Research in Engineering Education Symposium (REES)
Regional Conference in Engineering Education (RCEE) &
Research in Higher Education (RHEd)
September 29 – October 3, 2025
Johor, Malaysia

Global Insights on AI Adoption in Higher Education: A Systematic Review of Educator Acceptance

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ABSTRACT

BACKGROUND & CONTEXT

Artificial Intelligence (AI) is reshaping global landscape, including higher education, by introducing transformative capabilities. While AI has the potential to enhance teaching and learning, higher education faculty facing challenges in its adoption due to the need to integrate diverse AI techniques with complex educational demands. To better understand this dynamic, this study conducts systematic review from 2014 to 2024 using the Preferred Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, though most relevant studies emerged only from 2023 onward, reflecting the field's recent growth.

PURPOSE OR GOAL

This study aims to examine the factors influencing AI adoption in higher education, identifying key drivers, barrier and trends in higher education.

APPROACH OR METHODOLOGY

This study employs a Systematic Literature Review (SLR) to analyse AI adoption in higher education from 2014 to 2024, guided by the PRISMA framework. Studies were sourced from Web of Science, ScienceDirect, Scopus, and IEEE due to extensive coverage of high-quality, peer-reviewed literature across disciplines relevant to AI and education, ensuring a comprehensive and multidisciplinary perspective. Inclusion and exclusion criteria filtered studies providing insights into educators' adoption of AI in teaching and learning.

OUTCOMES

The selected studies were analysed to identify key patterns in AI adoption and its impact on higher education. Analysis revealed themes such as support, attitude, training gaps, ethics, and regional differences, highlighting key drivers and barriers in AI adoption.

CONCLUSIONS

This study highlights insights into AI adoption in higher education, emphasizing its potential to enhance teaching efficiency and educational quality. Strategic AI integration can foster a dynamic, adaptable learning environment and contributing to evolution of higher education.

KEYWORDS

Artificial Intelligence, AI Adoption, Higher Education, Educator Acceptance.

https://doi.org/10.52202/086293-0084

Introduction

Higher education is one of the many industries around the world where artificial intelligence (AI) is rapidly changing. AI offers significant opportunities to improve teaching, learning, and institutional operations by bringing intelligent systems that can automate tasks, customize learning experiences, and support data-driven decision-making. But even with its bright future, AI adoption in higher education is still uneven. Integrating a variety of AI technologies with the intricate pedagogical, ethical, and administrative requirements of higher education settings presents substantial challenges for academic institutions and faculty. Concerns related to data privacy, ethical implications, skill gaps, and institutional support contribute to the slow uptake of AI tools in academic settings (Al-Abdullatif, 2024a; Gârdan et al., 2025). Understanding the underlying factors that drive or hinder AI adoption is therefore critical for informing policy, practice, and future research.

The successful adoption of AI not only requires technological readiness but also depends on the acceptance and active engagement of educators. Specifically, the study seeks to address the following research questions: (1) What are the factors influencing and key driver of AI adoption in higher education? (2) What are the key barriers in AI adoption in higher education? and (3) How is research on AI adoption in higher education distributed across different geographical regions and academic disciplines?

In response to this need, a comprehensive analysis of AI adoption in higher education, with a particular emphasis on educator acceptance. The central aim is to investigate the role of AI in transforming academic environments and to examine the factors influencing educators' willingness to adopt and integrate AI technologies into teaching and institutional practices. This is achieved by employing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach as a structural framework to execute a comprehensive literature review. Employing PRISMA ensures a comprehensive and replicable process for the identification, selection, and evaluation of relevant scholarly sources, thereby enhancing the credibility and robustness of the review. With this approach, the study synthesizes current evidence on the adoption of AI in higher education and provides critical insights into the challenges and drivers associated with educator acceptance. This study also explores the adoption of AI in higher education, which focuses specifically on educators' acceptance, an angle previously underexplored in literature that typically prioritizes student experiences (Cambra-Fierro et al., 2024).

Background

The integration of Artificial Intelligence (AI) in higher education has rapidly gained global attention, offering transformative possibilities for teaching, learning, and institutional operations. AI technologies can personalize student learning, support instructional design, automate assessments, and enhance administrative efficiency. However, despite its growing capabilities, the adoption of AI among educators remains uneven (Al-Abdullatif, 2024). Educators face various challenges such as ethical concerns, lack of training, institutional readiness, and uncertainty about the pedagogical value of AI. Understanding the conditions that influence AI adoption in higher education is essential to support informed policy decisions and encourage responsible, effective integration across diverse academic environments.

To address this need, the present study conducts a Systematic Literature Review (SLR) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework. This methodological approach enables a transparent, replicable, and comprehensive review of existing research on educators' acceptance toward AI adoption from 2014 to 2024. The PRISMA framework ensures methodological rigor in the identification, screening, and inclusion of relevant literature. By synthesizing findings across geographic and disciplinary contexts, the review aims to identify common drivers, barriers, and trends that shape AI adoption in higher education, and to highlight areas where further research is needed.

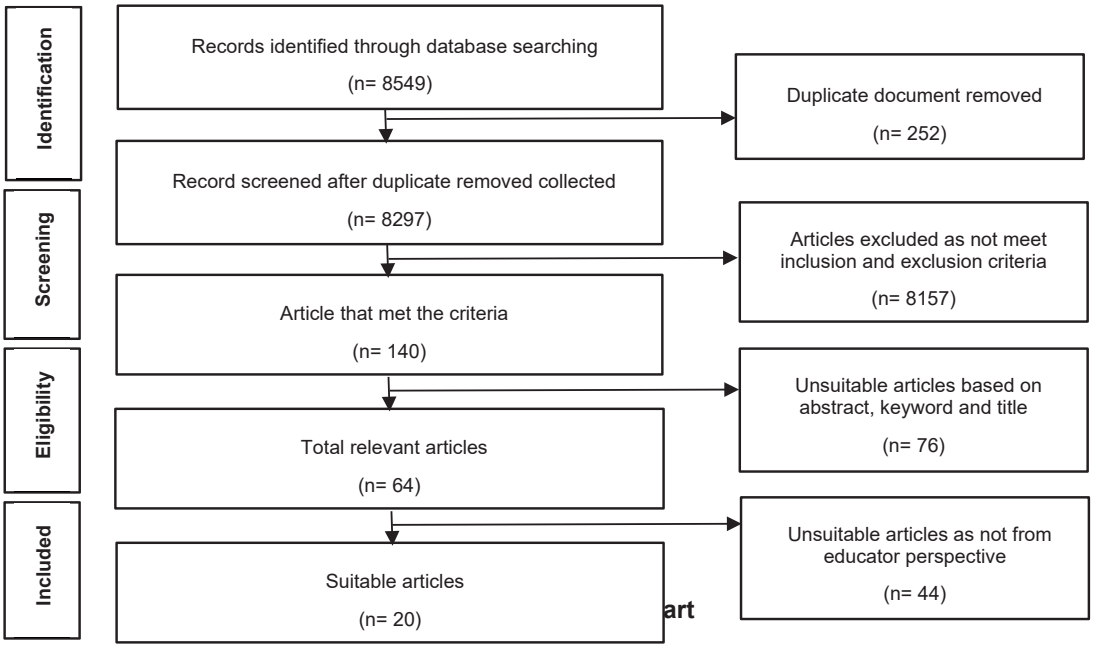
Methodology

This section outlines the methodological process used in this study, which included three main parts: the search strategy, data collection, and inclusion and exclusion criteria.

Search Strategy

This study employs the Systematic Literature Review (SLR) methodology to investigate the adoption of AI in higher education, with a particular emphasis on educator acceptance. As a fundamental component of scholarly research, a literature review must be conducted with rigor to ensure its credibility, transparency, and reproducibility (Nikolic et al., 2024). Finding prevailing trends, identifying gaps, and guiding future research directions in this field require a careful and methodical examination of the peer-reviewed literature. In this regard, the SLR is a useful instrument for combining the most recent study employs the SLR methodology to investigate the adoption of AI in higher education, with a particular emphasis on educators' acceptance, offering a crucial basis for creating adoption strategies that are more successful.

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) framework is used to find, filter if referred for the SLR flow, which identifies educator across the globe insight towards AI adoption in Higher Education level. In this study, a total of 8549 documents were published between 2014 to 2024 based on extensive search results retrieved from four database; Scopus, ScienceDirect, IEEE and Web of Science. These result, covering a wide spectrum of research, were subjected to refined evaluation procedure of PRISMA. This systematic approach ensures methodological robustness and completeness of the studies, thereby facilitating the extraction of the critical insight and evidence-based conclusions for ongoing and future research insight. Figure 1 illustrates the PRISMA flowchart documenting the identification, screening, and inclusion process.



This study employs the SLR methodology to investigate the adoption of AI in higher education, with a particular emphasis on educator acceptance in line with the three core research questions. Specifically, the review seeks to identify the key drivers and influencing factors behind AI adoption (RQ1), examine the primary barriers limiting its adoption (RQ2), and analyze how AI adoption research is distributed geographically and across academic disciplines (RQ3).

https://doi.org/10.52202/086293-0084

Data Collection

To ensure a comprehensive and refined review of the literature, data for this study were collected from four major academic databases: Scopus, IEEE Xplore, Web of Science, and ScienceDirect. These databases were selected for their extensive coverage of high-quality, peer-reviewed publications across disciplines relevant to AI and higher education. The use of multiple databases helped to minimize publication bias and enhance the breadth and reliability of the collected data (Elsevier, 2025; IEEE, 2025; Thomson Reuters, 2025; ScienceDirect, 2025). Broader sources such as Google Scholar and ERIC were excluded to avoid overlap, inconsistent indexing, and potential inclusion of non-peer-reviewed materials, which might compromise methodological rigor. The search strategy was designed to identify studies that explicitly focus on the adoption of AI in higher education, with particular attention to higher educator acceptance, institutional implementation, and pedagogical integration. To refine the search and ensure relevance, specific keywords were applied to the title, abstract, and author-defined keywords fields. A standardized search string was employed across all databases, adapted as needed to match each platform's syntax. The core search terms included: “artificial intelligence” AND “global insight” AND “adoption” AND “higher education”. These broad terms were used to capture studies across multiple disciplines. While this produced a large pool of results, the screening process filtered out irrelevant papers to retain only the most specific and relevant studies. This targeted query allowed for the retrieval of literature addressing the core themes of the study. The search was limited to English-language publications published between 2014 and 2024 to reflect contemporary developments in AI technologies and their relevance to current higher education practices. Following the initial search, duplicate entries were removed, and the remaining records were screened based on predefined inclusion and exclusion criteria. Studies that did not focus on AI adoption in higher education or lacked empirical or theoretical relevance were excluded from the final analysis.

Inclusion and Exclusion Criteria for Selection of Publication

In this stage, a refined process of inclusion and exclusion was carried out to ensure the quality of the research. This thorough method was employed to obtain the most relevant and reliable data, which would help in deriving the necessary results to address the research questions. Additionally, to strengthen the robustness of our findings, a comprehensive set of reliable indicators was established, further enhancing the overall integrity of the research. Research articles published from 2014 to 2024 that related to artificial intelligence (AI) in higher education field are included in this study. Articles that available via Scopus, IEEE Xplore, Web of Science, or ScienceDirect which published in English language and openly accessible as well as full version can be downloaded is also an inclusion for this study. This study also limited to publication in peer-reviewed scientific journals which manuscript finding in books, paper, theses, dissertation and conference articles were not considered.

Although the review covered the period 2014 until 2024, earlier studies (2014–2020) were excluded as they either focused on general ICT integration, student adoption, or lacked direct relevance to educators’ acceptance of AI. As a result, the final set reflects the more recent surge of research interest from 2023 onward. A total of 8,549 documents were identified using the PRISMA framework, with 252 duplicates removed, leaving 8,297 documents in total. 8,157 of the documents were excluded for not meeting the inclusion and exclusion criteria. An additional 76 were found unsuitable based on their abstracts, keywords, and titles. Further in-depth analysis, aligned with the objectives of this study, resulted in 20 final articles. While all included studies were peer-reviewed journal articles, their methodological rigor varied. Some employed validated models and large datasets, while others relied on exploratory or small-scale case studies. This variation should be considered when interpreting the consistency of

findings. These were included after a refined selection process. Table 1 presents the 20 selected articles for analysis along with their titles and publication years.

Table 1: 20 Selected Articles from the Database

Title of Publication	Year
The Influence of Social Support Theory on AI Acceptance: Examining Educational Support and Perceived Usefulness Using SEM Analysis	2025
ChatGPT adoption and its influence on faculty well-being: An Empirical Research in higher education	2025
Revolutionizing education: Artificial intelligence empowered learning in higher education	2024
Acceptance and use of ChatGPT in the academic community	2024
University Teachers' Views on the Adoption and Integration of Generative AI Tools for Student Assessment in Higher Education	2024
Acceptance of Educational Artificial Intelligence by Teachers and Its Relationship with Some Variables and Pedagogical Beliefs	2024
Modeling Teachers' Acceptance of Generative Artificial Intelligence Use in Higher Education: The Role of AI Literacy, Intelligent TPACK, and Perceived Trust	2024
Investigating the adoption of AI in higher education: a study of public universities in Indonesia	2024
An exploratory study of artificial intelligence adoption in higher education	2024
ChatGPT in Education - Understanding the Bahraini Academics Perspective	2024
Attitudes of faculty members in Palestinian universities toward employing artificial intelligence applications in higher education: opportunities and challenges	2024
Obstacles to the Use of AI Applications in Blackboard for Faculty Members at Northern Border University, Saudi Arabia	2024
Demystifying Lesotho, Rwandan and Nigerian educators' viewpoints on smart technologies supporting AI in higher education	2024
Discourse Analysis on the Ethical Dilemmas on the Use of AI in Academic Settings from ICT, Science, and Language Instructors	2024
Leveraging ICT and Generative AI in Higher Education for Sustainable Development: The Case of a Lebanese Private University	2024
Assessing AI adoption in developing country academia: A trust and privacy-augmented UTAUT framework	2024
Applying artificial intelligence in predicting educational excellence in higher education institutions: A case study in Jordanian universities	2024
Generative AI tools as educators' assistants: Designing and implementing inquiry-based lesson plans	2024
Exploring generative artificial intelligence preparedness among university language instructors: A case study	2023
Adoption of artificial intelligence in science teaching: From the vantage point of the African science teachers	2023

Result

The result of the literature review are presented as finding relevant to the research questions posed. A refined and detailed evaluation are identified to ensure the reliability of the find,

https://doi.org/10.52202/086293-0084

presented by research questions which related to key driver or factor influencing AI adoption in higher education, key barrier on AI adoption and trend of AI adoption in higher education

RQ1: What are the factors influencing and key driver AI adoption in higher education?

One of the most significant factors influencing AI adoption in higher education is self-attitude, particularly as it relates to motivation, confidence, and openness toward innovation. Personal innovativeness (PI), defined as an individual's willingness to independently explore and adopt new technologies, has emerged as a strong predictor of AI adoption. In the Polish context, Strzelecki et al. (2024) extended the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) by incorporating PI to better explain academics' behavioural intentions toward using AI tools such as ChatGPT. PI encourages risk-taking and experimentation with AI technologies, making the adoption process more engaging and fulfilling. Other key constructs such as Habit, Performance Expectancy, Hedonic Motivation, Social Influence, Effort Expectancy, Facilitating Conditions, and Price Value also significantly influence AI adoption(Strzelecki et al., 2024). Among these, Habit and Performance Expectancy were particularly impactful in shaping both teaching and research applications.

Psychological factors such as self-esteem and perceived personal capability further enhance educators' inclination to adopt AI. Teachers with higher confidence in their skills and greater belief in AI's usefulness are more likely to adopt such technologies into their pedagogical practices(Nja et al., 2023). Positive attitudes toward AI are also essential, as they foster an environment of openness and curiosity (Rahiman & Kodikal, 2024). In line with this, Cabero-Almenara et al. (2024) found that educators holding constructivist pedagogical beliefs—favouring student-centered and active learning—were more inclined to adopt AI tools due to their alignment with personalized, flexible teaching approaches. Likewise, performance expectancy and effort expectancy were repeatedly identified as primary drivers of AI adoption, influencing both behavioural intentions and actual usage (Nagy et al., 2024; Rana et al., 2024). Theodorio et al. (2024) emphasized that a commitment to ongoing professional development and the adoption of innovative teaching strategies further reinforce educators' willingness to explore AI-supported technologies in constructivist learning environments.

Familiarity with AI tools and institutional readiness play a critical role in fostering AI adoption. In Jordan, the potential of AI to enhance educational excellence through improved instructional resources is recognized as a major driver of its adoption (Al Najdawi et al., 2024). Usability, or ease of use, was another factor that significantly influenced adoption, particularly when educators found AI tools intuitive and aligned with existing teaching workflows(Nagy et al., 2024). GenAI tools are especially valued for their ability to provide personalized learning experiences, streamline lesson planning, and deliver timely feedback, all of which help boost student engagement and learning outcomes (Moundridou et al., 2024). In this regard, institutional support—especially in the form of training and professional development—emerges as indispensable for equipping educators with the competencies needed for effective AI use (Kohnke et al., 2023). These insights indicate that both technical familiarity and access to necessary infrastructure are vital to fostering AI adoption.

Institutional and emotional support systems further reinforce adoption. When educators perceive that they are adequately supported through educational and emotional mechanisms, their attitudes toward AI become more positive, ultimately increasing their willingness to adopt these tools (Aldraiweesh & Alturki, 2025). Familiarity with AI functionalities and the ability to see tangible benefits—such as enhanced research productivity or improved teaching outcomes—boost academics' confidence and engagement with the technology. Reducing anxiety through training and building comfort with AI systems are also key (Nja et al., 2023). As found by Alrayes et al. (2024), performance expectancy, effort expectancy, hedonic motivation, and academic qualifications influence adoption decisions, while training programs and ethical oversight ensure that integration is both effective and responsible. AI literacy—defined as a solid understanding of AI tools and applications—is another foundational

component, as it helps educators recognize the value and practicality of AI in academic settings (Al-Abdullatif, 2024a; Alenezi, 2024).

Trust in AI systems is another critical determinant. Educator are more inclined to adopt AI technologies when they perceive them as secure, reliable, and aligned with data privacy norms (Al Najdawi et al., 2024; Rana et al., 2024). Establishing trust is especially important in contexts involving sensitive academic data. Trust can also be bolstered by integrating AI systems within established pedagogical frameworks, such as intelligent TPACK, which supports transparent and informed AI utilization(Al-Abdullatif, 2024a). Additionally, perceived convenience and efficiency remain important; when educators believe that AI improves teaching effectiveness and reduces workload, they are more motivated to adopt AI (Helmiatin et al., 2024; Nagy et al., 2024). Nevertheless, this convenience must be paired with clear ethical policies and governance to promote responsible use (Chavez et al., 2024). Collectively, these findings underscore that trust—whether institutional, technological, or social—along with perceived usefulness and usability, fundamentally shapes the trajectory of AI adoption in higher education.

In summary, drivers of AI adoption can be grouped into three themes: (1) individual factors such as innovativeness, attitudes, and pedagogical beliefs, (2) institutional factors including training, infrastructure, and support, and (3) technological factors such as usability and perceived usefulness. This synthesis shows that adoption is shaped by both personal readiness and systemic enablers.

RQ2: What are the key barrier in AI adoption in higher education?

Despite the growing potential of AI in higher education, several significant barriers are hindering its widespread adoption and effective implementation. A recurring concern is the lack of trust due to issues related to data privacy, system security, and weak regulatory frameworks, which impede full acceptance and utilization of AI technologies (Al Najdawi et al., 2024; Rahiman & Kodikal, 2024; Rana et al., 2024). A significant barrier identified is the absence of robust regulatory frameworks and clear institutional policies, resulting in concerns about the misuse of AI and risks to data security and privacy(Al Najdawi et al., 2024; Chavez et al., 2024).

Ethical issues such as academic dishonesty, algorithmic bias, and the risk of over-reliance on AI technologies are also prominent (Alrayes et al., 2024; Chavez et al., 2024; Khlaif et al., 2024). Furthermore, technical and infrastructural limitations, including inadequate access to AI tools, poor digital infrastructure, and insufficient technical support, significantly hinder adoption efforts(Boustani et al., 2024; Cabero-Almenara et al., 2024; Omar et al., 2024). The lack of AI literacy and training among educators is another major barrier, as educator often feel unprepared or lack confidence in using AI tools effectively (Al-Abdullatif, 2024a; Alenezi, 2024; Kohnke et al., 2023; Theodorio et al., 2024).

Moreover, perceived risks related to job displacement, misinformation, and the reliability of AI-generated content further contribute to hesitation (Helmiatin et al., 2024; Moundridou et al., 2024; Nagy et al., 2024). Emotional and motivational resistance such as stemming from a lack of enjoyment, increased workload, or fear of change, also discourages adoption, especially when educator juggle multiple responsibilities without adequate institutional support (Cambra-Fierro et al., 2024). Additionally, limited social interaction support and collaboration among users may hinder the development of trust and reduce opportunities for shared learning and integration of AI technologies (Aldraiweesh & Alturki, 2025).

Finally, low self-efficacy, or lack of confidence in one's ability to use technology, remains a persistent barrier, especially when AI tools are perceived as complex or non-intuitive (John, 2015; Sánchez-Prieto et al., 2019). These findings collectively highlight the multifaceted nature of barriers to AI adoption and the need for strategic interventions such as targeted training, infrastructure investments, ethical guidelines, and robust institutional support to overcome them.

https://doi.org/10.52202/086293-0084

Overall, barriers can be synthesized into three categories: (1) structural barriers including infrastructure, resources and regulations, (2) capability barriers such as AI literacy, training, and confidence, and (3) attitudinal barriers, covering trust, ethics, and resistance to change. Grouping barriers in this way helps clarify why different studies emphasize different obstacles.

RQ3: How is research on AI adoption in higher education distributed across different geographical region and academic disciplines?

There is a growing global trend in the adoption of artificial intelligence (AI) technologies across higher education institutions, driven by increasing recognition of AI potential to enhance teaching, learning, and administrative processes. A study by Nja et al. (2023) found that science teachers in Africa demonstrated high approval toward AI adoption in the classroom, motivated by confidence, perceived usefulness, and ease of use. Recommendations from the study include incorporating AI into teacher training, revising curricula, and establishing AI labs. Similarly, a study by Al Najdawi et al. (2024) highlights the rising integration of AI in Jordanian higher education institutions as a strategic tool for enhancing educational excellence, instructional quality, and stakeholder engagement—though it also underscores the need for clear regulatory frameworks.

In Palestine, Omar et al. (2024) noted widespread positive educator attitudes, indicating a readiness to embrace AI for teaching and learning. This trend is mirrored in Spain, where students are leading in AI tool usage, prompting educators to adapt (Cambra-Fierro et al., 2024), and in Bahrain, where there is growing adoption of tools like ChatGPT for research and teaching, alongside calls for ethical integration (Alrayes et al., 2024). In Indonesia, AI is increasingly recognized as a tool to support digital transformation in education (Helmiatin et al., 2024), while Lebanese institutions are integrating AI and ICT for sustainable development and resource efficiency (Boustani et al., 2024). Al-Abdullatif (2024) identifies a growing trend toward generative AI in teaching, administration, and personalized learning, with a strong emphasis on AI literacy. At Northern Border University, Saudi Arabia, educator are increasingly using AI in Blackboard, though adoption is influenced by the availability of training and support (Alenezi, 2024). Similar trends in hybrid education environments reflect growing use of AI to personalize learning and promote equity (Rahiman & Kodikal, 2024). King Saud University, Saudi Arabia, also shows momentum in AI adoption, supported by emotional and educational support structures (Aldraiweesh & Alturki, 2025). In the Middle East, educators are adopting GenAI tools for student assessment and instructional innovation (Khlaif et al., 2024) as well. Teachers with constructivist beliefs are particularly open to adopting AI for active learning (Cabero-Almenara et al., 2024), and the general perception among educators and students is increasingly positive (Nagy et al., 2024).

This trend extends to Lesotho, Rwanda, and Nigeria, where AI-supported smart technologies are used to align with global standards and support student-centered learning (Theodorio et al., 2024). While Chavez et al. (2024) and Rana et al. (2024) affirm this rising adoption, they also point to growing ethical concerns and trust issues. Moreover, generative AI is being widely integrated into lesson planning and feedback processes (Moundridou et al., 2024), and university language instructors are exploring its benefits, though adoption rates vary depending on support and preparedness(Kohnke et al., 2023). Collectively, these findings underscore a steady, global shift toward AI adoption in higher education, marked by growing enthusiasm, increasing practical applications, and an evolving awareness of the necessary infrastructure and ethical considerations.

Discussion

This review highlights growing interest in AI adoption among educators, but also reveals key research gaps. Most studies focus on drivers like personal innovativeness, institutional support, and perceived usefulness (RQ1), yet lack longitudinal data to show how educator attitudes evolve over time. Future research might consider to explore these trends to better understand sustained adoption.

The mixed findings across studies may be explained by contextual differences, such as variations in infrastructure, institutional support, and cultural attitudes toward technology. Additionally, methodological diversity including the use of different theoretical models for example TAM and UTAUT2, and sample sizes will also contribute to these divergent outcomes.

In terms of barriers (RQ2), ethical concerns, lack of training, and infrastructure issues are commonly reported. However, there is a shortage of research comparing how these barriers vary across institution types and regions. Most existing work is concentrated in well-funded universities, with limited focus on underrepresented areas such as Southeast Asia, Africa, and Latin America. Emotional factors, such as fear of job displacement and anxiety about AI misuse, are often mentioned but rarely examined in depth, perhaps future research should explore these contextual and emotional barriers more closely to support inclusive and equitable AI adoption strategies. This review found that the majority of included studies were concentrated in the most recent years, indicating that scholarly attention on educators' acceptance of AI has intensified only recently.

Finally, while global adoption trends are increasing (RQ3), the majority of studies focus on STEM fields, with little coverage of the humanities and social sciences. Future research might include disciplinary diversity and examine how AI tools are integrated into pedagogy, including their ethical and instructional implications.

Conclusion

The adoption of artificial intelligence (AI) in higher education is shaped by a combination of key drivers, emerging trends, and persistent barriers. Factors such as personal innovativeness, performance expectancy, ease of use, and self-attitude which particularly confidence and openness to new technologies, will play a crucial role in influencing educators' willingness to adopt AI. Institutional support, including targeted training, accessible infrastructure, and AI literacy initiatives, further enhances adoption. Trust in AI systems, especially regarding data privacy and security, also significantly affects acceptance. Recent trends indicate a growing interest in AI across global higher education systems, with increased integration of tools like ChatGPT for teaching, assessment, and administrative tasks. Educators are increasingly recognizing AI's potential to improve student engagement, personalize learning, and streamline academic workflows. However, several barriers continue to impede the full realization of AI's benefits. These include concerns over data security, lack of regulatory clarity, insufficient resources, emotional resistance, and low technical proficiency among educator. Additionally, the absence of clear ethical guidelines and fears over academic integrity remain significant challenges. Despite these limitations, the overall trajectory suggests a positive shift toward AI integration, provided that support structures and responsible governance mechanisms are in place. In conclusion, while AI presents transformative opportunities for higher education, its success depends on fostering enabling conditions, building institutional trust, and addressing key barriers to ensure equitable, effective, and ethical adoption.

References

Al-Abdullatif, A. M. (2024). Modeling teachers' acceptance of generative artificial intelligence use in higher education: The role of AI literacy, intelligent TPACK, and perceived trust. Education Sciences, 14(11), 1209. https://doi.org/10.3390/educsci14111209

Alenezi, A. (2023). Obstacles to the use of AI applications in Blackboard for faculty members at Northern Border University, Saudi Arabia. Journal of Educational Technology Systems, 52(1), 1–15. https://doi.org/10.1177/00472395221124987

Aldraiweesh, A. A., & Alturki, U. (2025). The influence of social support theory on AI acceptance: Examining educational support and perceived usefulness using SEM analysis. IEEE Access, 99, 1–1. https://doi.org/10.1109/ACCESS.2025.3534099

Alrayes, A., Henari, T. F., & Ahmed, D. A. (2024). ChatGPT in education – Understanding the Bahraini academics perspective. Electronic Journal of e-Learning, 22(2), 112–134. https://doi.org/10.3490/ejel.22.2.3250

https://doi.org/10.52202/086293-0084

Boustani, N. M., Sidani, D., & Boustany, Z. (2024). Leveraging ICT and generative AI in higher education for sustainable development: The case of a Lebanese private university. *Administrative Sciences, 14*(10), 251. https://doi.org/10.3390/admsci14100251

Cabero-Almenara, J., Palacios-Rodríguez, A., Loaiza-Aguirre, M. I., & Rivas-Manzano, M. d. R. d. (2024). Acceptance of educational artificial intelligence by teachers and its relationship with some variables and pedagogical beliefs. Education Sciences, 14(7), 740. https://doi.org/10.3390/educsci14070740

Cambra-Fierro, J. J., Blasco, M. F., López-Pérez, M.-E. E., & Trifu, A. (2024). ChatGPT adoption and its influence on faculty well-being: An empirical research in higher education. Education and Information Technologies. https://doi.org/10.1007/s10639-024-12871-0

Chavez, J. V., Cuilan, J. T., Mannan, S. S., Ibrahim, N. U., Carolino, A. A., Radjuni, A., Albani, S. E., & Garil, B. A. (2024). Discourse analysis on the ethical dilemmas on the use of AI in academic settings from ICT, science, and language instructors. Forum for Linguistic Studies, 6(5), 349–363. https://doi.org/10.30564/fls.v6i5.6765

Elsevier. (2025). Scopus: About Scopus. Accessed at https://www.elsevier.com/en-xm/solutions/scopus

Gârdan, I. P., Manu, M. B., Gârdan, D. A., Negoiță, L. D. L., Paștiu, C. A., Ghiță, E., & Zaharia, A. (2025). Adopting AI in education: Optimizing human resource management considering teacher perceptions. Frontiers in Education, 10, 1488147. https://doi.org/10.3389/feduc.2025.1488147

Helmiatin, H., Hidayat, A., & Kahar, M. R. (2024). Investigating the adoption of AI in higher education: A study of public universities in Indonesia. *Cogent Education*, 11(1), 2380175. https://doi.org/10.1080/2331186X.2024.2380175

IEEE. (2025). IEEE Xplore Digital Library. Accessed at https://ieeexplore.ieee.org/

John, P. D. (2015). The impact of self-efficacy on teachers' use of technology. Computers & Education, 82, 1–8. https://doi.org/10.1016/j.compedu.2014.11.015

Khlaif, Z. N., Ayyoub, A., Hamamra, B., Bensalem, E., Mitwally, M. A. A., Ayyoub, A., Hattab, M. K., & Shadid, F. (2024). University teachers' views on the adoption and integration of generative AI tools for student assessment in higher education. Education Sciences, 14(10), 1090. https://doi.org/10.3390/educsci14101090

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). Exploring generative artificial intelligence preparedness among university language instructors: A case study. Computers and Education: Artificial Intelligence, 5, 100156. https://doi.org/10.1016/j.caeai.2023.100156

Moundridou, M., Matzakos, N., & Doukakis, S. (2024). Generative AI tools as educators' assistants: Designing and implementing inquiry-based lesson plans. Computers and Education: Artificial Intelligence, 7, 100277. https://doi.org/10.1016/j.caeai.2024.100277

Nagy, A. S., Tumiwa, J. R., Arie, F. V., & Erdey, L. (2024). An exploratory study of artificial intelligence adoption in higher education. Cogent Education, 11(1), 2386892. https://doi.org/10.1080/2331186X.2024.2386892

Najdawi, M. H. A., Shwedeh, F., Abdelmoghies, M. M., Kitana, A., & Ali, A. (2024). Applying artificial intelligence in predicting educational excellence in higher education institutions: A case study in Jordanian universities. Edelweiss Applied Science and Technology, 8(6), 7273–7289. https://doi.org/10.55214/25768484.v8i6.3579

Nikolic, S., Wentworth, I., Sheridan, L., Moss, S., Duursma, E., Jones, R. A., Ros, M., & Middleton, R. (2024). A systematic literature review of attitudes, intentions and behaviours of teaching academics pertaining to AI and generative AI (GenAI) in higher education: An analysis of GenAI adoption using the UTAUT framework. Australasian Journal of Educational Technology, 40(6), 56–75. https://doi.org/10.14742/ajet.9643

Nja, C. O., Idiege, K. J., Uwe, U. E., Meremikwu, A. N., Ekon, E. E., Erim, C. M., Ukah, J. U., Eyo, E. O., Anari, M. I., & Cornelius-Ukpepi, B. U. (2023). Adoption of artificial intelligence in science teaching: From the vantage point of the African science teachers. Smart Learning Environments, 10(1), Article 42. https://doi.org/10.1186/s40561-023-00261-x

Rahiman, H. U., & Kodikal, R. (2024). Revolutionizing education: Artificial intelligence empowered learning in higher education. Cogent Education, 11(1), 2293431. https://doi.org/10.1080/2331186X.2023.2293431

Rana, M. M., Siddiqee, M. S., Sakib, M. N., & Ahamed, M. R. (2024). Assessing AI adoption in developing country academia: A trust and privacy-augmented UTAUT framework. Heliyon, 10(18), e37569. https://doi.org/10.1016/j.heliyon.2024.e37569

Sánchez-Prieto, J. C., García-Peñalvo, F. J., & Conde, M. Á. (2019). Teachers' perceptions of the use of ICT in education: A study in Spain. Education and Information Technologies, 24(2), 1133–1150. https://doi.org/10.1007/s10639-018-9815-5

ScienceDirect. (2025). ScienceDirect: Articles and research. Accessed at https://www.sciencedirect.com/
Theodorio, A. O., Waghid, Z., Mataka, T. W., & Adegoke, O. (2024). Demystifying Lesotho, Rwandan and Nigerian educators' viewpoints on smart technologies supporting AI in higher education. Education and Information Technologies, 29(18), 24285–24307. https://doi.org/10.1007/s10639-024-12820-x
Thomson Reuters. (2025). Web of Science. Accessed at https://www.webofscience.com/

Acknowledgements

The authors would like to express their sincere gratitude to the UTM Department of Deputy Vice Chancellor (Research & Innovation) for their financial support. This work was funded under UTM Fundamental Research Grant (Grant No. Q.J130000.3809.23H23). This support has been invaluable in the successful completion of the work presented in this study.

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https://doi.org/10.52202/086293-0084