



Thai Teachers' Perceptions Toward the Use of Artificial Intelligence in Teaching and Learning: A Survey Study

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ABSTRACT

Artificial intelligence (AI) has increasingly played an important role in educational development in the digital era. Teachers, therefore, need appropriate knowledge and perceptions regarding the use of such technology in instructional practices. This study aimed to: 1) develop and examine the construct of a scale measuring Thai teachers' perceptions of the use of artificial intelligence in instructional management, and 2) investigate the level of Thai teachers' perceptions regarding the use of artificial intelligence in teaching and learning. The research was conducted in two phases. Phase 1 involved instrument validation using Exploratory Factor Analysis with a sample of 353 teachers. Phase 2 examined teachers' perceptions of the use of artificial intelligence in instructional management with a sample of 298 teachers. Data were analyzed using exploratory factor analysis and descriptive statistics. The findings revealed that teachers' perceptions of AI in instructional management consisted of several components reflecting different dimensions of technology integration in teaching. Overall, Thai teachers demonstrated a moderate to high level of perception regarding the use of artificial intelligence in instructional practices. The results provide useful implications for promoting the effective integration of artificial intelligence in educational settings.

Keywords: teachers' perceptions, artificial intelligence, instructional management, educational technology, Thai teachers

INTRODUCTION

The contemporary world is undergoing rapid transformation driven by digital technologies associated with the Fourth Industrial Revolution, particularly artificial intelligence (AI), which has significantly influenced various sectors, including education (World Economic Forum, 2020). In recent years, AI technologies, especially those with generative capabilities, have reshaped teaching and learning processes by enabling personalized learning, real-time feedback, and data-driven instructional decisions (UNESCO, 2023). Despite these benefits, the integration of AI in education also raises critical concerns related to ethics, data privacy, and the role of teachers in increasingly automated learning environments (Holmes et al., 2022).

Recent studies have also shown that generative AI tools such as ChatGPT are increasingly influencing teachers' instructional practices, lesson planning, and assessment design (Kasneci et al., 2023; Zhai et al., 2025).

In the Thai context, educational reform under the Thailand 4.0 policy has emphasized the importance of digital transformation and the development of human capital capable of participating in a knowledge-based economy (Office of the National Economic and Social Development Council, 2018). National policies, including those implemented by the Office of the Basic Education Commission (2023), have promoted the integration of digital technologies into teaching and learning. However, the successful implementation of such initiatives depends largely on teachers, who play a central role in interpreting and applying technological innovations in classroom practice (Ertmer, 1999). Teachers are no longer viewed solely as knowledge transmitters but as facilitators and designers of learning experiences in technology-enhanced environments (Mishra & Koehler, 2006).

The Technological Pedagogical Content Knowledge (TPACK) framework provides a theoretical lens for understanding how teachers integrate technology into instruction by emphasizing the interplay between technological, pedagogical, and content knowledge (Mishra & Koehler, 2006). In parallel, the Technology Acceptance Model (TAM) explains that perceived usefulness and perceived ease of use are key determinants of technology adoption (Davis, 1989). However, these frameworks may not fully capture emerging dimensions associated with AI in education, particularly ethical considerations and professional identity concerns (Holmes et al., 2022).

Previous studies have examined teachers' perceptions of digital technologies and AI in educational contexts. For example, Celik et al. (2022) reported that teachers recognize the potential of AI to support instructional processes but also express concerns regarding ethical implications and reliability. Similarly, Chiu et al. (2022) found that multiple factors, including perceived usefulness, institutional support, and ethical concerns, influence teachers' acceptance of AI.

Within the Thai educational context, prior research has primarily focused on general digital technology adoption rather than AI-specific applications. For instance, Diteeyont et al. (2024) identified attitudes, perceived usefulness, and organizational support as key factors influencing teachers' acceptance of digital technologies. However, AI differs from traditional digital tools due to its autonomy, adaptability, and generative capabilities, which introduce new challenges and opportunities for teachers. Moreover, the Thai education system presents unique contextual conditions, including centralized policy structures, high teacher workload, and disparities in technological access across regions (Office of the Basic Education Commission, 2023; Digital Economy and Society Commission, 2023). These factors may significantly influence teachers' perceptions and readiness to adopt AI in instructional practices. In addition, ethical concerns such as data privacy, content reliability, and the potential impact of AI on students' cognitive development have become increasingly relevant in recent studies (Kohnke & Ulla, 2024).

Another possible reason is the rapid expansion of generative AI tools, which has raised concerns regarding data privacy, academic integrity, and the reliability of AI-generated content. As a result, teachers may simultaneously recognize the benefits of AI while remaining cautious about its ethical and professional implications in educational contexts.

Despite the growing importance of AI in education, there remains a lack of comprehensive quantitative research examining Thai teachers' perceptions of AI integration in teaching and learning. Existing studies often rely on qualitative approaches with limited generalizability. Furthermore, there is a need for validated measurement instruments that can systematically capture multiple dimensions of teachers' perceptions in the context of AI. Therefore, this study aims to develop and validate a measurement scale and to examine Thai teachers' perceptions of the use of artificial intelligence in instructional management. The findings are expected to contribute to a better understanding of teachers' perspectives and to inform the development of policies and practices that support effective and ethical AI integration in education.

LITERATURE REVIEW

Thai teachers' perceptions of artificial intelligence (AI) use in teaching and learning represent a complex phenomenon that can be understood through the integration of multiple theoretical perspectives. The Technology Acceptance Model (TAM) proposed by Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) provide foundational frameworks suggesting that technology acceptance is influenced by perceived usefulness, perceived ease of use, social influence, and facilitating conditions. These factors have been consistently identified as important determinants of teachers' technology adoption in both international and local contexts (Scherer et al., 2019; Trust et al., 2016; Pongsri et al., 2024).

However, successful integration of AI in educational settings requires more than technology acceptance alone. The Technological Pedagogical Content Knowledge (TPACK) framework proposed by Mishra and Koehler (2006) explains that teachers need to integrate technological, pedagogical, and content knowledge to effectively apply digital technologies in instructional practices. In the context of AI, this integration becomes increasingly important because AI technologies offer substantial opportunities for supporting teaching and learning while simultaneously introducing new pedagogical challenges.

In addition to pedagogical considerations, ethical issues have emerged as an important factor influencing teachers' perceptions of AI. Holmes et al. (2022) emphasize the importance of fairness, transparency, accountability, and human agency in AI-supported educational environments. Similarly, Borenstein and Howard (2021) highlight concerns related to algorithmic bias, privacy protection, and responsible AI implementation. These ethical considerations have become increasingly significant as generative AI technologies become more widely accessible in educational contexts.

Recent empirical studies indicate that teachers generally recognize the potential benefits of AI while also expressing concerns regarding its implementation. International studies (Celik et al., 2022; Chiu et al., 2022) as well as research conducted in Thailand (Kohnke & Ulla, 2024) suggest that AI can enhance instructional effectiveness, student engagement, and learning support. At the same time, concerns regarding data reliability, privacy protection, and the potential impact of AI on students' critical thinking skills remain important barriers to adoption.

Recent evidence also suggests that teachers may hold mixed perceptions toward AI-supported education. Selamet (2026) argued that while AI can promote pedagogical transformation and instructional innovation, teachers may simultaneously experience concerns regarding the loss of professional control, autonomy, and decision-making authority. These concerns are closely connected to teachers' professional identity, as conceptualized by Beijaard et al. (2004). Teachers may therefore perceive AI either as a threat to their traditional professional roles or as an opportunity to transition toward new identities as facilitators and learning designers in technology-enhanced learning environments (Tour, 2017).

Accordingly, to obtain a comprehensive understanding of teachers' perceptions, this study synthesizes the aforementioned theories and empirical findings into an integrated analytical framework consisting of four key factors: (1) perceptions toward AI technology, derived from TAM and UTAUT; (2) school environmental conditions, informed by UTAUT and studies emphasizing organizational support; (3) ethical and professional considerations, grounded in AI ethics frameworks and professional identity theory; and (4) instructional context, based on the TPACK framework and classroom implementation practices. This integrative framework enables a deeper and contextually grounded exploration of Thai teachers' perceptions of AI in teaching and learning.

Research Objectives

- 1) To develop and validate a measurement scale of Thai teachers' perceptions toward the use of artificial intelligence in instructional management.
- 2) To examine the level of Thai teachers' perceptions toward the use of artificial intelligence in instructional management.

METHOD

This study employed a quantitative research design using a survey method to investigate Thai teachers' perceptions of the use of artificial intelligence in instructional management. The research was conducted in two distinct phases: 1) instrument development and validation, and 2) main data collection and analysis.

Population and Sample Group

The population consisted of teachers working in basic education institutions in Thailand (Office of the Basic Education Commission, 2025). In Phase 1, a sample of 353 teachers was used to examine the construct validity of the instrument through Exploratory Factor Analysis (EFA). In Phase 2, a separate sample of 298 teachers was used to examine the level of teachers' perceptions. The use of independent samples aimed to enhance the validity of the instrument and to avoid overfitting.

Participants were selected using convenience sampling and voluntary participation. The questionnaire was distributed online through teacher professional networks, social media platforms, and educational institutions across different regions of Thailand. Only teachers currently working in educational institutions and willing to participate voluntarily were included in the study. The sample size in Phase 1 was considered adequate for Exploratory Factor Analysis, following the recommendation of at least 5–10 participants per item (Hair et al., 2019; Krejcie & Morgan, 1970).

Instrument Development

The questionnaire was developed based on a synthesis of relevant theories and empirical studies, including the Technology Acceptance Model (Davis, 1989), the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), and the TPACK framework (Mishra & Koehler, 2006). In addition, ethical considerations related to AI in education were incorporated based on Holmes et al. (2022).

The initial instrument consisted of 28 items across four conceptual dimensions: (1) Perception of AI Technology (8 items), (2) School Environment (7 items), (3) Ethical and Professional Considerations (7 items), and (4) Instructional Context (6 items) (Office of the Basic Education Commission, 2025; Pinto & Le, 2024; Diteeyont et al., 2024; Pongsri et al., 2024; Zhai et al., 2025). The TPACK framework was used to guide the conceptualization of the instructional context dimension, which reflects the integration of technology, pedagogy, and content knowledge in teaching practices. The ethical and professional dimension extends this framework by incorporating emerging concerns related to responsible AI use in education.

Instrument Validation

Content validity was assessed by three experts using the Index of Item–Objective Congruence (IOC), with values ranging from 0.67 to 1.00. Reliability was initially examined using Cronbach's alpha.

Exploratory Factor Analysis was conducted using Principal Axis Factoring with Oblimin rotation. The suitability of the data was confirmed using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. Item selection criteria included factor loadings $\geq .50$, communality $\geq .30$, and conceptual interpretability.

Data Screening

Prior to analysis, the data were screened to ensure quality. Responses with more than 10% missing data or abnormal response patterns were excluded. A total of 52 responses were removed, resulting in 298 valid responses for analysis.

Data Analysis

Data were analyzed using both descriptive and inferential statistical techniques. In Phase 1, content validity was examined using the Index of Item–Objective Congruence (IOC), while internal consistency reliability was assessed using Cronbach’s alpha coefficient. Exploratory Factor Analysis (EFA) using Principal Axis Factoring with Oblimin rotation was conducted to examine the construct validity of the instrument. The suitability of the data for factor analysis was evaluated using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett’s Test of Sphericity.

In Phase 2, descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to analyze demographic data and teachers’ perceptions toward the use of artificial intelligence in instructional management.

RESULTS

Phase 1: Instrument Development and Validation

The results of the Exploratory Factor Analysis (EFA) indicated that the data were appropriate for factor analysis. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.863, indicating a high level of sampling adequacy. In addition, Bartlett’s Test of Sphericity was statistically significant ($\chi^2 = 1307.076$, $p < .001$), suggesting that the correlation matrix was suitable for factor extraction, as shown in **Table 1**. The factor extraction using Principal Axis Factoring with Oblimin rotation resulted in a two-factor solution. These two factors explained 50.746% of the total variance, as presented in **Table 2**.

The factor extraction results demonstrated that the instructional context factor accounted for the largest proportion of variance, indicating that instructional considerations play a major role in shaping teachers’ perceptions toward the use of artificial intelligence in education. All retained items demonstrated satisfactory factor loadings ranging from .580 to .808, with no significant cross-loading issues. The factor structure was clear and interpretable, as shown in **Table 3**.

Table 1. KMO and Bartlett’s Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.863
Bartlett's Test of Sphericity	Approx. Chi-Square	1307.076
	df	45
	Sig.	.000

Table 2. Total Variance Explained

Factor	Total	% of Variance	Cumulative %
Instructional Context Factor	4.030	40.297	40.297
Ethical and Professional Factor	2.020	20.198	50.746

Table 3. Factor Loadings after Rotation

Items	Factor	
	Instructional Context Factor	Ethical and Professional Factor
The use of AI helps increase students' engagement and motivation in learning.	.808	-
Most students have access to devices and the internet outside school to complete AI-related tasks.	.759	-
I am concerned that excessive use of AI may reduce students' critical thinking skills and their ability to pursue knowledge independently.	.732	-
My students possess digital skills and can use the basic tools required for AI-based activities.	.728	-
I find AI particularly useful for teaching and learning in certain subjects or content areas (e.g., languages, science, programming).	.723	-
I am concerned that the use of AI may affect students' privacy and data security.	-	.743
I believe teachers should review and take responsibility for all content generated or adapted from AI before using it with students.	-	.715
Using AI to assist in student assessment (e.g., grading written work) makes the evaluation process more objective and transparent.	-	.637
I feel that excessive use of AI may reduce the role and value of teachers as "knowledge transmitters."	-	.632
When technical problems occur, I can quickly seek assistance from the school's IT support staff.	-	.580

Note: Only factor loadings $\geq .50$ are presented. Factors were extracted using Principal Axis Factoring and rotated using Oblimin with Kaiser Normalization.

The final instrument consisted of two dimensions with a total of 10 retained items. The Instructional Context Factor comprised 5 items related to instructional support, classroom applications, and teaching effectiveness, while the Ethical and Professional Factor consisted of 5 items focusing on ethical concerns, professional responsibilities, and implications of AI use in educational settings. Following the EFA procedure, 18 items were removed due to low factor loadings, cross-loadings, or insufficient communalities. The final instrument retained 10 items loading on two interpretable factors.

Table 4 presents the number of retained items in each factor following the exploratory factor analysis. The final instrument consisted of two dimensions, namely the Instructional Context Factor and the Ethical and Professional Factor, with an equal number of items retained in each dimension. As shown in **Table 4**, the final instrument retained a total of 10 items distributed equally across the two factors.

Table 4. Number of Retained Items by Factor

Factor	Number of Items
Instructional Context	5
Ethical and Professional	5
Total	10

The Instructional Context Factor consisted of 5 items reflecting instructional support, classroom applications, and teaching effectiveness, while the Ethical and Professional Factor included 5 items related to ethical concerns, professional responsibilities, and implications of AI use in educational settings. The reliability analysis indicated that the instrument had high internal consistency, with an overall Cronbach's alpha coefficient of .919, as shown in **Table 5**. The reliability of the questionnaire was examined using Cronbach's alpha coefficient, as presented in **Table 5**. The reliability results indicate that the questionnaire possessed a high level of internal consistency and was appropriate for measuring teachers' perceptions toward the use of artificial intelligence in instructional management. The findings suggest that the initial four conceptual dimensions were empirically reduced to two factors. This indicates that teachers tend to perceive artificial intelligence in a more integrated manner, where instructional and ethical considerations are closely interconnected.

Phase 2: Teachers' Perceptions of Artificial Intelligence

Demographic Information

The sample consisted of 298 teachers. The majority were female (60.4%), while male participants accounted for 39.6%, as shown in **Table 6**. The demographic characteristics of the participants are presented in **Table 6**. The demographic results indicate that female teachers represented a slightly larger proportion of the participants than male teachers. This distribution reflects the gender composition commonly found in the Thai teaching profession.

Reliability of the Instrument

The reliability of the instrument in Phase 2 was examined using Cronbach's alpha. The results indicated a high level of internal consistency ($\alpha = 0.94$), as presented in **Table 7**. The reliability analysis in Phase 2 further confirmed the stability and consistency of the instrument when applied to the main study sample.

Overall Perception Levels

The overall level of teachers' perceptions toward the use of artificial intelligence in instructional management was high ($M = 3.69$, $SD = 0.38$). When considering each factor, the instructional context dimension had a slightly higher mean than the ethical and professional dimension, as shown in **Table 8**.

Table 5. Cronbach's Alpha of the Questionnaire

Reliability Statistics	
Cronbach's Alpha	N of Items
0.92	10

Table 6. Gender Distribution

Gender	Frequency	Percent
Male	118	39.6
Female	180	60.4
Total	298	100.0

Table 7. Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
0.94	10

Table 8. Mean and Standard Deviation of Teachers' Perceptions of Using Artificial Intelligence in Teaching and Learning (n = 298)

Factor	Mean	Std. Deviation
Instructional Context Factor	3.71	0.48
Ethical and Professional Factor	3.68	0.53
Total	3.69	0.38

Table 9. Mean and Standard Deviation of Each Item

Item	Code	Mean	SD	Level
The use of AI helps increase students' engagement and motivation in learning.	S4	3.31	0.994	Moderate
Most students have access to devices and the internet outside school to complete AI-related tasks.	E1	3.17	1.169	Moderate
I am concerned that excessive use of AI may reduce students' critical thinking skills and their ability to pursue knowledge independently.	E3	3.37	1.040	Moderate
My students possess digital skills and can use the basic tools required for AI-based activities.	E4	3.46	1.064	High
I find AI particularly useful for teaching and learning in certain subjects or content areas (e.g., languages, science, programming).	E5	3.48	1.055	High
I am concerned that the use of AI may affect students' privacy and data security.	C3	3.08	1.156	Moderate
I believe teachers should review and take responsibility for all content generated or adapted from AI before using it with students.	C4	3.04	1.193	Moderate
Using AI to assist in student assessment (e.g., grading written work) makes the evaluation process more objective and transparent.	C5	3.18	1.190	Moderate
I feel that excessive use of AI may reduce the role and value of teachers as "knowledge transmitters."	C6	3.18	1.157	Moderate
When technical problems occur, I can quickly seek assistance from the school's IT support staff.	C7	3.27	1.158	Moderate

Item-Level Analysis of Teachers' Perceptions

To provide a more in-depth understanding of teachers' perceptions, item-level analysis was conducted. The mean and standard deviation of each item are presented in **Table 9**. At the item level, the results revealed that most items were rated at a moderate level. The highest mean scores were observed in items E5 ($M = 3.48$, $SD = 1.055$) and E4 ($M = 3.46$, $SD = 1.064$), indicating that teachers tend to perceive certain aspects of artificial intelligence more positively, particularly those related to ethical awareness and professional responsibility.

In contrast, lower mean scores were found in items C4 ($M = 3.04$, $SD = 1.193$) and C3 ($M = 3.08$, $SD = 1.156$), suggesting that teachers expressed more cautious perceptions regarding contextual or practical aspects of AI implementation in teaching and learning. Overall, the item-level analysis indicates that while teachers generally hold moderately positive perceptions toward AI, their views vary across specific aspects, reflecting both acceptance and concern toward the use of AI in educational contexts.

DISCUSSION

The findings indicate that Thai teachers generally hold positive perceptions toward the use of artificial intelligence in instructional management. This result is consistent with the Technology Acceptance Model (Davis, 1989), which suggests that perceived usefulness plays a significant role in technology adoption.

The emergence of two factors, instructional context and ethical–professional considerations highlight the integrated nature of teachers’ perceptions. Rather than viewing technology as a separate component, teachers appear to conceptualize AI as part of a broader instructional system. This finding aligns with the TPACK framework (Mishra & Koehler, 2006), which emphasizes the interconnectedness of technological, pedagogical, and content knowledge. At the same time, ethical concerns remain prominent. Teachers expressed awareness of issues related to data privacy, content reliability, and the potential impact of AI on professional roles. This finding is consistent with Holmes et al. (2022), who emphasize the importance of ethical considerations in AI implementation.

The findings of this study are consistent with previous research indicating that teachers generally perceive artificial intelligence as a useful tool for supporting instructional practices. Similar findings were reported by Celik et al. (2022), who found that teachers recognized the potential of AI to enhance teaching efficiency and student engagement. Likewise, Chiu et al. (2022) suggested that perceived usefulness and institutional support significantly influence teachers’ acceptance of AI technologies in educational settings. One possible explanation for these findings is that teachers are increasingly exposed to AI technologies through digital learning platforms, social media, and professional development activities. This growing familiarity may contribute to more positive perceptions regarding the usefulness of AI in supporting instructional management and classroom practices.

However, the present study also revealed strong concerns regarding ethical and professional issues, particularly related to data privacy, content reliability, and the changing role of teachers. This finding differs slightly from some previous studies that focused primarily on technological acceptance rather than ethical considerations. One possible explanation is that the rapid growth of generative AI technologies, such as ChatGPT, has increased teachers’ awareness of ethical challenges associated with AI use in classrooms.

Another possible explanation is that Thai teachers are increasingly exposed to AI technologies through online learning platforms, social media, and professional development activities. This growing exposure may contribute to greater familiarity with AI applications while also increasing awareness of potential risks and professional responsibilities associated with AI use in education.

Furthermore, disparities in technological infrastructure and digital readiness across schools may influence teachers’ perceptions differently. Teachers in schools with stronger technological support may perceive AI more positively, while those facing limitations in infrastructure or digital resources may express more cautious attitudes toward AI integration.

The Thai educational context may further explain the integration of factors observed in this study. Structural constraints, such as limited technological support and centralized policies, may lead teachers to rely more on their professional judgment when adopting new technologies (Pongsri et al., 2024). As a result, ethical and instructional considerations become closely intertwined. Overall, the findings suggest that while Thai teachers recognize the potential benefits of AI, they also approach its use with caution, balancing opportunities with professional responsibilities.

CONCLUSION

This study found that Thai teachers demonstrate a high level of perception toward the use of artificial intelligence in instructional management. Teachers recognize the potential of AI to support teaching and learning while also expressing concerns related to ethical and professional issues. The findings revealed two key dimensions shaping teachers’ perceptions: instructional context and ethical–professional considerations. These results suggest that teachers perceive AI integration in a holistic manner, where instructional practices and ethical responsibilities are closely connected. The study highlights the importance of supporting teachers

through appropriate policies, professional development, and ethical guidelines to ensure the effective and responsible use of AI in education.

RECOMMENDATIONS FOR FUTURE RESEARCH

Future research should further investigate teachers' perceptions of artificial intelligence using mixed-method or qualitative approaches to gain deeper insights into teachers' experiences and concerns regarding AI integration in educational settings. Comparative studies across educational levels, subject areas, or regions may also provide a broader understanding of contextual differences in AI adoption. In addition, future studies may examine the effectiveness of professional development programs designed to enhance teachers' AI literacy and ethical awareness. Longitudinal research could also be conducted to explore changes in teachers' perceptions and instructional practices over time as AI technologies continue to evolve.

Contribution to the Literature

This study contributes to the growing body of research on artificial intelligence (AI) in education by providing empirical evidence from Thai teachers regarding their perceptions of using AI in teaching and learning. The findings highlight that teachers generally demonstrate a high level of awareness and acceptance of AI, particularly in relation to its potential to support instructional practices and enhance learning processes.

A key contribution of this study lies in identifying two main dimensions shaping teachers' perceptions: the instructional context and ethical-professional considerations. This finding suggests that teachers tend to view AI integration in a holistic manner, where technological use is closely connected with pedagogical practices and professional responsibilities.

Furthermore, the study emphasizes the importance of ethical awareness in the adoption of AI in education. Teachers expressed strong concern about issues such as student data privacy, responsibility for AI-generated content, and the preservation of the teacher's professional role. These insights provide valuable implications for educational institutions and policymakers seeking to promote responsible AI integration in schools.

By focusing on the perceptions of teachers in the Thai educational context, this study offers insights that may support the development of policies, professional development programs, and guidelines for the effective and ethical use of AI in teaching and learning. The findings may also be relevant for other educational systems with similar technological and institutional contexts.

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Ethical statement: Ethical approval was not required for this study as it involved an anonymous survey examining teachers' perceptions of the use of artificial intelligence (AI) in teaching and learning within an educational context. The study did not involve sensitive personal data, clinical procedures, or any intervention that could pose risks to participants. Participation was entirely voluntary, and informed consent was obtained from all participants prior to data collection. All responses were collected and processed anonymously to ensure the privacy and confidentiality of participants.

AI statement: AI-assisted tools were used only for checking English grammar and improving language clarity in the manuscript. No generative AI or AI-based tools were used in the research design, data collection, data analysis, or interpretation of the results.

Declaration of Interest: The author declares no conflict of interest.

Data sharing statement: The data supporting the findings of this study are available from the author upon reasonable request.

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