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Understanding School Teachers' Acceptance of AI in Education: Insights from the Technology Acceptance Model (TAM)

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Abstract

Artificial Intelligence (AI) has the potential to transform education by enhancing teaching and learning processes. However, the adoption of AI among school teachers remains inconsistent due to various factors influencing their acceptance. Teachers are the key drivers of educational change and their acceptance of AI is critical to ensuring successful and sustainable integration. Factors such as teachers' self-efficacy, teaching experience, digital literacy and subjective norms require deeper investigation to fully understand their impact on AI acceptance. By addressing these gaps, this paper seeks to provide a clearer understanding of the determinants of AI acceptance among school teachers. Specifically, this concept paper explores school teachers' acceptance of AI in education using the original Technology Acceptance Model (TAM). The study aims to provide insights into how perceived ease of use, perceived usefulness, attitudes and external variables impact AI adoption among educators. The findings of this paper can serve as a foundation for further research and policymaking to encourage AI integration in schools.

Keywords: Artificial Intelligence (AI), Technology Acceptance Model (TAM), School Teachers, AI Acceptance, Education

Introduction

The rapid integration of technology across various sectors has driven the advancement of artificial intelligence (AI), enabling innovative solutions that enhance efficiency, automation and decision-making. AI has been transforming various industries and education is no exception (Harry, 2023; Yeruva, 2023). As AI continues to evolve, its integration into various fields is expected to drive innovation, streamline complex processes and enhance human productivity in unprecedented ways.

In recent years, AI plays an increasingly significant part in education. It is important to understand and investigate AI in educational contexts arises from its potential to improve both teaching practices and student learning outcomes. Given AI's possibilities in offering individualized learning, automating feedback and promoting inclusive education, it is crucial to explore how educators view and adopt these technologies in education. Despite the

growing presence of AI in educational tools, there is still a lack of clarity regarding teachers' readiness and willingness to adopt such innovations. This highlights a critical need to study this area, particularly from the perspective of school teachers, who play a central role in successful technology integration

The term of AI was first coined in the 1950s, marking the beginning of a revolutionary field in computer science. Since that time, scientists have been striving to create systems that can carry out tasks requiring cognitive abilities and function with a certain level of autonomy (Sheikh, Prins & Schrijvers, 2023). Over the years, AI has progressed from rule-based systems to advanced machine learning and deep learning models capable of processing large volumes of data, identifying patterns and making informed predictions. Today, AI is widely applied in various industries, including healthcare, finance, education and transportation, where it enhances efficiency and supports complex decision-making processes.

According to Mahato (2022), AI is the study of how the human brain thinks, learns, decides and functions when solving problems. The primary goal of AI is to enhance computer capabilities that mimic human intelligence, including reasoning, learning, problem-solving, decision-making and linguistic comprehension (Siemens et al., 2022). By advancing these functions, AI aims to create smarter systems that can analyze data, adapt to new information and interact with humans more effectively, ultimately improving various aspects of daily life and industry.

Within the realm of education, the AI tools have the potential to transform teaching and learning practices. A key benefit of AI in education is its ability to support personalized learning, helping teachers meet each student's individual needs more effectively. According to Tapalova and Zhiyenbayeva (2022), AI systems can deliver personalized instruction based on each student's interests, creating more tailored and engaging learning experiences. This implies that AI tools allow students to learn independently at their own pace, following a personalized learning track based on their individual abilities.

Similarly, Tayan et al. (2023) highlight the advantages of incorporating AI chatbots like ChatGPT into higher education technology courses. They emphasize how AI-driven tools can enhance personalized learning and boost student engagement by delivering tailored feedback and supporting self-regulated learning. Besides, the study by Goh and Mahaliza Mansor (2023) also highlights the potential of AI-powered language tools such as ChatGPT in enhancing pedagogy through personalized learning paths, automated feedback, reflective prompts and collaborative knowledge creation.

With AI-driven tools, educators can monitor student progress, identify their strengths or weaknesses and provide targeted instruction tailored to individual learning styles. This not only enhances student engagement and comprehension but also helps teachers to create more effective and inclusive learning environments, ultimately leading to improved student outcomes. This perspective is supported by Zhang et al. (2023), who stated that AI technologies have the potential to transform the education sector by offering personalized learning experiences for students while also automating administrative tasks for educators.

However, the successful implementation of these innovations depends significantly on educators' willingness to adopt and integrate them into their pedagogical approaches. Thus, understanding the factors influencing AI technological adoption among school teachers is therefore crucial to ensuring the effective utilization of AI in educational contexts. One of the most widely used frameworks for studying technology acceptance is the Technology Acceptance Model (TAM). TAM suggests that an individual's decision to adopt a technology is primarily determined by perceived usefulness and perceived ease of use (Davis, 1989). Even so, other factors, such as self- efficacy, job relevance and digital literacy may also play a crucial role in shaping teachers' attitudes toward AI acceptance. Given these considerations, this concept paper examines the key factors influencing school teachers' acceptance of AI in education using TAM as a guiding framework.

Problem Statement

The integration of AI in education has the potential to enhance teaching and learning, yet its acceptance among school teachers remains inconsistent, raising concerns about its successful implementation. Understanding the determinants of teachers' AI acceptance is crucial and the TAM has been widely used to study technology adoption in education. However, despite its popularity, TAM research on teachers has yielded contradictory findings, indicating a research gap that requires further investigation.

Some studies confirm that perceived usefulness significantly influences behavioral intentions, while others find no evidence for this relationship (Mailizar, Almanthari & Maulina, 2021). Additionally, the strength of associations within TAM varies across different teacher samples, leading to inconsistent explanations of behavioral intentions (Scherer, Siddiq & Tondeur, 2018). Further complexity arises from the moderating effects of teachers' computer self-efficacy, teachers' experience and the type of technology being studied (Ibrahim & Shiring, 2022). These inconsistencies challenge the overall validity of TAM in the education sector and raise questions about its applicability to AI adoption in schools.

Beyond the limitations of TAM, concerns regarding ethics, data privacy and algorithmic bias also impact AI adoption in education. The study by Tapalova and Zhiyenbayeva (2022) highlights the ethical concerns in the educational context, such as privacy, security, the use of personal data and the impact of virtual assistants on assessments. The study also emphasizes the importance of establishing ethical frameworks and professional codes of conduct to mitigate the potential dangers and risks of AI in society. Teachers may hesitate to integrate AI due to uncertainties about data security, transparency in decision-making and the potential for AI-driven educational inequalities (Brandhofer & Tengler, 2024). Lack of understanding, ethical issue and data privacy concerns, the use of AI in education is questionable and may affect its acceptance among educators (Ofosu-Ampong et al., 2023).

Given these challenges, this concept paper seeks to re-examine the determinants of school teachers' acceptance of AI in education using the original TAM. By addressing gaps in previous research and considering contextual factors unique to AI, this paper aims to provide a clearer understanding of the factors influences on teachers' willingness to accept AI technologies in education.

Research Questions

This study seeks to identify the factors influencing school teachers' acceptance of AI in education by examining their perceptions, attitudes and external influences through the TAM framework. To explore these theoretical considerations, this concept paper seeks to address the following research questions:

i. What are the key factors influencing school teachers' acceptance of AI in education with respect to the components of TAM?
ii. How do external factors moderate school teachers' acceptance of AI in education?

Objectives

Building upon the identified research problem and questions, this concept paper aims to explore the determinants of school teachers' acceptance of AI in education. Based on the components of TAM, this study seeks to achieve the following objective:

i. To identify the key factors that influence school teachers' acceptance of AI in education.
ii. To investigate the role of external factors in moderating school teachers' acceptance of AI in education.

Significance of the Study

This study is significant because it fills a critical knowledge gap in understanding how school teachers perceive and accept AI in education. Although AI has huge potential in supporting personalized learning and helping educators to complete tasks more easily and efficiently, but its adoption among teachers, particularly at the primary school level still remains inconsistent. This inconsistency highlights the urgent need to examine the factors that shape teachers' readiness and willingness toward the use of AI.

Instead of examining a variety of external variables, this concept paper concentrates on the direct components outlined in the TAM, namely perceived usefulness, perceived ease of use and attitude toward use. By applying the TAM, this study offers a structured approach to identify the key elements that influence teachers' decisions to embrace AI tools. Understanding these factors is crucial not only for promoting effective AI integration but also for guiding teacher training, digital transformation policies and school-based innovation.

The findings of this study will be especially valuable for educational policymakers, school leaders, curriculum developers and teacher education programs. It will provide insights that can inform the design of professional development modules, improve digital literacy initiatives and ensure AI technologies are developed in ways that support teachers' pedagogical goals. By identifying the key factors determined by the TAM, this study reinforces the importance of each element in shaping teachers' willingness to adopt technology. Finally, this research contributes to the broader effort of ensuring that AI in education is implemented effectively, equitably and sustainably.

Literature Review

Research on technology acceptance examines the factors influencing individuals' decisions to adopt or reject specific technologies. According to Brandhofer and Tengler (2024), acceptance refers to the recognition, confirmation, approval or agreement of a fact, person or situation. Acceptance results from the relationship of the acceptance construct consisting of the acceptance subject, acceptance object and context. In general, technology acceptance refers

to the adoption, integration and embracement of new technology. Technology acceptance, as the initial phase of technology adoption, involves developing a positive attitude toward technology, influenced by multiple factors, including perceived usefulness, ease of use, compatibility with existing practices and available support systems (Zawacki-Richter & Jung, 2025).

In the context of primary education, recent studies highlight that although interest in AI is growing among teachers, but the actual classroom adoption remains limited. Teachers generally think about AI as having real potential to make their jobs easier, personalize learning experiences for students and minimize repetitive tasks. At the same time, they are also concerned about whether AI tools are truely effective, ethically appropriate and how they will integrate into daily teaching routines. For instance, as of 2023, only about 18% of K–12 teachers in the United States regularly used AI in their classrooms with elementary school teachers using it even less frequently (OECD, 2023). Teachers who work with younger children often worry more about applicability and usefulness of AI technologies for early learners, emphasizing the need for tailored solutions and improved assistance.

Kim and Kim (2022) highlighted that the adoption of AI in classrooms remains limited due to the considerable number of teachers who continue to hold negative attitudes towards technology, opting instead not to integrate it into their teaching practices (Prensky, 2008; Kaban & Ergul, 2020; Starcic et al., 2021). Among the key factors contributing to this resistance are teachers' anxiety about using new technologies and their preference to stay in their comfort zone by using the same materials and methodologies they are already familiar with and hindering efforts to introduce technology on-site (Hébert et al., 2021).

The study by Prasetya et al. (2024) revealed that teachers' perceptions of AI integration in education were more strongly influenced by their teaching experience than by their age. Teachers with over 10 years of experience generally had more positive attitudes toward AI compared to those with less than 5 years of experience. This finding carries significant implications for the design of teacher training programs focused on AI integration. In line with the findings of Yue et al. (2024), this study suggests that providing targeted training and support can improve teachers' readiness and attitudes toward AI in education, helping to close the perception gap among educators with different levels of experience.

Based on the study conducted by Ting and Muhammad Helmi Norman (2024), the level of acceptance regarding the usefulness of AI for teaching was reported by 57 teachers (78%), while 54 teachers (73%) acknowledged its usability. 49 teachers (67%) expressed disagreement regarding the influence of social factors on their AI acceptance. Notably, only 13 teachers chose to adopt AI due to external factors, such as encouragement from colleagues and superiors. Despite this, the overall findings suggest a moderate level of AI acceptance, with the average rating leaning towards agreement (3.86 ≈ 4.00). These findings provide valuable insights into the acceptance of AI in education, particularly at SMK Dato Permaisuri. Understanding teachers' perceptions and the factors influencing their acceptance of AI can inform the development of effective training programs and support systems. This aligns with the focus of this concept paper, which explores the factors influencing acceptance of AI in education.

Fakhar et al. (2024) found that younger teachers, aged between 20 to 40 years, tend to be more familiar with AI concepts. Having grown up in a technology-driven era where Information and Communication Technology (ICT) is a part of daily life, they tend to have a more positive attitude toward adopting new technologies in their teaching. In terms of work experience, teachers with fewer years of experience are more likely to be interested in investigating new technologies and actively seek opportunities to expand their knowledge through continuous development of skills and learning. This indicates a significant relationship between technological knowledge and academic growth. On the other hand, teachers with extensive years of service often prefer traditional teaching methods, viewing technology adoption as a challenging and unpleasant experience. These findings are particularly relevant to the focus of this concept paper, which examines the factors influencing acceptance of AI in education.

Theoretical Framework

The integration of AI in education requires a clear understanding of the factors influencing teachers' acceptance of such technology. To explore this, a theoretical framework is essential in identifying the key determinants of AI adoption. Over the years, several technology acceptance models have been developed and tested, with the TAM developed by Davis (1986) being among the most significant and the most widely used models for studying technology acceptance.

Technology Acceptance Model (TAM)

This study adopts the original TAM as the foundational framework because it has been widely used to study technology adoption in many countries, including Germany, the US, Saudi Arabia, Pakistan, Malaysia, Turkey, Greece, Indonesia, South Korea and China (Dahri et al., 2024). It has also been applied in various fields like e-learning, remote education, social media and mobile library applications, showing its flexibility and effectiveness in understanding technology use in education (Asghar et al., 2023; Barz et al., 2024; Yoon, 2016). According to the meta-analysis by Marikyan, Papagiannidis and Stewart (2023), among 812 selected studies, the TAM and its extended versions were the most widely utilized with 597 studies adopting this framework. This widespread adoption indicates TAM's reliability and relevance in understanding user acceptance of technology, reinforcing its suitability as the foundation for this concept paper.

Developed by Davis (1986), the TAM is one of the most widely used models to predict the adoption and acceptance of information systems and technology by individual users(Schorr, 2023). TAM has been widely studied and validated in numerous research studies exploring individual behaviors related to technology acceptance across various information systems contexts. As stated by Darayseh (2023), this model was developed to explain behavior surrounding the use of technology and the factors influencing its acceptance. According to this model, the use of technology is influenced by behavioral intentions, which result from conscious decision-making (Cabero-Almenara et al., 2024). These behavioral intentions are shaped by two key factors which are perceived usefulness (PU) and perceived ease of use (PEU) (Davis, 1986).

This concept paper focuses exclusively on the original TAM model, even if expanded models like TAM 2 and TAM 3 contain new variables including subjective norms, job relevance

and computer self-efficacy. This decision is grounded in the model's simplicity, robustness and adaptability qualities that make it suitable for a concept-level investigation. Furthermore, this decision aligns with Agudo-Peregrina et al. (2014), who argue that the increased complexity of TAM 3 does not necessarily lead to a significantly better explanation of technology acceptance and use compared to earlier, simpler TAM-based models. Thus, using the original TAM not only maintains conceptual clarity but also aligns with previous research advocating for a more streamlined yet effective framework.

Key Constructs of TAM

The TAM, developed by Davis (1986), identifies key factors influencing an individual's decision to adopt a new technology. The model consists of four primary constructs which are Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude Toward Using (ATT) and Actual System Use (ASU).

Perceived Usefulness (PU)

Perceived Usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her performance (Davis, 1989). Similarly, PU has been described as an individual's perception of how the use of a given technology can improve performance (Marikyan & Papagiannidis, 2024). This construct is conceptualized based on Bandura's concept of outcome judgment, which suggests that an individual's expectation of a positive outcome influences their behavior (Bandura, 1982).

Beyond its theoretical foundation, PU plays a key role in influencing technology acceptance, as users are more likely to adopt systems they believe will benefit or enhance their task performance. Aligned with the concept of PU, the acceptance of AI tools in education is largely driven by the belief that these technologies enhance teaching effectiveness and student performance. When educators and learners perceive AI tools as useful in speeding their tasks, providing personalized support and improving learning outcomes, they are more likely to embrace and integrate AI tools into their daily practices.

Perceived Ease of Use (PEU)

Perceived ease of use (PEU) refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Several studies have concluded that when a platform is not confusing, easy to use and with minimal effort to learn, pupils are most likely to use it consistently and effectively (Herwanto, 2022; Lian & Khairul Azhar Jamaludin, 2024). This indicates that a well-designed system with a simple user interface, intuitive navigation and minimal learning curve can significantly enhance teachers' willingness to adopt AI tools in education.

Attitude Toward Using (ATT)

Attitude refers to a predisposed mindset about the advantages of a system, particularly its potential to enhance work performance, support time management and improve the overall quality of one's work (Petty & Briñol, 2010). Several studies indicate that users' attitudes play a crucial role in the acceptance and effective use of technologies in practical settings (Kalayou, Endehabtu & Tilahun, 2020). According to TAM, ATT plays a crucial role in determining behavioral intention to use AI in education. A positive attitude increases the probability of

adoption, whereas negative perceptions, such as AI being too complex or unreliable can hinder acceptance.

Actual System Use (ASU)

In the TAM, Actual System Use (ASU) refers to the observed behavior of individuals actively employing the technology (Davis, 1989). It represents the practical outcome of their perceptions, attitudes and intentions toward the system. According to TAM, the ASU of technology will be influenced directly or indirectly by the attitudes of a teacher as well as by its expected benefits and ease of use (Darayseh, 2023). As a key measure in TAM studies, ASU helps determine whether a technology has been effectively adopted and integrated into users' daily routines.

Technology Acceptance Model (TAM) and Relationships between Constructs

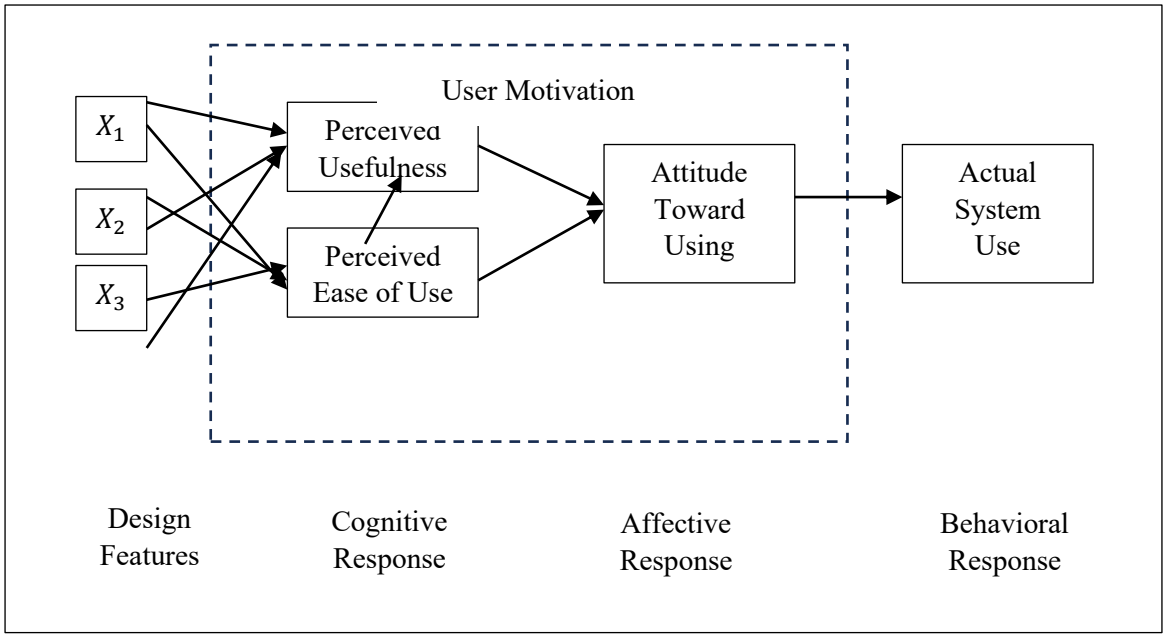

Figure 1 The original Technology Acceptance Model (TAM) proposed by Davis (1986).

TAM is a solid theoretical foundation that can extend to the context of the study of technology and its adoption. According to the model and explanations proposed by Davis (1986), a user's overall attitude toward using a system is considered a key factor in determining whether they will actually adopt it. This attitude is shaped by two main beliefs which are perceived usefulness (PU) and perceived ease of use (PEU). Additionally, PEU influences PU, meaning that if a system is easy to use, users are more likely to see it as beneficial.

Design features play a direct role in shaping both PU and PEU. However, since these features are categorized as external variables within the Fishbein paradigm, they do not directly impact a user's attitude or behavior. Instead, they influence these factors indirectly by affecting how useful and easy to use the system appears. Thus, in this study, external variables such as subjective norms, teachers' digital literacy, teaching experience and self-efficacy are considered to indirectly influence PU and PEU, in line with Davis's original framework.

Findings and Discussion

This section discusses key factors influencing school teachers' acceptance of AI in education, based on the original TAM constructs. The discussion is grounded in existing literature and directly addresses the research questions and objectives.

Perceived Usefulness (PU)

PU refers to the degree to which teachers believe that using AI tools will improve their teaching performance. This factor is central to answer the first research question and fulfill the first objective of identifying key TAM components influencing AI acceptance. Teachers are especially likely to adopt AI when they believe AI tools able to help them achieve better instructional outcomes, engage students more effectively or personalize learning. Additionally, teachers report greater acceptance of AI when they experience benefits such as the ability to automate administrative tasks, generate instant feedback and accelerate lesson preparation, which in turn reduces workload and increases job efficiency.

Based on the study conducted by Velli and Zafiropoulos (2024), PU was identified as the most significant predictor of educators' intention to use AI-based educational tools. When teachers view EAIT (educational AI tools) as beneficial and supportive of their work performance, they are more inclined to adopt and incorporate these tools into their teaching practices. Similarly, the analysis by Lu et al. (2024) revealed that PU significantly and positively influences both behavioral attitudes and behavioral willingness, indicating that the more teachers recognize the convenience and support AIGC (artificial intelligence-generated content) technology provides in teaching and learning, the stronger their intention and positive attitude toward its use. That study showed an especially large effect of PU on their attitude (path coefficient ~0.499) and a substantial direct effect on their behavioral intention to use AI (0.332–0.466 across teacher groups) underlining that the more teachers feel an AI system "brings convenience and help to their own teaching", the more motivated they are to embrace it.

Perceived Ease of Use (PEU)

In general, when an educational AI system is user-friendly and requires minimal effort to learn or operate, teachers form more positive attitudes toward it and show greater readiness to implement it. A study on secondary Science teachers' adoption of AI in Science teaching in Nigeria conducted by Nja et al. (2023) found that PEU was the single strongest correlate of teachers' intention to adopt AI, with a very high correlation (approximately $r = 0.79$) between teachers' perceptions of ease of use and their behavioral intention to use AI in teaching. This was the highest predictive value among the TAM constructs in that study, highlighting how crucial it is for AI tools to be straightforward and easy to use for educators. Teachers are more inclined to try a technology that "requires minimal effort" to integrate into their workflow (Bakhadirov, Alasgarova & Rzayev, 2024).

The study by Nja et al. (2023) also discovered that making an AI application easier to use had a significant impact as it increased teachers' perceptions of the tool's benefits (PU), which in turn strengthened their overall mindset about using AI in education. Based on the pathway analysis presented in the study, several significant relationships highlight the importance of PEU in influencing teachers' adoption of AI in education. PEU also had a direct positive influence on teachers' attitudes toward using AI, with a coefficient of 0.478 ($P < 0.05$),

reinforcing the belief that simplicity in technology design plays a crucial role in shaping positive user attitudes. As a conclusion, if an AI tool is easy to operate, it can directly increase teachers' willingness to adopt it in education (Lu et al., 2024).

Attitude Toward Using (ATT)

Within the framework of the TAM, teachers' attitudes toward AI, defined as their overall favorable or unfavorable perceptions of using AI in educational settings have a significant influence on their adoption decisions. A positive attitude reflects a greater likelihood of accepting and integrating AI tools into teaching practices, as supported by the model's emphasis on attitude as a key predictor of behavioral intention to use technology. Empirical research with school teachers generally supports the idea that a more positive attitude leads to stronger adoption intent. For instance, the study by Nja et al. (2023) reported a high positive association between teachers' attitude toward AI and their intention to use it (with a correlation around r = 0.73), meaning that teachers who feel positive about AI's role in their teaching are far more willing to actually implement AI tools in the classroom.

Almasri (2024) discovered that teachers usually had pleasant thoughts toward the implementation of AI in education. This was largely due to two key factors which are their belief that employing AI would not involve too much effort, indicating a high level of PEU and their confidence in their own abilities to run such technology. In other words, when teachers view AI as both user-friendly and relevant to their existing competencies, they are more likely to accept its use. This positive attitude is crucial because it fosters openness and a proactive intention to use AI tools into their teaching techniques. Such attitude is important during the early stages of technology adoption, as it builds the foundation for sustained and meaningful integration of AI in classroom practice.

In a study conducted by Cabero Almenara et al. (2021), teachers' attitudes were found to have a significant influence on their behavioral intention to use AI tools, in some models exerting even greater impact than PEU. The findings indicated that teachers who perceived AI tools as consistent with their pedagogical values and as beneficial for enhancing student learning demonstrated higher levels of acceptance. Moreover, attitude functioned as a key mediator in the relationship between PU and behavioral intention, highlighting its central role in the decision-making process. The study also noted that teachers who experienced positive emotional responses toward AI, such as curiosity and openness, were more inclined to explore and adopt these tools when provided with basic training and support.

External Variables

While PU, PEU and ATT are the core internal constructs of the original TAM (Davis, 1969), external variables play an essential role in shaping these beliefs and influencing teachers' acceptance of AI technologies. Within the scope of original TAM, external variables refer to individual or contextual factors. Although external variables are not part of the core model, but they can indirectly influence users' perceptions of PU, PEU and ATT. In the context of school teachers adopting AI, recent studies have highlighted a variety of external influences ranging from personal traits to institutional support that serve either as enablers or barriers to technology acceptance in educational settings. This study focuses on four key external variables that are highly relevant to teachers' acceptance of AI in education which including self-efficacy, teaching experience, digital literacy and subjective norms.

Self-efficacy

Self-efficacy is defined by Bandura (1997) as an individual's belief in their ability to successfully perform a specific task. In educational technology contexts, it refers to a teacher's confidence in their ability to learn and effectively use digital tools or AI systems. When teachers believe they are capable of mastering new technology, they are more likely to perceive it as useful and easy to use. The study conducted by Paetsch, Heppt and Meyer (2023) reported that self-efficacy was found to be a significant predictor of technological integration, with a correlation value of 0.52 ($p < 0.01$). The study found that attitudes and self-efficacy are closely linked and both show a positive relationship with the integration of ICT.

Williams et al. (2023) emphasized that self-efficacy plays a pivotal role in technology adoption, particularly in teacher preparation programs. Their study recommended that building teacher confidence should be a key component in promoting technology integration. Similarly, Tang, Tseng and Tang (2022) investigated digital readiness among Malaysian secondary school teachers and found that self-efficacy was a significant mediator between professional training and actual technology use. These findings reinforce that self-efficacy directly supports more favorable technology perceptions, making it a significant support of AI acceptance in schools.

Teaching Experience

Teaching experience refers to the professional background and number of years a teacher has spent in the classroom. Although several studies have investigated the impact of teaching experience on technology acceptance, the findings are not always consistent. For instance, the study conducted by Prasetya et al. (2024) found that teachers with more than ten years of experience had more positive perceptions of AI integration compared to those with less than five years of experience, suggesting a direct relationship between experience and behavioral intention to use AI. This finding suggests that greater teaching experience may be associated with a higher willingness to accept AI technologies in educational settings.

However, the findings of the study conducted by Darayseh (2023) show that teaching experience does not significantly influence teachers' behavioral intention to adopt AI in education. Statistical analyses such as the t-test and ANOVA revealed non-significant differences (p-values of 0.651 and 0.730), indicating that variations in experience do not result in notable changes in teachers' intention to use AI tools. These contradictory results indicate that the relationship between teaching experience and AI adoption can vary depending on other factors, highlighting the need for further research to better understand the variables influencing this relationship.

Subjective Norms

Generally, subjective norms refer to a person's perception that most people who are important to him or her think he or she should or should not perform the behavior in question (Fishbein & Ajzen, 1975). Subjective norms refer to a person's perception of the social pressure they feel to either engage in or avoid a specific behavior. In the context of educational settings, this may involve the expectations of school administrators, colleagues or the broader educational community regarding the use of AI in education.

A meta-analysis examining the influence of subjective norms on technology acceptance among teachers revealed that subjective norms have a positive impact on both perceived usefulness (PU) and perceived ease of use (PEU), with a stronger effect observed on PU (Scherer, Siddiq & Tondeur, 2021). When teachers perceive that respected individual within their professional environment such as school leaders or colleagues expect them to use certain technologies, they are more inclined to view these tools as valuable and relevant to their teaching. This sense of social encouragement contributes to a stronger belief in the technology's usefulness within the context of their daily educational practice.

Digital Literacy

Digital literacy refers to a wide range of competencies related to the effective use of computers and information technology, going beyond basic functional use. In a broader context, it involves the ability to evaluate information from multiple sources, determine its reliability and relevance and solve problems by locating and applying appropriate information (Yeşilyurt & Vezne, 2023). In the context of AI integration, digital literacy empowers teachers to effectively navigate, assess and apply AI tools within their instructional practices.

Yao and Wang (2024) found that higher digital literacy among pre-service special education teachers was closely associated with increased PU and PEU of AI tools. This, in turn, enhanced their intention to adopt AI in their future teaching. Similarly, Rachbauer, Graup and Rutter (2025) confirmed that digital competence is a critical factor in teacher readiness for AI-enhanced instruction. Their study showed that teachers with strong digital skills were more confident and capable of integrating AI systems effectively. These findings indicate that digital literacy not only reduces technical barriers but also increases teachers' comfort and willingness to explore AI in education.

Conclusion

This concept paper has examined the factors influencing school teachers' acceptance of AI in education using the original version of TAM developed by Davis in 1986. Centered on four key constructs which are perceived usefulness (PU), perceived ease of use (PEU), attitude toward using (ATT) and actual system use (ASU). This model provides a robust and widely validated framework to explain individual decisions regarding the acceptance of technology.

A review of recent empirical studies involving school teachers confirms that PU and PEU are consistently significant in shaping teachers' attitudes and behavioral intentions toward technology use. Teachers are more likely to adopt AI tools when they believe those tools enhance teaching effectiveness and student engagement and when the tools are perceived as easy to use and integrate into daily classroom practice. When teachers find that AI applications can help streamline their workload, such as by automating routine administrative tasks, generating instant feedback or assisting in lesson planning, teachers are more open to accept AI applications.

In addition, this paper considers the role of external variables such as teachers' digital literacy, teaching experience, self-efficacy and subjective norms. These variables are included not as part of an extended TAM model such as TAM 2 or TAM 3, but rather in line with Davis's original model, which allows external variables to influence PU and PEU indirectly.

Acknowledging these influences helps to provide a more complete understanding of teachers' acceptance without departing from the theoretical boundaries of the original TAM.

By addressing the research questions which focus on identifying the key factors influencing school teachers' acceptance of AI and exploring how external variables moderate this process, the paper successfully meets its stated objectives. The insights presented here offer a foundation for future empirical research and practical applications. These include the development of AI tools that are teacher-friendly, the design of targeted training programs and the promotion of supportive leadership and school environments. This paper will be beneficial to educational policymakers, school administrators, curriculum designers and teacher training institutions, as it provides evidence-based guidance on how to support educators in the adoption of AI. As a conclusion, strengthening teacher readiness and confidence is essential to foster meaningful and sustainable integration of AI in education.

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