

A Systematic Review of Factors Influencing Generative AI Adoption among Higher Education Teachers

Shi Yingying, Muhd Khaizer Omar and Normala Ismail

Abstract – The rapid emergence of generative artificial intelligence (GenAI), particularly tools such as ChatGPT and large language models, has significantly influenced teaching and learning in higher education. However, the adoption of these technologies among higher education teachers remains complex and uneven. This study aims to examine the level of acceptance and adoption of GenAI, identify the key factors influencing teachers' adoption intention, and explore the challenges associated with its integration into teaching practices. To achieve these objectives, a systematic literature review was conducted following the PRISMA guidelines. A total of 2,316 records were initially identified from Scopus and Web of Science, and after a rigorous screening process, 25 model-based studies were included in the final analysis. The findings indicate that higher education teachers generally demonstrate a moderate to high level of acceptance toward GenAI, although actual usage remains at an early stage. The analysis reveals that factors influencing adoption can be categorized into four main dimensions: technological, individual, social, and institutional factors, with technological perceptions and individual readiness emerging as the most significant predictors. In addition, several barriers—including ethical concerns, lack of training, institutional uncertainty, and workload pressures—continue to hinder effective implementation. This study contributes to the literature by providing a model-based synthesis of GenAI adoption among higher education teachers and offers insights for future research and practice in promoting the effective integration of generative AI in higher education.

Keywords – Generative Artificial Intelligence (AI); Higher Education Teachers; Technology Adoption; Systematic Literature Review; Influencing Factors

I. INTRODUCTION

The rapid advancement of the Fourth Industrial Revolution (Industry 4.0) has significantly transformed the education sector through the integration of emerging technologies such as artificial intelligence (AI), automation, big data analytics, the Internet of Things (IoT), and intelligent systems (Adib Rashid & Kausik, 2024). These innovations are reshaping the delivery and experience of education by enabling intelligent automation, real-time data-driven decision-making, and adaptive learning environments. As digital transformation accelerates, education has evolved beyond traditional classroom settings into technology-enhanced ecosystems that seamlessly integrate physical and virtual learning spaces (Mhlongo et al., 2023). This shift underscores the growing need for educators to adopt digital tools to enhance engagement and support diverse learning needs.

Among these developments, AI has emerged as a key driver of educational innovation. Over time, AI has evolved from rule-based expert systems to advanced machine learning and deep learning models capable of analyzing large volumes of data, identifying patterns, and supporting decision-making with minimal human intervention (Xu et al., 2021). These capabilities enable AI to enhance teaching and learning through intelligent content generation, automated administrative processes, and personalized learning experiences (Leh, 2022). More recently, the emergence of generative artificial intelligence (GenAI), particularly tools such as ChatGPT and large language models, has further accelerated this transformation by enabling the rapid generation of human-like content and interactive instructional support (Kasneci et al., 2023).

Despite the growing interest in GenAI, its adoption among higher education teachers remains complex and uneven. While many educators recognize the potential of GenAI to improve teaching efficiency and foster pedagogical innovation, concerns related to ethical implications, academic integrity, reliability of AI-generated content, and insufficient institutional guidance continue to influence their willingness to adopt such technologies. Prior research on AI in education has reported similar challenges, including issues of implementation, governance, and pedagogical alignment (Zawacki-Richter et al., 2019; Chen et al., 2020). These findings highlight the need for a more focused understanding of how teachers engage with GenAI in real teaching contexts.

From a theoretical perspective, technology adoption has been widely explained using models such as the Technology Acceptance Model (Davis, 1989) and the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), which emphasize the roles of perceived usefulness, perceived ease of use, and social influence in shaping user behaviour. Systematic reviews have confirmed the strong explanatory power of these models in educational settings (Granić & Marangunić, 2019; Scherer et al., 2019). However, the emergence of GenAI introduces new dimensions—such as AI-specific competencies (e.g., prompt skills and AI literacy), trust in AI-generated outputs, and heightened ethical concerns—that may not be fully captured by traditional frameworks.

Although a growing body of literature has examined AI in education, most existing studies and systematic reviews focus on general AI applications, student perspectives, or institutional-level adoption. Comparatively less attention has been paid to higher education teachers as the primary agents who translate technological potential into pedagogical practice, particularly in the context of GenAI. In addition, there is a lack of systematic, model-based synthesis that specifically examines how higher education teachers perceive, adopt, and integrate GenAI into their teaching. This gap limits the development of a targeted and theoretically

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grounded understanding of GenAI adoption in higher education.

To address this gap, this study conducts a systematic literature review to examine the level of acceptance and adoption of generative artificial intelligence among higher education teachers, identify the key factors influencing their adoption intention, and explore the challenges they face in integrating these technologies into teaching practices. By synthesizing evidence from model-based studies, this research aims to provide an updated, structured, and theoretically informed understanding of GenAI adoption in higher education, offering insights that can inform future research, policy development, and educational practice.

II. LITERATURE REVIEW

AI in Higher Education

Artificial intelligence (AI) has become an increasingly influential force in higher education, fundamentally reshaping teaching, learning, and institutional practices. Early applications of AI in education primarily focused on intelligent tutoring systems, adaptive learning platforms, and data-driven decision-making tools, aiming to enhance learning efficiency and personalize educational experiences (Zawacki-Richter et al., 2019; Holmes et al., 2019). With the rapid advancement of machine learning and deep learning technologies, AI systems have evolved to support more complex educational functions, including automated assessment, predictive analytics, and learning analytics (Chen et al., 2020; Ouyang & Jiao, 2021).

In higher education contexts, AI has been widely applied to improve both instructional processes and administrative efficiency. For example, AI-driven systems can support curriculum design, provide real-time feedback, facilitate student engagement, and optimize resource allocation (Bond et al., 2019; Luckin et al., 2016). These applications not only enhance teaching effectiveness but also contribute to more personalized and scalable learning environments. Furthermore, AI technologies have been increasingly integrated into online and blended learning environments, particularly in response to the growing demand for flexible and digital education models (Mhlongo et al., 2023).

Despite these advancements, the integration of AI in higher education also raises important challenges and concerns. Previous studies have highlighted issues related to ethical implications, data privacy, algorithmic bias, and the potential impact of AI on academic integrity (Zawacki-Richter et al., 2019; Chen et al., 2020). In addition, the successful implementation of AI depends heavily on educators' readiness, digital competence, and willingness to adopt these technologies in their teaching practices (Scherer et al., 2019; Granić & Marangunić, 2019). This suggests that, beyond technological capabilities, human and institutional factors play a critical role in shaping AI adoption in higher education.

More recently, the emergence of generative artificial intelligence (GenAI), particularly large language models such as ChatGPT, has introduced a new paradigm in AI-enabled education. Unlike traditional AI applications, GenAI systems are capable of generating human-like text, supporting content creation, and facilitating interactive

learning experiences in real time (Kasneci et al., 2023; Dwivedi et al., 2023). These capabilities have significantly expanded the potential of AI in higher education, enabling new forms of teaching innovation while also raising new pedagogical and ethical challenges. As a result, understanding how higher education teachers adopt and integrate these technologies has become a critical area of research.

Theoretical Frameworks for AI Acceptance in Science Education

This study develops a theoretical framework to explain higher education teachers' adoption of generative artificial intelligence (GenAI), primarily grounded in the Technology Acceptance Model proposed by Fred D. Davis (1989) and the Unified Theory of Acceptance and Use of Technology introduced by Viswanath Venkatesh et al. (2003). These models are widely recognized for explaining individuals' acceptance and use of new technologies.

The framework posits that technological perceptions are the primary drivers of adoption intention. Specifically, the core constructs of TAM—perceived usefulness (PU) and perceived ease of use (PEOU)—are proposed to directly influence teachers' behavioural intention to adopt generative AI (Davis, 1989). These constructs capture the extent to which teachers believe that GenAI enhances teaching performance and is easy to use.

Building on UTAUT, additional determinants such as performance expectancy, effort expectancy, and social influence are incorporated as key predictors of behavioural intention (Venkatesh et al., 2003). Furthermore, facilitating conditions are proposed to directly influence actual use behaviour, reflecting the importance of institutional and technical support in enabling adoption.

To extend the explanatory power of the model, this study integrates additional variables identified from prior research. Individual factors, including self-efficacy and attitudes toward AI, are included based on Social Cognitive Theory (Albert Bandura, 1986), as these influence both perceived usefulness and behavioural intention. In addition, institutional factors, such as training, policies, and organizational support, are incorporated to reflect the broader contextual conditions that shape technology adoption. Moreover, the framework acknowledges the presence of potential barriers, including ethical concerns, lack of knowledge, and workload constraints, which may negatively influence both intention and actual usage, consistent with recent studies on AI adoption in education.

Overall, the proposed framework suggests that higher education teachers' adoption of generative AI is jointly determined by technological, individual, social, and institutional factors, with behavioural intention acting as a key mediator between these determinants and actual use behaviour.

Conceptual Frameworks for AI Acceptance in Science Education

Based on the synthesis of the 25 included studies, this study proposes a conceptual framework to explain the key factors influencing the adoption of generative artificial

intelligence (GenAI) among higher education teachers. The framework is grounded in established theories, particularly the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology, and integrates findings across empirical studies. As illustrated in Figure 2, the proposed framework provides a structured overview of the relationships among the key variables.

The framework categorizes influencing factors into four main dimensions: technological, individual, social, and institutional factors. Technological factors, such as perceived usefulness, perceived ease of use, and system quality, directly affect teachers' perceptions of GenAI tools. Individual factors, including self-efficacy, attitudes toward AI, and digital competence, shape teachers' readiness and motivation to adopt these technologies. Social factors, such as peer influence and subjective norms, reflect the impact of the surrounding academic environment. Institutional factors, including organizational support, training opportunities, and policy frameworks, provide the structural conditions that enable or constrain adoption.

These factors collectively influence higher education teachers' adoption intention and actual use behaviour of generative AI in teaching practices. In addition, the framework recognizes the role of potential barriers, such as lack of knowledge, ethical concerns, and workload constraints, which may negatively affect adoption. Overall, this conceptual framework provides a comprehensive and integrative perspective on generative AI adoption in higher education, offering a theoretical basis for future empirical research and practical guidance for institutions seeking to promote the effective integration of AI technologies.

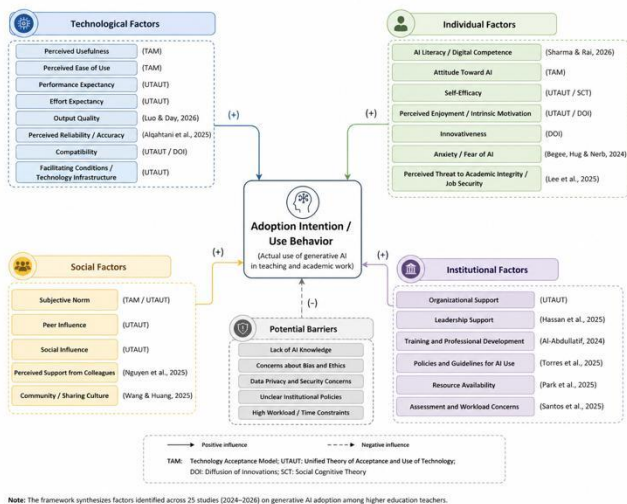


Figure 1. Conceptual Framework Of Factors Influencing Generative AI Adoption

III. RESEARCH OBJECTIVES AND QUESTIONS

This study aims to examine the factors influencing higher education teachers' intention to adopt generative artificial intelligence (GenAI) tools in their teaching practices and to explore the level of acceptance and use of these technologies in higher education.

Building on the Technology Acceptance Model, this systematic literature review seeks to provide a comprehensive understanding of the determinants that

facilitate or hinder the adoption of generative AI in higher education teaching. The findings of this study are expected to offer valuable insights for educators, policymakers, and researchers in developing effective strategies for integrating generative AI into higher education.

Research Objectives

The specific objectives of this study are as follows:

1. To analyze the extent to which higher education teachers accept and use generative AI tools (e.g., ChatGPT, large language models) in teaching practices.
2. To identify the key factors that influence higher education teachers' intention to adopt generative AI in teaching.
3. To examine the challenges and barriers that hinder the effective implementation of generative AI in higher education.

Research Questions

To achieve these objectives, the following research questions will guide this study:

1. What is the current level of acceptance and adoption of generative AI among higher education teachers?
2. What are the key factors that influence higher education teachers' intention to use generative AI tools in teaching?
3. What challenges and barriers do higher education teachers face in integrating generative AI into their teaching practices?

IV. METHODOLOGY

This study aims to systematically examine the factors influencing higher education teachers' adoption of generative artificial intelligence (GenAI) in their teaching practices. By focusing on technologies such as ChatGPT and large language models, this systematic review seeks to explore the level of acceptance, intention to use, and actual usage of generative AI among university educators.

Building upon established theoretical frameworks, particularly the Technology Acceptance Model, this study conducts a comprehensive systematic literature review to identify the key determinants that facilitate or hinder the adoption of generative AI in higher education contexts. The review synthesizes empirical evidence related to factors such as perceived usefulness, perceived ease of use, social influence, technological readiness, and potential barriers including ethical concerns and lack of institutional support.

Through a structured and transparent screening process based on PRISMA guidelines, relevant studies were identified, screened, and evaluated from major academic databases. The findings of this study are expected to provide valuable insights for educators, policymakers, and researchers in developing effective strategies to support the meaningful integration of generative AI into higher education teaching and learning.

Identification

A systematic search was conducted in two major academic databases: Scopus and Web of Science. These databases were selected due to their extensive coverage of high-quality peer-reviewed publications across education and technology-related fields.

The following search string was applied in the TITLE-ABS-KEY fields (See Table 1.):

TABLE 1. THE SEARCH STRING USED FOR THE SYSTEMATIC REVIEW PROCESS

Database	Keywords Used
Scopus	((("generative ai" OR "gen ai" OR "artificial intelligence" OR "chatgpt" OR "large language model*") AND ("higher education" OR universit* OR college*) AND (teacher* OR faculty OR lecturer*) AND (adoption OR acceptance OR "behavioural intention" OR intention OR use OR usage))
Web of Science (WoS)	((("generative ai" OR "gen ai" OR "artificial intelligence" OR "chatgpt") AND ("higher education" OR universit* OR college*) AND (teacher* OR faculty OR lecturer*) AND (adoption OR acceptance OR "behavioural intention" OR intention OR use OR usage))

Screening and Eligibility

The screening stage involved filtering a large number of records retrieved from academic databases to identify studies eligible for full-text assessment and eventual inclusion in the review, following established systematic review procedures based on the PRISMA guidelines.

First, duplicate records were removed using Zotero, an automated reference management tool. A total of 314 duplicate records were identified and removed from the combined dataset obtained from Scopus and Web of Science. After this step, 2,002 records remained for title and abstract screening. During the screening process, 1,930 records were excluded. These records were removed because they consisted of book chapters, review articles, conference abstracts, or studies not relevant to higher education or generative artificial intelligence adoption among teachers. Subsequently, 72 studies were identified as potentially relevant and were sought for full-text retrieval. Of these, 3 studies could not be accessed, leaving 69 studies for full-text eligibility assessment.

During the eligibility stage, studies were further evaluated based on predefined inclusion and exclusion criteria. A total of 44 studies were excluded at this stage for reasons such as the absence of a clear theoretical model or framework, purely descriptive or perception-based designs without variable relationships, lack of focus on generative AI, or the inability to isolate higher education teacher data. As a result, 25 studies were ultimately included in the final review.

All included studies were published in English, thereby minimizing the risk of misinterpretation. In addition, only studies published between 2021 and 2025 were considered, as this period reflects the rapid emergence and adoption of generative artificial intelligence technologies in higher education (See Table 2).

TABLE 2. INCLUSION AND EXCLUSION CRITERIA

Criterion	Eligibility	Exclusion
Timeline	Between 2021 and 2025	Before 2021
Literature type	Empirical studies (quantitative, qualitative, or mixed methods); full journal articles and full conference papers	Systematic reviews, bibliometric studies, conceptual papers, books, book chapters, conference abstracts, editorials
Language	English	Non-English
Population	Higher education teachers (e.g., faculty, lecturers, instructors, professors)	Studies focusing primarily on students or non-teaching populations
Context	Higher education (universities, colleges)	Not conducted in higher education settings
Scope	Studies related to the adoption, acceptance, behavioural intention, readiness, or use of generative AI (e.g., ChatGPT, LLMs) in teaching	Studies not focused on generative AI or not examining adoption-related factors

V. RESULTS

Study selection

The study selection process was conducted in a systematic and transparent manner following the PRISMA guidelines. A comprehensive search across Scopus and Web of Science initially identified 2,316 records. After removing duplicate records, the remaining studies were screened based on titles, abstracts, and predefined inclusion criteria.

Through a multi-stage screening process, studies that were not relevant to generative AI adoption in higher education or did not meet the eligibility criteria were excluded. Ultimately, 25 studies were retained for inclusion in the final review. The detailed selection process is illustrated in the PRISMA flow diagram (Figure 2). Data management and screening were primarily conducted using Microsoft Excel, while Zotero was used for reference management and duplicate removal. Table 3 presents the complete list and key characteristics of the included studies.

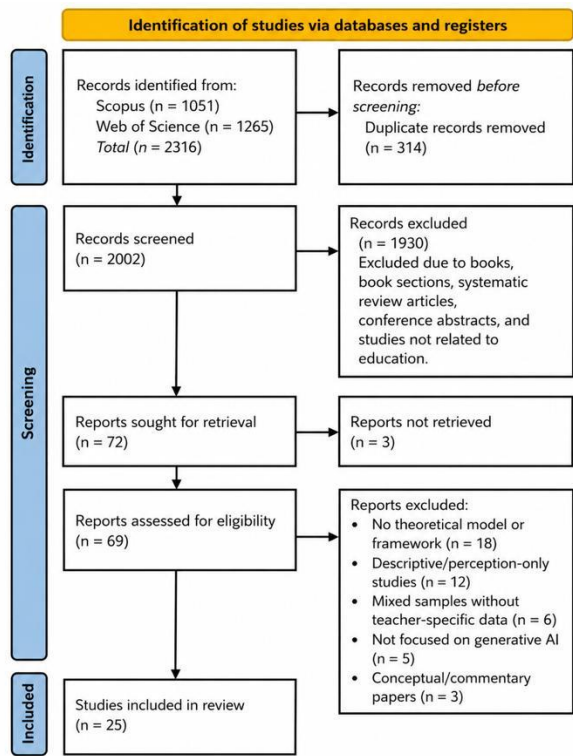


Figure 2. Flow Diagram Of The Study

TABLE 3. CHARACTERISTICS OF STUDIES ON GENERATIVE AI ADOPTION AMONG HIGHER EDUCATION TEACHERS (N = 25)

Study	Country	Theoretical Framework	GenAI Tool	Key Focus
(Luo & Day, 2026)	China	UTAUT + SDT	GenAI	Adoption readiness
(Bawa et al., 2026)		TAM-TTF	GenAI	Sustained usage
(Maaz et al., 2026)		TAM-based	ChatGPT	Behavioural intention
(Luo et al., 2026)	China	TAM	GenAI	Adoption
(Alotaibi & Alayed, 2025)	Saudi Arabia	TAM	GenAI	Usage behaviour
(Li & Lu, 2025)	China	TPACK	LLMs	Acceptance
(Ríos Gonzales et al., 2025)	Latin America	TPACK	ChatGPT	Adoption
(Verano-Tacoronte et al., 2025)	Spain	TAM	ChatGPT	Adoption intention
(Shata & Hartley, 2025)		UTAUT	GenAI	Adoption
(Liu et al., 2025)	China	TAM	GenAI	Acceptance
(Ramos Salazar & Peeples, 2025)	USA	TAM	ChatGPT	Adoption
(Cambra-Fierro et al., 2025)	Spain	TAM	ChatGPT	Adoption & well-being
(Liang & Suwanragas, 2025)	Thailand	UTAUT	GenAI	Behavioural intention
(Nguyen et al., 2025)	Vietnam	TAM	ChatGPT	Intention to use

(Feng et al., 2025)	China	TAM	GenAI	Acceptance
(He & Chai, 2025)		TAM	ChatGPT	Acceptance
(Rahi et al., 2025)		UTAUT2	ChatGPT	Adoption
(Cambra-Fierro et al., 2025)	Spain	SOR	ChatGPT	Adoption mechanism
(Acosta-Enriquez et al., 2025)	Peru	SEM model	AI	Sustainable use
(Liu, 2025)	China	TAM (mediated)	AI	Adoption factors
(Xiang et al., 2025)	China	PROCESS model	GenAI	Adoption
(Nevárez Montes & Elizondo-García, 2025)	Mexico	TAM	GenAI	Use behaviour
(Ejaz et al., 2025)	Pakistan	TAM	AI	Intention
(Xia et al., 2025)	China	TPACK + SDT	GenAI	Willingness
(Al-Abdullatif, 2024)	Saudi Arabia	TAM + TPACK	GenAI	Acceptance

Summary of Study Characteristics

An overall analysis of the included studies reveals several notable patterns in terms of publication trends, geographical distribution, and theoretical foundations. First, in terms of publication years, the majority of the studies were published between 2025 and 2026, indicating a rapid and recent growth of research on generative artificial intelligence (GenAI) in higher education. This trend reflects the increasing academic attention driven by the emergence of tools such as ChatGPT and large language models.

Second, regarding geographical distribution, the included studies were predominantly conducted in Asian regions, particularly in China, followed by contributions from countries such as India, Saudi Arabia, and Vietnam. A smaller number of studies originated from Europe and the Americas, suggesting that research on GenAI adoption among higher education teachers is currently more active in Asia, possibly due to differences in educational technology policies and digital transformation initiatives.

Third, with respect to theoretical foundations, the findings demonstrate a strong reliance on established technology adoption models. The Technology Acceptance Model emerged as the most frequently used framework, either independently or in combination with other models. In addition, extensions such as the Unified Theory of Acceptance and Use of Technology and frameworks like TPACK were also commonly adopted. This indicates that current research largely adopts a model-driven approach, focusing on explaining teachers' behavioural intention and actual use of GenAI through well-established theoretical lenses.

Overall, these patterns suggest that research on generative AI adoption in higher education is still in a rapidly developing stage, characterized by recent publication growth, regional concentration, and strong theoretical grounding in technology acceptance models.

VI. MAIN FINDING

The review process in this study involved synthesizing findings related to three distinct research questions, each of which is presented separately in the following sections.

RQ1: What is the current level of acceptance and adoption of generative AI among higher education teachers?

The reviewed studies indicate that higher education teachers generally show a growing level of acceptance toward generative AI, particularly tools such as ChatGPT and large language models. Most studies suggest that teachers recognize the potential value of GenAI in supporting teaching preparation, assessment design, academic communication, language teaching, and instructional innovation. For example, studies by Luo and Day (2026), Luo et al. (2026), Alotaibi and Alayed (2025), and Nguyen et al. (2025) examined teachers' readiness, intention, and use of GenAI in higher education contexts, showing that adoption is becoming an increasingly important topic among university educators.

However, the findings also suggest that GenAI adoption is still at a developing stage. While many teachers demonstrate positive attitudes and willingness to use GenAI, actual use appears to vary across contexts. Some studies focus on behavioural intention rather than actual use, which indicates that many higher education teachers are still in the early stage of considering or experimenting with GenAI rather than fully integrating it into teaching practice. Studies such as those by Verano-Tacoronte et al. (2025), Ramos Salazar and Peebles (2025), and Jaffar et al. (2025) further show that readiness, anxiety, self-efficacy, and innovativeness shape whether teachers move from awareness to actual adoption. Therefore, the overall level of acceptance can be described as moderate to high, but actual adoption remains uneven and context-dependent.

RQ2: What are the key factors that influence higher education teachers' intention to use generative AI tools in teaching?

The analysis of the included studies shows that the factors influencing higher education teachers' intention to use GenAI can be grouped into four main categories: technological, individual, social, and institutional factors.

First, technological factors are among the most frequently reported determinants. Studies based on TAM and UTAUT commonly highlight perceived usefulness, perceived ease of use, performance expectancy, and effort expectancy as important predictors of adoption intention. For instance, He and Chai (2025), Alotaibi and Alayed (2025), and Al-Abdullatif (2024) emphasize that teachers are more likely to adopt GenAI when they believe it can improve teaching effectiveness, reduce workload, support content generation, or enhance assessment design. Similarly, Bawa et al. (2026) extend this logic by linking GenAI use with task-technology fit and sustained usage.

Second, individual factors play a central role in teachers' adoption decisions. Self-efficacy, AI literacy, digital competence, innovativeness, attitude toward AI, and technology readiness are repeatedly identified as important

variables. Studies such as Maaz et al. (2026), Li and Lu (2025), Ramos Salazar and Peebles (2025), and Xia et al. (2025) suggest that teachers with higher confidence, stronger AI-related competence, and more positive attitudes are more willing to integrate GenAI into teaching. At the same time, anxiety and uncertainty may reduce adoption intention, as shown in studies focusing on teacher readiness and AI-related anxiety.

Third, social factors also influence teachers' willingness to use GenAI. Subjective norms, peer influence, professional communities, and academic culture can encourage or discourage adoption. For example, Maaz et al. (2026) includes subjective norms as an adoption-related factor, while studies on faculty adoption and educator typologies suggest that teachers' decisions are not made individually but are shaped by their institutional and peer environments.

Fourth, institutional factors are highly important for moving from intention to actual use. Organizational support, training opportunities, clear policies, technological infrastructure, and leadership support appear to strengthen teachers' adoption of GenAI. Studies such as Luo and Day (2026), Siyam et al. (2025), and Alzahrani and Alzahrani (2025) indicate that teachers are more likely to adopt GenAI when institutions provide guidance, resources, professional development, and supportive policies. Therefore, GenAI adoption among higher education teachers is not only a matter of individual willingness but also depends on whether institutions create enabling conditions.

RQ3: What challenges and barriers do higher education teachers face in integrating generative AI into their teaching practices?

The reviewed studies also reveal several barriers that hinder the effective integration of GenAI into higher education teaching. The first major barrier is limited knowledge and insufficient training. Many teachers may be interested in using GenAI but lack the necessary AI literacy, prompt design skills, or pedagogical knowledge to apply these tools effectively. This issue is reflected in studies addressing teacher readiness, training needs, and learning support, such as those by Soleimani et al. (2025), Gouveia et al. (2025), and Petjärvi et al. (2025).

The second barrier concerns ethics, academic integrity, and reliability. Teachers often express concerns about plagiarism, biased outputs, inaccurate information, overreliance on AI, and the difficulty of assessing student work in the GenAI era. These concerns are especially relevant in studies focusing on GenAI use in assessment, academic communication, and student learning. For example, Khlaif et al. (2024), Cambra-Fierro et al. (2025), and Shata (2025) highlight concerns related to responsible use, resistance, and the potential risks of AI integration.

The third barrier is institutional uncertainty. Some studies suggest that teachers are less likely to use GenAI confidently when universities lack clear policies, ethical guidelines, technical support, or formal training programs. Without institutional direction, teachers may feel uncertain about what is allowed, how to use GenAI appropriately, and how to manage risks in teaching and assessment.

The fourth barrier relates to workload and psychological pressure. Although GenAI is often promoted as a tool for improving efficiency, teachers may also perceive it as an additional responsibility requiring new skills, extra preparation, and continuous adaptation. Studies on faculty well-being, anxiety, and resistance suggest that GenAI adoption can create emotional and professional tensions, especially when teachers feel underprepared or unsupported.

Overall, the findings suggest that while higher education teachers generally recognize the potential benefits of GenAI, successful adoption depends on more than positive attitudes. It requires technological usefulness, individual readiness, social encouragement, institutional support, and clear strategies to address ethical, pedagogical, and workload-related challenges.

VII. DISCUSSION

This study aimed to examine the level of acceptance and adoption of generative artificial intelligence (GenAI) among higher education teachers, identify the key factors influencing their adoption intention, and explore the challenges associated with its integration into teaching practices. The findings provide several important insights that both align with and extend prior systematic reviews on artificial intelligence in education.

First, with respect to RQ1, the results indicate that higher education teachers generally demonstrate a moderate to high level of acceptance toward GenAI, while actual usage remains uneven and context-dependent. This finding is consistent with previous systematic reviews on AI in education (e.g., Olaf Zawacki-Richter et al., 2019; Chen et al., 2020), which highlight a persistent gap between awareness, intention, and actual implementation. However, the present study further shows that this gap is particularly pronounced in the context of generative AI, where rapid technological advancement—especially the emergence of tools such as ChatGPT—has outpaced pedagogical integration. This suggests that while teachers are increasingly open to GenAI, institutional and pedagogical adaptation is still evolving.

Second, regarding RQ2, the findings confirm that GenAI adoption is influenced by a combination of technological, individual, social, and institutional factors, with technological and individual factors playing a dominant role. This is strongly aligned with prior model-based reviews grounded in the Technology Acceptance Model and the Unified Theory of Acceptance and Use of Technology (e.g., Granić & Marangunić, 2019; Scherer et al., 2019), which consistently identify perceived usefulness, perceived ease of use, and performance expectancy as key predictors of adoption intention. Nevertheless, compared to earlier systematic reviews focusing on general digital technologies, this study highlights the increasing importance of AI-specific competencies, such as AI literacy, prompt skills, and trust in AI-generated outputs. In addition, attitudinal and emotional factors, including anxiety and perceived risks, appear to play a more significant role in GenAI adoption than in traditional technology contexts. These findings suggest that GenAI adoption requires an extension of existing models to better capture the unique characteristics of generative technologies.

Third, in relation to RQ3, the findings reveal that ethical concerns, lack of training, institutional uncertainty, and workload pressure remain major barriers to adoption. These results are consistent with prior systematic reviews on AI in education (Zawacki-Richter et al., 2019; Kasneci et al., 2023), which emphasize issues such as data privacy, academic integrity, and insufficient institutional support. However, the present study further demonstrates that generative AI introduces new and intensified challenges, particularly regarding content reliability, overdependence on AI-generated outputs, and the difficulty of assessing student work in AI-supported environments. This reflects the distinct nature of GenAI technologies, which directly generate content and therefore reshape traditional teaching, learning, and evaluation processes.

Overall, while the findings largely support existing theoretical models and prior SLR conclusions, this study contributes to the literature by providing an updated and GenAI-specific perspective on technology adoption in higher education. Unlike earlier reviews that focus on general AI or educational technologies, this study highlights the emerging role of individual competencies, the increasing importance of institutional support, and the growing complexity of ethical and pedagogical challenges associated with generative AI. These insights suggest that future research should move beyond traditional adoption frameworks and incorporate more context-sensitive and AI-specific factors to better explain the evolving dynamics of technology use in higher education.

VIII. LIMITATION

This study has several limitations that should be acknowledged. First, the review included only studies published in English and indexed in Scopus and Web of Science, which may limit the comprehensiveness of the findings and exclude relevant research from other databases or languages. Second, the study focused on a relatively small sample of 25 model-based studies, which, while enhancing analytical rigor, may not fully capture the diversity of perspectives in the broader literature on generative AI in education. Third, as a systematic literature review, the findings rely on the quality and scope of the included studies and are therefore subject to potential publication bias. Finally, the rapid evolution of generative AI technologies means that the findings may quickly become outdated as new tools, practices, and research emerge.

IX. CONCLUSION

This study systematically reviewed the literature to examine the adoption of generative artificial intelligence (GenAI) among higher education teachers, focusing on the level of acceptance, key influencing factors, and the challenges associated with its integration into teaching practices. Based on the analysis of 25 model-based studies, the findings indicate that while higher education teachers generally exhibit a moderate to high level of acceptance toward GenAI, actual usage remains uneven and is still in a developmental stage. The results further reveal that teachers' adoption of GenAI is influenced by a combination of technological, individual, social, and institutional factors,

with technological perceptions (e.g., usefulness and ease of use) and individual readiness playing a particularly significant role. At the same time, several barriers—including limited training, ethical concerns, institutional uncertainty, and workload pressures—continue to constrain the effective implementation of GenAI in higher education. Overall, this study contributes to the existing literature by providing an updated, model-driven synthesis of GenAI adoption among higher education teachers. By integrating findings across multiple studies, it highlights the evolving nature of technology adoption in the context of generative AI and underscores the need to extend traditional adoption models to account for AI-specific competencies and emerging challenges. The findings offer valuable insights for educators, policymakers, and institutions seeking to support the effective and responsible integration of generative AI in higher education.

REFERENCES

- Adib Rashid, A., & Kausik, M. A. K. (2024). The impact of Industry 4.0 technologies on education: A review of emerging trends. *Education and Information Technologies*.
- Al-Abdullatif, A. (2024). Modelling teachers' acceptance of generative AI in higher education. *Education and Information Technologies*.
- Alotaibi, H., & Alayed, M. (2025). Adoption of generative AI among university faculty: A technology acceptance perspective. *International Journal of Educational Technology*.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- Bawa, R., et al. (2026). Sustained use of generative AI: Extending TAM with task–technology fit. *Interactive Learning Environments*.
- Bond, M., et al. (2024). A meta systematic review of artificial intelligence in higher education. *International Journal of Educational Technology in Higher Education*.
- Cambra-Fierro, J., et al. (2025). Generative AI adoption and well-being in higher education. *Education and Information Technologies*.
- Chen, X., Xie, H., Zou, D., & Hwang, G.-J. (2020). 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>
- Chen, X., et al. (2025). Understanding teachers' intention to adopt generative AI in higher education. *International Journal of Educational Technology*.
- Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education*, 20, 22.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Feng, L., et al. (2025). EFL teachers' acceptance of generative AI tools: A TAM-based study. *European Journal of Education*.
- Garcia, M., et al. (2025). Adoption of generative AI in higher education: Evidence from Latin America. *Technology in Society*.
- Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, 50(5), 2572–2593. <https://doi.org/10.1111/bjet.12864>
- He, Z., & Chai, C. (2025). Examining teachers' acceptance of generative AI using the technology acceptance model. *Computers & Education*.
- Jaffar, M., et al. (2025). University teachers' readiness to adopt generative AI tools. *Journal of Applied Research in Higher Education*.
- Kasneji, E., et al. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Leh, A. S. (2022). Artificial intelligence and its applications in teaching and learning. *Educational Technology Research and Development*.
- Li, C., & Lu, L. (2025). AI literacy and teachers' intention to use generative AI. *Lecture Notes in Computer Science*.
- Liang, J., & Suwanragsa, S. (2025). Determinants of generative AI adoption among university instructors. *European Journal of Education*.
- Liu, G., et al. (2025). Factors influencing teachers' acceptance of generative AI technologies. *Frontiers in Psychology*.
- Luo, Y., & Day, M. (2026). Understanding higher education teachers' adoption of generative AI: A UTAUT-based approach. *Education and Information Technologies*.
- Luo, Y., et al. (2026). Adoption behaviour of generative AI in higher education teaching. *Educational Technology Research and Development*.
- Maaz, M. A., et al. (2026). Behavioural intention to use generative AI in teaching: A TAM-based study. *International Journal of Educational Technology*.
- Mhlongo, S., et al. (2023). The role of digital transformation in higher education: A systematic review. *Education and Information Technologies*.
- Nguyen, H., et al. (2025). Teachers' intention to use ChatGPT in higher education: A technology acceptance perspective. *Education Sciences*.
- Park, S., et al. (2025). Factors influencing teachers' intention to adopt AI tools in higher education. *Computers in Human Behaviour*.
- Rahi, S., et al. (2025). Extending UTAUT2 to explain ChatGPT adoption in education. *Interactive Learning Environments*.
- Ramos Salazar, L., & Peeples, A. (2025). Faculty adoption of generative AI tools in higher education. *Journal of Computer Assisted Learning*.
- Santos, J., et al. (2025). Institutional factors influencing AI adoption in universities. *Higher Education Research & Development*.
- Scherer, R., Siddiq, F., & Tondeur, J. (2019). The technology acceptance model (TAM): A meta-analytic structural equation modelling approach. *Computers & Education*, 128, 13–35. <https://doi.org/10.1016/j.compedu.2018.09.009>

- Shata, A., & Hartley, K. (2025). Resistance to generative AI adoption among university faculty. *Frontiers in Education*.
- Verano-Tacoronte, D., et al. (2025). Adoption intention toward generative AI in higher education. *Education and Information Technologies*.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
- Wang, Y., & Huang, X. (2025). Acceptance of large language models among higher education teachers. *Computers & Education*.
- Xia, Q., et al. (2025). Teachers' willingness to use generative AI: A TPACK-based approach. *European Journal of Education*.
- Xiang, Y., et al. (2025). Factors influencing AI adoption in higher education: A process model. *PLOS ONE*.
- Xu, W., et al. (2021). Artificial intelligence in education: Development and applications. *Computers & Education*.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>