

Exploring Teachers' Perspective on the Adoption of Artificial Intelligence in Education: A Meta Review

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Abstract

This article reports on an investigation of teachers' views regarding the adoption of Artificial Intelligence (AI) in education. AI has a complex and multi-sided impact on all major stakeholders in this sector of human activity. As adoption and success of any information technology (IT) are critically dependent on the favorable potential users' view of that IT, the goal of this study is to understand the key factors of adoption of AI in education from the teachers' perspective by using the rigorous lens of the Unified Theory of Acceptance and Use of Technology (UTAUT). The investigation was conducted as a meta review of empirical studies exploring the use of AI tools by educators and published between January 2024 and March 2026. The analysis of the 20 studies meeting the criteria of this meta review showed that the main reasons for adopting AI in education by teachers are the perception of usefulness (85% of the cases), followed by the perception of ease of use and the perception of appropriate organizational support (55% of the cases each). Experience due to prior exposure to technology has been identified as the single most significant moderator (in 50% of the investigations). This study captured a snapshot of the use of the very dynamic AI tools in education, and further empirical research is expected to confirm and enrich its findings.

Keywords

Artificial Intelligence, Technology Adoption, Education, Teachers, Meta Review

1. Introduction

Education sector is one of the domains of human activity highly influenced by the

contemporary emergence of Artificial Intelligence (AI). The conceptualization of AI within the educational sector refers to the deployment of computing systems and machines engineered to simulate human cognitive processes, specifically pertaining to learning, reasoning, pattern recognition, and self-correction (Ali, 2024; Crompton & Burke, 2023; Nguyen et al., 2024; Wang et al., 2024; Yadav, 2024). These technological artifacts have undergone a significant evolution, transitioning from primitive rule-based expert systems to current adaptive, data-driven, and generative solutions designed to support knowledge-intensive cognitive activities (Ali, 2024; Wang et al., 2024).

Impact of AI in education is multisided and is being exerted on all major stakeholders. For instance, from the learners' perspective, AI may be primarily utilized as a mechanism to facilitate personalized learning. This approach allows for the customization of instructional pace, content delivery, and learning pathways to align with the specific academic levels and preferences of individual students (Gupta et al., 2025; Hardaker & Glenn, 2025; Pratama et al., 2023; Yadav, 2024). Consequently, AI-based tutoring systems have been developed to emulate human mentorship, providing one-on-one support and guidance to ensure the mastery of complex concepts (Ali, 2024; Azman & Tmkaya, 2025; Nguyen et al., 2024). Furthermore, AI facilitates predictive analytics, leveraging large datasets to identify student trends and forecast academic outcomes, thereby enabling early interventions for at-risk learners (Bond et al., 2024; Crompton & Burke, 2023; Wang et al., 2024).

The influence of AI in education is equally complex from the teachers' perspective. Thus, AI can help by offering support tools for educational writing and direct instruction as well as by helping to automate duties such as grading, scheduling, and routine inquiries. Automation of these processes liberates time for educators, thereby allowing for a concentrated focus on mentorship and instructional innovation (Azman & Tmkaya, 2025; Gupta et al., 2025; Yadav, 2024). Such systems often utilize natural language processing to evaluate qualitative assessments with consistency, while specialized tools maintain academic integrity through plagiarism detection (Ali, 2024; Wang et al., 2024).

Despite the apparently ample benefits of using AI tools by the major stakeholders in the educational process, it would be interesting to look at the key factors motivating the adoption of these tools through a theoretical framework. The goal of this study is to focus on the key factors of adoption from the teachers' perspective by using a theoretically rigorous lens provided by the widely popular Unified Theory of Acceptance and Use of Technology (UTAUT) introduced by Venkatesh et al. (2003). For that, this study performs a meta review of empirical studies exploring the use of AI tools by educators in recent years. The remaining of this article comprises a literature review, a section describing the methodology of the study, a section reporting the key results, and, finally, a discussion and conclusion section commenting on the key findings and contributions of the study.

2. Literature Review

2.1. Artificial Intelligence Tools

Artificial Intelligence (AI) tools involve the development of computing systems and machines designed to simulate human intelligence processes, specifically those pertaining to learning, reasoning, problem-solving, and perception (Wang et al., 2024; Yadav, 2024). These technological artifacts typically use a complex architecture of interconnected computational frameworks, including machine learning, deep learning, and natural language processing. This integration enables the recognition of complex patterns and the execution of decision-making processes that have traditionally necessitated human intellect (Nguyen et al., 2024; Wang et al., 2024).

Within the relevant literature, AI is frequently categorized into two primary theoretical categories: “strong AI” characterized by broad human-level cognitive capabilities, and “weak AI” designed to execute reasoning for highly specific tasks (Wang et al., 2024). It is important to note that the vast majority of contemporary commercial applications are categorized under the latter classification (Wang et al., 2024).

The utility of AI tools transcends diverse sectors, including healthcare, finance, and transportation, while their integration into the educational sector has emerged as a fundamental area of research (Yadav, 2024) because all major sectors include some educational component. Thus, educational institutions represent one of the most frequent cases of using AI tools with significant influences on all major stakeholders in those institutions (Azman & Tmkaya, 2025; Crompton & Burke, 2023).

2.2. Artificial Intelligence in Education

AI tools represent a significant shift in the educational landscape by facilitating adaptive, data-informed learning experiences that are tailored to individual student requirements (Gupta et al., 2025; Wang et al., 2024). Within the academic literature, these technological artifacts are primarily identified as mechanisms to personalize instruction, automate repetitive administrative functions, and enhance both assessment and engagement processes (Pratama et al., 2023; Yadav, 2024).

In the domain of teaching and learning, AI facilitates personalized environments by using student data to customize content delivery, instructional pacing, and learning paths based on individual preferences and academic proficiency (Ali, 2024; Gupta et al., 2025; Hardaker & Glenn, 2025; Nguyen et al., 2024; Yadav, 2024). Consistent with previous research on human-computer interaction, AI systems serve as refined interactive aids that emulate human mentorship. These systems provide immediate feedback, technical explanations, and guidance, thereby enabling students to master complex subjects at an individualized pace (Ali, 2024; Azman & Tmkaya, 2025; Crompton & Burke, 2023; Hardaker & Glenn, 2025; Nguyen et al., 2024; Yadav, 2024).

From another perspective, AI assists educators through the strategic application of predictive analytics. By analyzing behavioral patterns and Learning Management Systems (LMS) activity, these tools can identify at-risk students and forecast future performance outcomes (Ali, 2024; Crompton & Burke, 2023; Gupta et al., 2025; Nguyen et al., 2024; Wang et al., 2024; Yadav, 2024). Beyond pedagogical interventions, AI tools act as favorable antecedents to institutional efficiency by automating administrative duties such as qualitative essay grading, schedule management, and responding to routine inquiries (Azman & Tmkaya, 2025; Crompton & Burke, 2023; Gupta et al., 2025; Wang et al., 2024; Yadav, 2024). However, as AI tools are evolving fast with new capabilities available almost every month, to fully understand how educators perceive the possible AI assistance, it would be interesting to use a validated framework of technology adoption.

2.3. Information Technology Adoption Research

Investigating the adoption of information technology (IT) has consistently been recognized as one of the most significant streams of research within contemporary information systems (IS) and information science literature (Dwivedi et al., 2019; Venkatesh & Zhang, 2010; Wang et al., 2022). The main explanation for this popularity is that the strategic value of increasing investments in IT is only realized when the technology is successfully accepted and utilized by the intended users (Wang et al., 2022), while underutilization is a primary barrier to realizing the competitive advantages of IT innovations (Maruping et al., 2017). Understanding the drivers of user acceptance is, therefore, essential for organizations seeking to proactively design training and marketing interventions to ensure implementation success (Venkatesh et al., 2003).

Over recent decades, several popular theoretical models have been proposed and validated to explain user behavior regarding technology adoption, including the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), and the Theory of Planned Behavior (TPB) (Dwivedi et al., 2019; Venkatesh et al., 2003). Among these, the TAM, proposed by Davis (1989), has been one of the most widely utilized frameworks, identifying perceived usefulness and perceived ease of use as the primary determinants of adoption (Aytekin et al., 2022; Wang et al., 2022). Other foundational theories that have contributed to this body of knowledge include Social Cognitive Theory (SCT), Innovation Diffusion Theory (IDT), and the Model of PC Utilization (MPCU) (Aytekin et al., 2022; Feng et al., 2021).

Venkatesh et al. (2003) refined constructs and implications from the most prominent prior adoption models to formulate the Unified Theory of Acceptance and Use of Technology (UTAUT). This model identifies four core independent constructs as the primary determinants of behavioral intention and subsequent usage behavior: performance expectancy, effort expectancy, social influence, and facilitating conditions (Maruping et al., 2017; Venkatesh et al., 2003). A de-

fining feature of the UTAUT is the integration of four moderators (gender, age, experience, and voluntariness of use) which serve to affect the strength of the core relationships of the model (Feng et al., 2021; Venkatesh & Zhang, 2010). Empirically, the UTAUT has been proven to outperform its predecessors, explaining a higher percentage of the variance in behavioral intention to adopt and use an IT system or device (Aytekin et al., 2022; Venkatesh et al., 2003).

Present research continues to expand the field of adoption research by applying such established models to emerging technologies such as AI, machine learning, and blockchain (Al Rian et al., 2024; Wang et al., 2022). Thus, contemporary studies suggest that user acceptance of these complex technology artifacts is increasingly multifaceted, necessitating a refined view of the adoption equation (Al Rian et al., 2024; Feng et al., 2021). Consequently, the solid body of research validating the use of UTAUT for various and complex IT artifacts justifies the use of this framework to investigate the adoption of AI by teachers in the education process.

3. Methodology

This study was designed as a meta review of all studies reporting directly or indirectly on empirical investigations of adoption of artificial intelligence tools by teachers or professors (or all instructors no matter the form of education, in general) and published in the period January 2024 to March 2026. This relatively narrow time frame was selected due to the very high dynamicity of using continuously evolving AI tools in various domains of human activity, including the education sector.

Google Scholar Labs was used to search for relevant publications by describing in natural language the conditions mentioned in the paragraph above. Data collected were pre-screened and analyzed for relevance using Google NotebookLM, Google Gemini, and Microsoft Copilot tools. The data collected were mapped by the author using UTAUT framework. This model was selected as the scientific structure for assessing the data collected due to its capability of depicting a comprehensive image of the adoption factors for a specific IT artifact. Thus, UTAUT model identifies four core independent constructs that serve as primary determinants of user acceptance and usage behavior (Aytekin et al., 2022; Dwivedi et al., 2019; Venkatesh & Zhang, 2010; Venkatesh et al., 2003; Wang et al., 2022):

- *Performance Expectancy*—The degree to which an individual believes that using the system will help them attain gains in job performance or productivity (Dwivedi et al., 2019; Venkatesh et al., 2003; Wang et al., 2022).
- *Effort Expectancy*—The degree of ease associated with the use of the system (Aytekin et al., 2022; Feng et al., 2021; Venkatesh et al., 2003; Wang et al., 2022).
- *Social Influence*—The degree to which an individual perceives that “important others,” such as supervisors or peers, believe they should use the new system

(Feng et al., 2021; Maruping et al., 2017; Venkatesh et al., 2003; Wang et al., 2022).

- *Facilitating Conditions*—The degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system (Aytekin et al., 2022; Feng et al., 2021; Venkatesh & Zhang, 2010; Venkatesh et al., 2003; Wang et al., 2022).

A defining feature of UTAUT is also the inclusion of four key moderating variables: *Gender*, *Age*, *Experience*, and *Voluntariness of use* (Dwivedi et al., 2019; Feng et al., 2021; Maruping et al., 2017; Venkatesh & Zhang, 2010; Venkatesh et al., 2003; Wang et al., 2022). These moderators amplify or constrain the relationships between the core constructs and intention or behavior. **Figure 1** below represents the generic diagram of the UTAUT model.

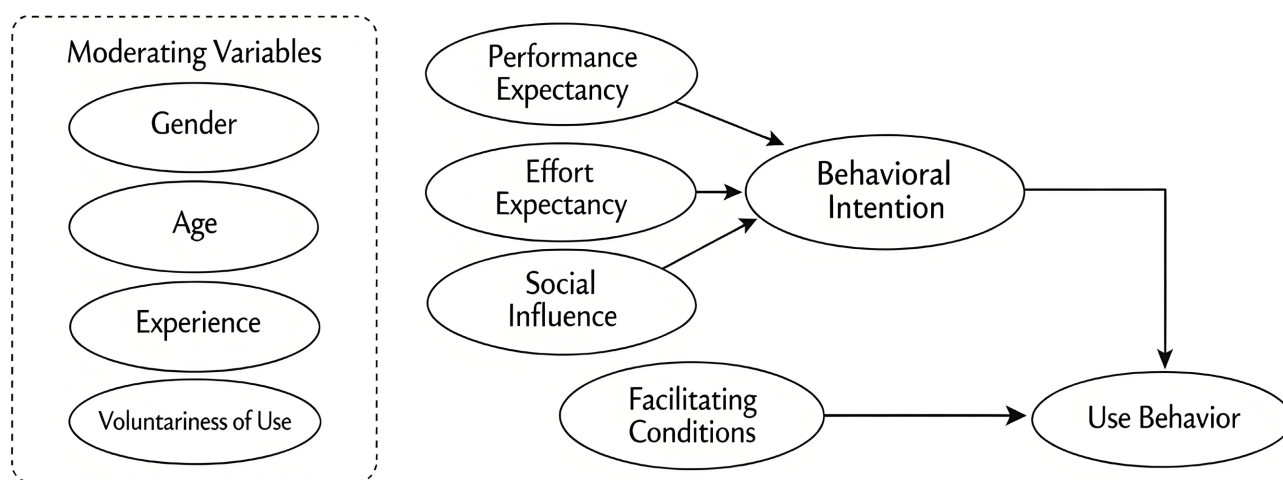


Figure 1. Factor diagram of UTAUT (adapted from Venkatesh & Zhang (2010)).

4. Findings

The targeted search evaluated 298 candidate articles and found 31 relevant results. Of these, 11 were discarded as not matching the purpose of the research (i.e., only articles reporting empirical studies on AI adoption in education from the teachers' perspective). Findings were summarized in **Table 1** below. The table represents in alphabetical order (including the countries where research was conducted) the cases where the four core independent constructs (i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions) and the four key moderating variables (gender, age, experience, and voluntariness of use) of the UTAUT were assessed as being important in the 20 articles retained for this meta review. When one of the four core independent constructs was reported as being found significant by a study listed in the first column, a "Yes" was marked in the corresponding cell (i.e., at the intersection between the row of the study and the column of the factor). When one or several of the four key moderating variables were found to be significant by a study listed in the first column, they were listed in the last column for that study.

Table 1. Articles included in the meta review.

Study	Country	PE	EE	SI	FC	Moderators
Al-Mughairi & Bhaskar (2025)	Oman	Yes			Yes	Voluntariness
Ali et al. (2025)	Trinidad & Tobago	Yes	Yes		Yes	
Bakhadirov & Alasgarova (2024)	Azerbaijan	Yes		Yes	Yes	Age, Voluntariness
Cabero-Almenara et al. (2024)	Ecuador	Yes	Yes	Yes	Yes	Voluntariness
Cambra-Fierro et al. (2025)	Spain	Yes	Yes			Voluntariness
Estaiteyeh & Mindzak (2025)	Canada	Yes				Experience
Fan & Muyunda (2025)	Zambia	Yes			Yes	Experience
Gârdan et al. (2025)	Romania	Yes				Experience
Li (2025)	China	Yes	Yes		Yes	Experience
Liu (2025)	China			Yes	Yes	Experience
Ma & Lei (2024)	China	Yes				Experience
Mehdaoui (2024)	Algeria	Yes			Yes	
Nagy et al. (2024)	Indonesia	Yes	Yes			
Pasupuleti et al. (2025)	India	Yes	Yes			Experience
Sharma et al. (2024)	India	Yes	Yes		Yes	
Raza & Farooq (2025)	Pakistan	Yes			Yes	
Tang (2025)	Vietnam		Yes			Experience
Tomczyk & Majkut (2025)	Poland	Yes	Yes			Experience
Xiang et al. (2025)	China		Yes		Yes	Experience
Zhao, Li, & Zhang (2025)	China	Yes	Yes	Yes	Yes	

Abbreviations: PE—Performance Expectancy; EE—Effort Expectancy; SI—Social Influence; FC—Facilitating Conditions

5. Discussion and Conclusion

The purpose of this study has been to capture an image of the most important adoption factors of AI tools in the education sector from the teachers' perspective. For that, 20 relevant very recent articles (published between 2024 and early 2026) reporting empirical evidence in educational environments were assessed using the framework of the widely popular Unified Theory of Acceptance and Use of Technology (UTAUT). By examining the frequency with which the four core independent constructs and the four key moderators of UTAUT were identified as significant a comprehensive picture of modern technological pragmatism has emerged.

Thus, among the core independent constructs of UTAUT (as shown in **Figure 1**), Performance Expectancy (PE) or a similar factor was identified as the most frequent significant determinant, appearing in 17 out of the 20 analyzed studies (i.e., 85%) summarized in **Table 1**. Within this context, PE is understood as the degree to which a user believes that employing a specific technology will facilitate gains in efficiency or instructional performance. The high frequency of PE's sig-

nificance suggests that contemporary teachers are primarily driven to use AI in their work by the perceptions of utility and productivity when accepting these new tools (Al-Mughairi & Bhaskar, 2025; Ali et al., 2025; Zhao et al., 2025). This global consensus, spanning diverse contexts, including Canada, China, Romania, and Indonesia, indicates that perceived usefulness remains the most stable and universal predictor of behavioral intention of adoption. Accordingly, users are likely to adopt these tools only when they perceive a tangible benefit to their professional or educational tasks (Estaiteyeh & Mindzak, 2025; Gârdan et al., 2025).

Following Performance Expectancy, Effort Expectancy (EE) and Facilitating Conditions (FC) were identified as significant in 11 studies each (i.e., 55% of the cases). While EE, i.e., the perceived ease of use, remains a vital gateway for AI adoption in education, its significance in only about half of the studies reviewed suggests that the apparent user-friendliness is often secondary to the artifact's actual performance as perceived by the teachers (Nagy et al., 2024; Tomczyk & Majkut, 2025). Similarly, the significance of Facilitating Conditions underscores that successful integration of AI technology is heavily contingent upon institutional support systems, such as reliable technical infrastructure and training (Bakhadirov & Alasgarova, 2024; Raza & Farooq, 2025). This emphasizes that while individual intention for adoption is essential, the presence of a supportive organizational environment remains a fundamental antecedent to actual usage of AI by teachers (Sharma et al., 2024).

In contrast to adoption studies for other IT artifacts, Social Influence (SI) occurred as the least significant core construct of UTAUT for the case of AI adoption by teachers, appearing in only 4 of the 20 relevant studies assessed (i.e., 20% of the cases). This comparatively lower significance may be attributed to the maturation of the "digital generation." Thus, because contemporary educators operate within technology-saturated environments, they possess an inherent digital literacy that might reduce the necessity of social validation or peer influence to increase the likelihood of AI adoption (Cabero-Almenara et al., 2024; Liu, 2025).

The analysis of moderating variables reveals a significant shift from the original UTAUT formulation proposed by Venkatesh et al. (2003). Thus, Experience was identified as the most frequently significant moderator, identified in 10 out of the 20 publications in **Table 1** (hence 50% of the studies). This suggests that prior exposure to technology is now the primary individual difference altering the impact of core constructs on behavioral intention to adopt and use AI by teachers (Li, 2025; Ma & Lei, 2024). This was followed by the Voluntariness of Use that remained significant primarily in higher education contexts where instructors may operate under institutional mandates that require the use of certain AI tools (Al-Mughairi & Bhaskar, 2025; Cambra-Fierro et al., 2025). Conversely, the traditionally important demographic moderators of Age and Gender have seen a decline in significance compared to adoption studies for other IT artifacts, with Age appearing in only one study and Gender not found to be significant in any of the analyzed studies. This finding, together with the variety of countries where empirical

research was conducted, as shown in **Table 1**, suggest a “narrowing gap” in technology acceptance of AI by teachers since demographic variables or cultural context appear not to be relevant in the adoption equation.

Overall, the findings of this meta review demonstrate the overwhelming dominance of Performance Expectancy as the main reason of adopting AI in education by teachers. This conclusion, coupled with the lowest importance from all the UTAUT factors noticed for Social Influence, as well as the frequency of Experience as a key moderator, implies a tendency toward technological pragmatism. Thus, teachers using AI tools in recent years have made adoption decisions based on the perceived utility of these tools and personal experience with IT rather than social pressure or demographic identity.

As a limitation, it must be mentioned here that the review included a relatively small number of heterogeneous studies and was limited to broad statistical assessments without accounting for educational context, methodology, sample size, significance level, weights, etc. This was a preliminary study meant to inform future empirical research on the current picture of AI adoption by instructors.

The outcomes of this meta review indicate that in order to increase the degree of adoption of AI tools by teachers, educational institutions should encourage the use of tools with high utility (i.e., leading to high Performance Expectancy perceptions) while providing a robust infrastructure (i.e., perceptions of appropriate Facilitating Conditions) and the necessary guidance in the process of deploying these technologies (i.e., to mitigate perceptions of potential high Effort Expectancy). Further empirical research is expected to confirm and enrich the findings of this study.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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