systems.

AI tools are essential for facilitating self-paced inquiry and knowledge discovery,' (Curriculum Framework, Institution A)

ii)In contrast, Institution B's course syllabus and policy documents indicated a teacher-centred approach with limited references to AI or digital professionalization, favouring lecture based instruction and standardized assessments

'Although digital tools are accessible, the focus remains on traditional face-to-face teaching,' (Faculty Handbook, Institution B).

iii) Meanwhile, Institution C adopted a transitional model, with some departments investigating blended learning and AI-enhanced platforms, while others continued with traditional methods.

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Supportive language regarding innovation was evident, but the implementation varied across faculty.
'Innovative teaching strategies, such as AI-driven modules, are being tested in certain departments,' (Teaching and Learning Strategy, Institution C).

Overall, constructive pedagogical beliefs at Institution A were more closely aligned with AI integration compared to the traditionalist perspectives at Institution B, while the mixed approaches at Institution C resulted in inconsistent adoption.

Self Efficacy and Digital Readiness
I)Institution A demonstrated a commitment to faculty development through comprehensive training in AI ethics, prompt engineering, and adaptive platform design, integrating AI usage into performance evaluations and innovation grants.
*Staff training initiatives included AI boot camps and practical simulations to enhance digital fluency, as noted in the (Staff Develop*ment *Plan of Institution A)*

ii) Institution B lacked formal AI training programs, with faculty expressing concerns in internal communications about their insufficient digital skills and support.
Feedback from faculty indicated a keen interest in AI, yet a significant gap in their understanding of its effective application, as highlighted in the (Internal Faculty Feedback Report of Institution B).

iii) Institution C offered general digital workshops, such as those on LMS usage and cloud computing, but these did not focus specifically on AI. While faculty showed considerable interest in AI, their confidence in utilizing AI tools for research or teaching remained low.
The Tech Skills Audit Report from Institution C noted that although basic digital tool workshops were available, there was a clear demand for AI-specific training)

Overall, the interpretation suggests that high digital self-efficacy, bolstered by targeted training at Institution A, facilitated proactive AI adoption, whereas low self-efficacy at Institution B and non-specific digital skill development at Institution C hindered AI engagement.

Technology Advancement and Institutional Support
i) Institution A has developed a detailed AI strategy document that emphasizes investments in infrastructure, such as AI laboratories, licenses for adaptive learning platforms, and cloud-based research tools.
The university has pledged to transform into an AI-enhanced campus by 2025, as stated in the AI Strategy White Paper from Institution A.

ii) In contrast, Institution B showed minimal references to AI tools or infrastructure, with most of its digital systems being outdated and lacking the capacity for AI-enhanced learning.
*The IT Infrastructure Report from Institution B notes that the current systems do not support AI functionalitie*s.

iii) Meanwhile, Institution C has made moderate investments in AI-ready learning management systems; however, usage reports reveal that these tools are underutilized due to insufficient faculty awareness and training.

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The Technology Utilization Review from Institution C indicates that while tools are available, adoption rates are low because of the absence of a structured implementation plan.

Overall, the degree of technological advancement and readiness has significantly impacted the adoption of AI. Institution A's proactive investment and strategic planning have resulted in effective integration, whereas Institution C possesses the necessary tools but lacks effective adoption strategies, and Institution B is deficient in both areas.

Factor	Institution A	Institution B	Institution c
Pedagogy Beliefs	-A solid constructive framework; artificial intelligence perceived as a facilitator of education.	-Conventional educational philosophy perceives AI as superfluous	-Diverse perspectives exist; there is some innovation, yet the implementation is inconsistent.
Self-Efficacy	-High assurance stemming from comprehensive AI training initiatives.	-There is a lack of confidence due to the absence of formal digital training	-Confidence levels are moderate; training is offered, although it is not specifically focused on AI.
Technology Advancement	-AI laboratories, cloud-based resources, and adaptive systems; a well-defined strategic plan.	-Infrastructure is limited and systems are outdated	-While tools are sufficient, communication is lacking and utilization remains low.

Figure 2.0 Shows the Comparison of Institution Using the Factors for the Academic

This comparative analysis determines that the effective implementation of AI tools by educators in higher education is greatly affected by the congruence of constructive pedagogical beliefs, AI-related digital self-efficacy, and the availability of strong technological infrastructure along with institutional support. Without these interrelated elements, efforts to adopt such tools frequently fall short, are inconsistent, and fail to achieve significant integration.

Discussions

This research aimed to investigate the elements that Factors that Influence educators in Adoption of Artificial Intelligence (AI) tools in higher education employing a case study methodology centred on pedagogical beliefs, self-efficacy, and technological progress. The results suggest that the effective incorporation of AI tools is influenced not by a solitary factor, but by the convergence of teaching philosophy, digital competence, and the preparedness of the institution.

Pedagogical Beliefs and Barrier

This discovery aligns with Young (2025), who underscored that the decisions made by leadership and faculty concerning the adoption of AI are significantly shaped by their foundational pedagogical philosophies. Educators who perceive AI as a tool for enhancing interactivity and student engagement are more inclined to incorporate it into their teaching methodologies. Furthermore, Young pointed out that educators who are hesitant to embrace AI

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frequently link it to the depersonalization of education, indicating a conflict with their educational values.

Self - Efficacy and Digital Confidence

This is in strong agreement with the work of Soontornnon et al. (2025), who utilized Bandura's self-efficacy theory to explore the use of ChatGPT among Thai undergraduates. While their research concentrated on students, the same concept is relevant for educator's individuals with greater digital self-efficacy exhibited enhanced motivation and a more favorable attitude towards AI. Your results further demonstrate that educators' perceptions of their skills and their comfort levels are crucial for the integration of AI in the classroom.

Technology Advancement and Institutional Support

This aligns with the observations made by García del Castillo-López (2025), who emphasizes that swift digital advancements demand ongoing institutional backing and proactive adjustments. While the emphasis is on psychosocial behaviours, the study highlights that the readiness for technological transformation must be supported by both infrastructure and strategic coherence. Your results further confirm that the rapid evolution of technology necessitates not just tools, but also a state of preparedness, an appropriate mind-set, and policy frameworks to facilitate sustainable adoption.

In order to enhance the validity and contextual significance of the findings, this study correlates its themes with existing academic literature. The impact of pedagogical beliefs on the adoption of AI is in agreement with Young (2025), who noted that educators' teaching philosophies greatly influence their readiness to incorporate AI tools into curriculum delivery. Likewise, the significance of digital self-efficacy corroborates the results of Soontornnon et al. (2025), who discovered that both students' and educators' confidence in utilizing AI boosts motivation and engagement within learning environments. Additionally, the role of technological progress is consistent with the observations of García del Castillo-López (2025), who highlighted that institutional preparedness must advance alongside technological changes to facilitate meaningful digital transformation. By situating the findings within these established studies, the research strengthens its contribution to the wider conversation regarding AI adoption in higher education.

Conclusion

This research examined the Factors that Influence educators in Adoption of Artificial Intelligence (AI) tools in higher education using a qualitative case study methodology. By analysing institutional documents and policies from various universities, the results indicated that the adoption of AI is influenced by three interconnected factors: educators' pedagogical beliefs, their self-efficacy, and technology advancement within their institutions. Pedagogical beliefs played a crucial role in determining whether educators perceived AI as a complement to or a conflict with their teaching methods. Self-efficacy, particularly regarding digital confidence and previous experience with AI tools, emerged as a significant factor in readiness for adoption. Technological aspects, such as the availability of infrastructure, institutional backing, and the clarity of digital strategies, were identified as either enabling or obstructing effective integration. Collectively, these insights imply that the adoption of AI is a multifaceted and context-sensitive process that cannot be simplified to individual characteristics but should be understood through the intricate relationship between belief systems, skills, and institutional contexts.

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The findings of this study provide valuable insights for both AI tool developers and higher education institutions (HEIs) focused on facilitating effective AI integration among educators. From a technological perspective, it is crucial for developers to create AI tools that seamlessly integrate with existing platforms used by educators, such as Learning Management Systems (LMS) and Microsoft Word, as this minimizes cognitive and technical challenges while improving overall usability. User friendly interfaces, straightforward navigation, and comprehensive tutorials are especially advantageous for educators with diverse levels of technical proficiency, particularly those who are new to AI.

Regarding self-efficacy, HEIs should emphasize the importance of enhancing educators' digital confidence through specialized training, continuous support, and accessible learning opportunities, including workshops and online courses offered through platforms like Coursera or edX, to empower effective utilization of AI in research, writing, and data analysis. Strengthening self-efficacy promotes independence, innovation, and deeper engagement with AI tools. From a pedagogical standpoint, it is essential that AI tools are in harmony with educators' instructional values and bolster their teaching philosophies. Training should encompass not only technical competencies but also illustrate how AI can enhance learner-centred, research-informed practices. When educators perceive AI as a complementary tool rather than a disruptive force to their pedagogical objectives, its adoption becomes more intentional, impact, and sustainable.

This research, which examined the Factors that Influence educators in Adoption of Artificial Intelligence (AI) tools in higher education specifically pedagogical beliefs, self-efficacy, and technological progress has several limitations that warrant attention. The case studies utilized a purposive sample of institutions, which may not adequately reflect the wider diversity of higher education settings, potentially constraining the generalization of the results. Therefore, future investigations should encompass a broader range of institutional types and contexts to improve external validity. Moreover, the study's cross-sectional design captures merely a single moment in time, while the adoption of AI tools, particularly in relation to evolving pedagogical beliefs and shifts in educators' digital confidence, is inherently fluid. Longitudinal studies would be more appropriate for comprehending these changes over time. Additionally, this study depended on document analysis, which, although useful for institutional insights, may not fully represent educators' personal experiences and interpretations.

Future research should integrate qualitative approaches such as interviews or focus groups to enrich understanding. Lastly, broadening the scope to include other significant stakeholders such as institutional leaders, policymakers, and digital learning coordinators would offer a more holistic perspective on the systemic factors affecting AI integration, including the alignment of institutional strategies with teaching philosophies and the provision of adequate technological support.

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References

Bai, B., Wang, J., & Chai, C. S. (2019). Understanding Hong Kong primary school English teachers' continuance intention to teach with ICT. Computer Assisted Language Learning, 1–23.

Bozhko, Y. V., Maksimkin, A. I., Baryshev, G. K., Voronin, A. I., & Kondratyeva, A. S. (2016). Digital transformation as the key to synthesis of educational and innovation process in the research university. In Proceedings of the International Conference on Digital Transformation and Global Society (pp. 386–391). St. Petersburg, Russia.

Chen, X., Xie, H., & Hwang, G. J. (2020a). A multi-perspective study on artificial intelligence in education: Grants, conferences, journals, software tools, institutions, and researchers. Computers and Education: Artificial Intelligence, 1, 100005. https://doi.org/10.1016/j.caeai.2020.100005

Chen, X., Xie, H., Zou, D., & Hwang, G. J. (2020b). Application and theory gaps during the rise of artificial intelligence in education. Computers and Education: Artificial Intelligence, 1, 100002. https://doi.org/10.1016/j.caeai.2020.100002

Colchester, K., Hagras, H., Alghazzawi, D., & Aldabbagh, G. (2017). A survey of artificial intelligence techniques employed for adaptive educational systems within e-learning platforms. Journal of Artificial Intelligence and Soft Computing Research, 7(1), 47–64.

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. MIS Quarterly, 19(2), 189–211.

Edwards, C., Edwards, A., Spence, P. R., & Lin, X. (2018). I, teacher: Using artificial intelligence (AI) and social robots in communication and instruction. Communication Education, 67(4), 473–480.

Ertmer, P. A. (1999). Addressing first-and second-order barriers to change: Strategies for technology integration. Educational Technology Research and Development, 47(4), 47–61.

Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? Educational Technology Research and Development, 53(4), 25–39.

Guillén-Gámez, F. D., Ruiz-Palmero, J., & García, M. G. (2023). Digital competence of teachers in the use of ICT for research work: Development of an instrument from a PLS-SEM approach. Education and Information Technologies, 28(12), 16509–16529. https://doi.org/10.1007/s10639-023-11895-2

Hwang, G. J. (2003). A conceptual map model for developing intelligent tutoring systems. Computers & Education, 40(3), 217–235.

Hwang, G. J., Chen, C. Y., Tsai, P. S., & Tsai, C. C. (2011). An expert system for improving web-based problem-solving ability of students. Expert Systems with Applications, 38(7), 8664–8672.

Hwang, G. J., Hung, P. H., Chen, N. S., & Liu, G. Z. (2014). Mindtool-assisted in-field learning (MAIL): An advanced ubiquitous learning project in Taiwan. Journal of Educational Technology & Society, 17(2), 4–16.

Hwang, G. J., Li, K. C., & Lai, C. L. (2020a). Trends and strategies for conducting effective STEM research and applications: A mobile and ubiquitous learning perspective. International Journal of Mobile Learning and Organisation, 14(2), 161–183.

Hwang, G. J., Xie, H., Wah, B. W., & Gašević, D. (2020c). Vision, challenges, roles and research issues of artificial intelligence in education. Computers & Education: Artificial Intelligence, 1, 100001. https://doi.org/10.1016/j.caeai.2020.100001