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Artificial Intelligence in the Classroom: Teachers' Lived Experiences and Ethical Concerns in Educational Integration

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ABSTRACT
This study focused on identifying the opportunities and challenges posed by emerging technologies within education, based on a qualitative examination of teachers' experiences with AI integration in classrooms. The authors observed teachers appreciating the advantages AI offered in terms of custom and individualised learning, lessening the burden of administrative work, and obtaining real-time learning analytics. Such features were perceived as contributing to enhanced efficiency and a more adaptive responsive instruction. Nonetheless, teachers also highlighted the ethical issues, data safety, and the risks associated with the educational process becoming overly mechanised as problematic. Thematic analysis pointed to digital literacy, professional development, and organisational policy as aspects that shaped teachers' experiences. The provision of training and materials was linked to higher confidence in AI use, while a lack of instruction and materials was associated with skepticism and apprehension. In themes, the results revealed the critical role of making teacher perspectives central to policy and practice to make AI integration relevant to education and its influence on student well-being. The integration of AI cannot be viewed as a replacement for human teaching, and it should be considered as a complement to it. To adopt it in a meaningful way, there must be a balance between technological innovation and the ethical responsibility and empowerment of teachers.
***Keywords**: Artificial Intelligence, Teachers' experience, Education, Classroom Integration.*

Introduction

Background of the Research

In the 21st century, a strong transformer of education is Artificial Intelligence (AI). There is an increasing global dependence on AI educational tools, ranging from adaptive learning technologies and automated grading to teaching and learning-assisting generative language

models (Bezerra, 2024). Recent projections indicate that annually, AI tools designed for educational contexts will grow by more than 35% (Alwaqdani, 2025). The potential of AI to customise educational experiences, alleviate administrative burdens on educators, and offer pedagogically actionable insights through analytics is highly valued. Yet, the more straightforward applications of AI technologies in teaching and learning contexts raise pedagogical, ethical, and readiness challenges for educators (George, 2023).

Teachers are positioned best to influence the trajectory of AI integration within classroom environments. Their role involves not just the provision of opportunities for how AI will be used within educational environments, but also the balance against educational tensions on how AI will shape pedagogically (Qureshi, 2025). For instance, research explored the AI integration experiences of teachers in K-12 Estonian schools. Most teachers viewed AI positively, yet they expressed pedagogical and ethical concerns regarding AI integration (Chounta et al., 2022). EFL educators described AI tools as motivational but also noted several limitations regarding contextually relevant language learning. These examples illustrate the tension educators experience regarding the promise and the burden of innovation.

New AI educational technology overlaps with educators' digital identity and professional preparedness (Guan et al., 2025). One qualitative study noted that although pre-service teachers expressed enthusiasm for AI, they lacked pedagogical frameworks to apply AI in teaching (Pokrivcakova, 2023) meaningfully. Similar studies in the area of speculative mathematics and science teaching AI also highlighted the need for new forms of professional pedagogical AI integration and innovation (Tashtoush et al., 2023). All of these examples illustrate that the teachers' experiences are not just about technology navigation, but also about the integration of digital technologies into the core of their professional identity.

Problem Statement

Despite an increasing body of literature on artificial intelligence (AI) in education, there is still a considerable lack of qualitative research that highlights the perspectives of teachers. Existing research tends to focus on the technological capabilities of AI or the policies that support its integration. There are even fewer studies that address how teachers deal with the pedagogical, emotional, and ethical aspects of AI in practice, including the challenges of real classrooms. This gap is essential to fill because teachers lived experiences of AI use in the classroom shape how students learn with AI. Educational reforms that do not incorporate teachers' perspectives may overlook the contextual challenges that hinder reforms.

Additionally, the literature tends to prioritise studies on specific subject areas like STEM (Park et al., 2023) or pre-service teachers' attitudes (Pokrivcakova, 2023), while there is a dearth of studies on in-service teachers from various contexts. There is an essential need for qualitative research that highlights teachers' experiences to understand the conditions under which AI is taught and inform policies, teacher education, and the integration of AI in the classroom.

Research Questions

The study is guided by the following research questions:

In what ways do educators articulate their experiences regarding the incorporation of AI tools into their teaching routines?

What barriers and possibilities do educators face when employing AI as a means to facilitate teaching and learning?

How do teachers assess the influence of AI on their professional identity and teaching approaches?

Research Objectives

The study aims to achieve the following research objectives:

To document the experiences of teachers concerning the integration of AI into teaching and learning.
To determine the obstacles and possibilities teachers encounter when integrating AI into their teaching strategies.
To analyse the influence of AI on educators' professional activities and the functions of their occupation.

Significance of the Research

As one of the few studies focusing on the teacher's perspective on the integration of AI into educational practice, it adds value to the field of AI research in education. Using in-service teachers' qualitative data, the study goes beyond the generalised narrative of AI as a productive and innovative tool and captures the reality of AI integration into educational practices (Meylani, 2024). This value extends to teacher educators, policymakers, and technology developers. Understanding the reality of AI integration into teachers' practice can strengthen teacher educators' programs. This study addresses teachers' unmet integration into AI-enabled classrooms, and exposes and justifies the AI integration challenges, thus providing evidence policymakers can use to devise more realistic and inclusive AI integration strategies. Technology developers have also been shown the gap between educational theory and practice and the need to bridge it to create effective educational technology.

By documenting the voice of teachers and focusing on the social, ethical, identity, and professional challenges they face, this work contributes to the debate on the socially responsible use of AI in education. It is a contextually rich study that can serve as the basis for future cross-national research, as well as help inform longitudinal studies involving AI in teaching. A qualitative research design was used to investigate how teachers use AI in their classrooms. Twelve in-service teachers from different subjects were interviewed. This sampling approach ensured varied perspectives. Teachers were purposefully sampled from those who have hands-on experience with AI in teaching. Interviews were transcribed and thematically analysed with a manual coding approach to identify key patterns and meanings (Braun & Clarke, 2022). Five themes capture the findings: the contradictions AI presents, the positive and negative consequences of AI to teachers' professional identities, the opportunities AI presents, and the ramifications AI has for teaching practice. Guidelines of research ethics were followed thoroughly in the observation of participant autonomy, confidentiality, and the informed consent principle.

Literature Review

Theoretical Framework

Teachers' experiences regarding AI integration in classrooms require theoretical grounding to encompass the interactions of technology, pedagogy, and human agency. One of the most appropriate is the Technological Pedagogical Content Knowledge (TPACK) model, whereby the intersections of the teachers' knowledge domains determine the effectiveness of the use of digital tools (Thyssen et al., 2023). The model suggests that teachers' AI adoption is limited by the absence of integration of technology with pedagogy and content knowledge. Research indicates that the integration of AI in classrooms attends to a significantly greater degree of pedagogical adaptation than other educational technologies, due to the functionality AI introduces in terms of automation, personalisation, and instructive data analytics (Park et al., 2023).

Another perspective of relevance is socio-constructivism, which embeds learning within a social setting and highlights collaborative knowledge construction (Smith, 2022). In the case of AI, this suggests that teachers' experiences are shaped by both the technology and the social interactions that occur with students and fellow teachers. Some studies show that teachers

considering AI an educational partner during knowledge construction report more positive experiences compared to those who think of AI as a substitute (Chounta et al., 2022). In this regard, the framework clarifies the negotiation of professional identity as teachers integrate AI tools into their practice.

The insights of critical pedagogy are also relevant, particularly concerning power and equity. If teachers are unprepared to analyse the consequences of AI integration within teaching practices, AI may widen the existing inequities within the classroom (Daher, 2025). There is a growing body of literature that documents teachers' ethically concerning unsupervised AI, algorithmic biases, and the potential invasion of privacy, revealing the need for more critical pedagogy concerning AI integration within teaching (Velander et al., 2024). Taken as a whole, these frameworks offer the conceptual tools to analyse how teachers are adapting, innovating, and, at times, resisting the technologies developed for AI.

Teachers' Perceptions of AI in Classroom Practice

Understanding the integration of AI in classrooms hinges upon teachers' perceptions of the technology. Ambivalent attitudes towards emerging AI technologies indicate a growing appreciation of their capabilities balanced by a pronounced concern for their potential pitfalls (Verboom et al., 2025). In science education, some of the benefits AI tools offers include enhancing learner interest, grading automation, and other forms of instructional differentiation. Nevertheless, fears of inexperience and possible automation over-dependence (Park et al., 2023) are dismissing the potential of AI tools for supporting differentiated instruction.

Chounta et al. (2022) examined AI adoption in the K-12 Estonian education system. Teacher perceptions of AI's potential as an educational 'assistant' came with the expectation of some administrative burden relinquishment. Nonetheless, concerns about the loss of teacher control and, most importantly, teacher agency in the decision-making process remained. These findings suggest that, from a teacher's perspective, AI is perceived as valuable as a collaborator, yet also as a disruptor, based on how closely the technology aligns with a teacher's pedagogical goals.

English language instructors have displayed similar ambivalence. On the one hand, AI was described positively in terms of tool for motivating language learning, providing immediate feedback, and stimulating extra motivation. On the other hand, Vera (2023) established the lack of flexibility with appreciation of the socio-cultural contexts and overfocusing on the mechanical elements of the language. "I don't think it would replace teachers, but definitely rather a helpful complement, and that's what appears to be the trend in the responses we have received."

More recent studies suggest that teachers' perceptions of a particular AI tool are determined by their past experience with the technology, as well as the professional training they have had. For example, Velander et al. (2024) found that some Swedish teachers who were trained in digital pedagogy had higher confidence in their teaching practice; had more positive perceptions of AI; and had more positive attitudes towards integration of technology in the classroom compared to teachers with limited training. Thus, the teacher's perceptions of Artificial Intelligence in the classroom is instrumental and socio-organisational.

Teachers' Confidence and Preparedness for AI Integration

The level of confidence and prep teachers put into work has a huge impact on the AI experience. AI implementation by teachers is compromised due to lack of professional development and guidance from the institution (Roshan et al., 2024). In a curricular co-design program, when teachers were a part of AI curriculum materials, teachers improved in their confidence and sense of ownership (Tatar et al., 2025). This shows the importance of participatory design in which teachers take a co-creation role instead of an AI-driven curriculum design.

In the field of mathematics education, teachers asked for future training on integrating AI tools in the discipline-specific context. Some teachers appreciated the AI for visualisation of intricate ideas and the provision of adaptive exercises, while most teachers expressed integration with existing instructional paradigms as a weak area (Tashtoush et al., 2024). This illustrates that confidence is not just a matter of having the necessary technical skills, but also the ability to integrate AI into established instructional paradigms/frameworks.

Preparing teachers also includes pre-service contexts. Studies note that while pre-service teachers may be enthusiastic AI integrators, their enthusiasm is impeded by a lack of pedagogy (Guan et al., 2025). Pre-service teachers, especially in language education, reported positively on AI integration, but showed the most significant unease regarding the ability of AI tools to be evaluated in a culturally critical manner (Pokrivcakova, 2023). This finding indicates that teacher training programs must include AI competence in training educators to integration AI tools, focused on the technical and ethically responsible use of AI.

EFL teachers reported that confidence toward AI integration depended on whether AI was perceived as an allied supporter or a menacing adversary. Those who perceived AI as an extension of their professional agency embraced and confidently integrated AI in their teaching. In contrast, those suffering from technological replacement anxiety showed resistance and scepticism (Sumakul et al., 2022). These cases reflect the psychological aspect of preparedness that goes beyond competence and skills to include a sense of identity and trust.

Opportunities of AI in Enhancing Teaching and Learning

Teachers, in spite of difficulties, value a wide range of opportunities AI brings to education. Most commonly mentioned is learning to be personalised. AI has the potential to meet students' varying individual needs, give real-time, multifaceted, and personalised feedback, and assist in supporting differentiated instruction in ways that would otherwise be very difficult to implement (Mahmoud & Sørensen, 2024). For instance, teachers employing AI in the integration of science lessons reported improvement in overall engagement in classroom participation, as the AI technology tailored tasks to students' skill levels, and as a result, classroom participation improved (Park et al., 2023).

AI not only offers personalisation, but also has the potential to lessen the workload of teachers. Teachers in higher education, as well as at other educational levels, reported time saved with attendance and grading automation and analysis of academic data, enabling teachers to spend more time on the more interactive and creative portions of instruction. Generative AI is also reported as a time-saving tool in teaching, as in scaffolding writing processes one step at a time, allowing more focus on higher-order thinking tasks (Akbar, Abrar, & Khan, 2022; Barrett & Pack, 2023). Such tools are not seen as a replacement for teaching, but rather as the facilitation of pedagogical efficiency.

The motivation and engagement of students is another of the many contributions of AI. In language education, AI-driven applications like chatbots and adaptive vocabulary programs sparked learners' interest and sustained practice outside the classroom (Vera, 2023). In EFL classrooms, teachers' AI tools encouraged learners to take responsibility for their learning and to practice independently (Sumakul et al., 2022). Additionally, AI promotes flexible, interdisciplinary learning. Teachers exploring sustainable AI curricula argued that AI education could merge computer science and technology with broader social and ethical issues, and social responsibility (Lin et al., 2022). Integrating ethical reasoning with technical AI skills responds to calls for responsible and holistic AI education.

Challenges and Ethical Concerns in AI Integration

Even with the visible advantages of AI, adopting this innovation remains a significant concern for teachers. One primary concern is the limited support and training teachers receive. Studies on the instruments teachers use have shown that a lack of guidance on the strategic intersection of AI instruments with educational outcomes causes a good number of teachers significant frustration and a lack of direction (Uygun, 2024). The concern of ethics is another challenge AI teachers face. Concerns of teachers rationing the use of AI due to Data Privacy, Inequity, and algorithmic bias present teachers with educational methods that could reinforce inequity. Teachers in Sweden, for example, raised the critical issue of evaluating AI from the perspective of equity and transparency to avoid adopting AI that could enhance inequity in society (Velander et al., 2024). In the same way, teachers who use AI in the absence of critical instructional support risk equipping students with lower-order skills and less critical thinking (Al Darayseh, 2023).

In addition to the challenges discussed, teachers face issues related to technology and infrastructure as well. Difficulties in accessing the AI resource effectively include unreliable internet access, outdated technology, and ineffectual technical assistance (Akpan & Essien, 2025). Such issues are particularly evident in less economically developed educational contexts. In the teaching of mathematics, while noting the potential of AI in the visualisation and solving of specific problems, teachers remarked that classroom disruption occurred because of technical issues and a lack of curriculum alignment (Tashtoush et al., 2024).

Resistance from teachers is also a source of considerable challenge. Some teachers voiced concerns about AI replacing them in the classroom or undermining their authority. In EFL contexts, this concern resulted in scepticism about AI's potential to mediate the culture and communication competencies effectively. Others pointed out the risk of students becoming overly dependent on AI and losing their ability to learn on their own (Vera, 2023). These illustrative concerns point to the psychological tension and professional risk that AI incorporation poses. Such concerns reveal the issues of trust and professional identity involved, in addition to the technical integration challenges.

Professional Identity and the Role of Teachers in AI Classrooms

The integration of AI technology in the classroom compels teachers to rethink their professional identity. Research asserts that AI technology performs many functions of a teacher (Celik et al., 2022). AI performs feedback functions, assesses student performance, and scaffolds learning, thus compelling teachers to revisit their roles. Unlike the automation of professional tasks, many teachers view AI as a support technology and, in turn, perceive the importance of redefining their professional worth in an automated work environment (Chounta et al., 2022).

In science classrooms, teachers described how AI technology shifted their focus from routine administrative tasks to the more creative and interpersonal aspects of teaching. They emphasised how AI technologies allowed them to facilitate inquiry and discussions, serving as guides rather than mere transmitters of information (Park et al., 2023). Similarly, in higher education, teachers using generative AI tools focused their teaching on helping students critically engage with machine-generated content rather than evaluating the content's correctness (Barrett & Pack, 2023).

Nonetheless, tensions accompany this redefinition of professional identity. Educators training for prospective classrooms voiced concerns regarding the impact of AI on their futures and the expectations associated with their professions (Ismail et al, 2024). AI’s potential to detract from the human elements of teaching was a concern for language education pre-service teachers as well, and for this reason, they seemed to be ambivalent about their future teaching positions

(Pokrivcakova, 2023). The different kinds of professional and emotional challenges that relate to AI point to the need for identity negotiations in the teachers' work.

Gaps in Existing Research

There is a delay in the advanced research in the area of AI in education literature concerning the gaps in the area. A large portion of the literature is centered around pre-service teachers and a few content areas like science and mathematics (Tashtoush et al., 2024; Park et al., 2023). There is considerably less research that is focused on in-service teachers across diverse settings. This affects the understanding of teachers of different experiences and subject areas in negotiating the use of AI. Furthermore, a large amount of the research in the area is quantitative and survey based. This type of research provides a breadth of understanding in the area but lacks depth. There is a deficit in the field in qualitative research that encompasses teachers' perspectives. While there are a few case studies, they focus on curricular design or teacher training and not the more mundane, everyday practices within the classroom (Tatar et al., 2025). It is important to put more qualitative work into the field that emphasises the experience of teachers using AI in their practice.

Finally, the ethical issues that come with the use of AI technologies still need work, especially from the perspective of educators. Some literature mentions the ethical issues of bias in AI and the problems of personal data risk, but there are fewer accounts on how educators deal with these issues in everyday practice. The emotional, moral, and decision-making aspects of teachers are also underexplored (Wang, 2021). The influence of AI technologies on educators' professional identities and career paths is even less researched. Most literature on educators discusses immediate pedagogical issues, thereby overlooking the more significant loss of the educator's agency and authority and their self-concept. The literature on educators centers on immediate pedagogical issues and ignores the more significant loss of agency and authority, along with self-concept. Such understanding is necessary to comprehend the personal aspects of the rapid, and often one-sided, changes, integration of technologies is bringing to the field of education.

Methodology

Research Design

This study adopted a qualitative research design to examine teachers' experiences integrating artificial intelligence (AI) into their practice (Braun & Clarke, 2017). A qualitative approach was most appropriate because the primary aim was to grasp the complex, lived experiences of teachers as opposed to measurement, variable manipulation or causal relationship building. Previous studies examining AI in education tended to use surveys or experimental approaches, thus missing the complexity of teachers' viewpoints (Chounta et al., 2022). In contrast, qualitative inquiry focused on the most important and least studied dimension: how teachers understood, navigated, and interacted with AI in the ever-changing environments of their classrooms.

As the primary method of data collection, the researcher used semi-structured interviews. This design is characterised by the researcher's freedom to pursue relevant topics as they arise in conversation, while leaving sufficient room for subjects to develop their ideas. This flexibility is vital for qualitative research, as it tends to be more exploratory and emergent. Matching the study's dual interest in dominant and unique patterns, the semi-structured design enabled the researcher to identify and capture the range, as well as the patterns across the cases. The study used thematic analysis to develop a structured approach to identifying and making sense of the data by organising and interpreting it around several themes (Braun & Clarke, 2022).

The orientation of the AI ethical principles was based on the social constructivist view of the research on the obtained data. It was based on the rationale that the teachers experiencing AI ethically are influenced by the social context of the environment. This context was the collusion of the teacher architect and the location of the teacher beside the other professional, in the context of the AI speculation and social AI. This collusion or surrounding the explanation of the social context and surrounding of the professional environment should be the active engagement of the teacher with the meaning of the AI.

Sampling Strategy

To identify individuals with firsthand experience with teaching AI as integrated into their practice for this study, purposive sampling was employed. The selection criteria focused on in-service teachers who had implemented AI-based adaptive learning, AI-assisted assessments, or generative AI tools in their teaching practice, as this ensured that those who contributed would enrich the data. The sample consisted of twelve teachers from different focus areas: Science, Mathematics, Language Education, and Social Studies. This also enabled the study to explore differences in the perception of AI and its integration in the different disciplines. In Math, AI can be adaptive problem-solving software, and in Language Education, chatbots or grammar correcting tools. Different teachers helped to understand better the effects AI integration as well as its complications.

Data Collection

In semi-structured interviews, participants decided between in-person and secure video conferencing. With each interview lasting between 40 to 60 minutes, enough time was given to understand each participants' experiences. An interview guide was made to keep the discussions centered, while still allowing participants to address any other concerns they wanted to discuss. The questions were organised around four key themes: teachers' first encounters with AI, the opportunities and advantages it afforded, the difficulties and ethical issues it posed, and the reflections on professional identity. For instance, participants were asked to detail particular classroom situations where AI influenced their teaching, to recount instances where AI either helped or obstructed students' learning, and to analyse how AI modified their professional role. All interviews conducted were transcribed textually, including audio files, as per participant requests, and both strings were integrated into sealed contracts. These also incorporated tonal variations as well as the emphasis of salient points, pauses, and omissions. These features are essential as they attempt to describe the surveyed meaning and scope of the relative manifestations. During and immediately after interviews, the notes were gathered and scratched so as to provide a semantic outline and situational pattern. The phenomenological relation of the interviewer is also captured.

Data Analysis

Data analysis was conducted following the principles of thematic analysis, and was performed manually in order to ensure close engagement with the data (Braun & Clarke, 2017; Ashraf et al., 2025). The data were initially read repeatedly to become familiar with participants' narratives. Initial codes were then developed by looking for meaningful units of text that described teachers' perceptions, challenges or reflections in the integration of AI. Codes were generated for the data inductively, rather than imposed from the prior work of other theorists and researchers, ensuring that the voices of the teachers drove the analysis.

Once the preliminary coding was completed, codes that were similar in meaning were sorted into more manageable categories, or sub-themes. For example, the codes "AI as grading support," "time-saving," and "less administrative load" were clustered under the sub-theme "AI reducing workload." In another example, "fear of replacement," "loss of authority," and "student

dependence on AI" were clustered under "concerns about professional identity." These sub-themes were consolidated into five key themes which captured the essence of the teachers' experiences.

To demonstrate the validity of the themes, the study undertook thematic comparison, cross-participant analyses which focused on the similarities and differences that each participant held around a specific theme. The thematic development leaned on the theoretical perspectives that were elaborated in the literature review, particularly, TPACK and socio-constructivism. These perspectives helped in understanding how teachers dealt with the intricacies of pedagogy, the intertwined technology, and the various aspects of their identity. Nevertheless, the analysis was still tied to the data, ensuring that theoretical insights did not drown out the informants' voices.

Ethical Considerations

Throughout the research process, ethical principles were observed. Before the study, teachers received an information sheet explaining the purpose of the study, procedures and moral protections. Written informed consent was taken from all individuals who were informed of the right to withdraw at any time without penalty. Confidentiality was ensured by using pseudonyms for the participants and eliminating identifying information from transcripts (Subedi, 2025). Data were kept in password-protected files and only by the researcher. Given the potential sensitivity of talking about professional concerns, particular care was taken to create a respectful and supportive interview environment. Teachers were informed that their confi-dentiality would be protected, and their answers would be kept secret from their employers and peers.

The ethical responsibility of accurately representing the voices of the participants was taken into account. To ensure no single voice was overrepresented when selecting quotes for the findings, the varied views were carefully considered, and balance was achieved. This study set out to validate the teachers' expertise and realities by focusing on their voices.

Participants' Profile

The table below includes the twelve participants, showing their pseudonyms, subject areas, years of experience, and the primary type of AI tool they integrated into their teaching. This profile captures some of the diverse contexts included in the study.

Table 1:

Participant Profiles

Participant	Subject Area	Years of Experience	Primary AI Tool Used
P1	Science	8	Adaptive learning platform
P2	Mathematics	12	AI-driven problem-solving software
P3	English (EFL)	5	AI grammar and vocabulary tool
P4	Social Studies	10	Automated grading system
P5	Mathematics	15	Visualisation and adaptive exercises
P6	Science	7	AI simulation tool
P7	English (EFL)	6	AI-based chatbot for language practice
P8	Higher Education (Writing)	11	Generative AI writing assistant
P9	Science	4	AI lab simulation
P10	Mathematics	9	Adaptive testing platform
P11	Language Arts	13	AI text analysis tool
P12	Social Studies	3	AI feedback system

Different teachers used AI in different ways. This shows the wide range of AI's use as well as the experiences of the participants which guarantees findings for both experienced teachers and those who are just starting.

Findings and Discussion

The findings on teachers' opinions about AI in education show how complicated and detailed their views are. As for the analysis with respect to the findings, five themes were generated centered around the core of the interviews: (1) Perceptions of AI as a Pedagogical Tool, (2) Challenges and Concerns, (3) Professional Development and Preparedness, (4) Ethical and Social Implications, and (5) Future Visions of AI in Education. Each theme identifies the opportunities and tensions for teaching practice when introducing AI. These findings are presented below, woven together with esoteric tales from the participants in question and, where applicable, existing literature.

Theme 1: Perceptions of AI as a Pedagogical Tool

Many of the participants referred to AI as a promising tool for teaching and learning. Teachers mentioned its ability to personalise learning, free up routine work, and facilitate differentiated learning. One teacher shared she can monitor students' progress very quickly, and she can work with students who have difficulty more rapidly than if she had to spend hours grading. This perception is supported by research about how teachers view assistance from AI on administrative and educational tasks (Chounta et al., 2022; Park et al., 2023). More specifically, interviewees commented on AI's potential in personalising instruction to accommodate varying learning needs, thereby supporting inclusive education. Providing immediate feedback, particularly in language acquisition, was mentioned as another AI-assisted teacher function. Similar results have been found in EFL classes, where AI is used for vocabulary learning and oral practice (Vera, 2023; Sumakul et al., 2022). This utility overcame the disbelief for many, attesting to an efficient pragmatism of AI and only its acceptance if it served the curricular purpose.

However, while teachers were generally positive about the benefits of AI, they warned that teachers must not rely too much on it. This tension resonates with previous research suggesting that teachers negotiate between enthusiasm and caution, acknowledging that AI is a tool that complements but does not substitute pedagogical prowess (Barrett & Pack, 2023). Overall, AI was viewed by the teachers as a pedagogical ally that can streamline the classroom practice while expanding the opportunities for learning, although teachers were aware of the limitations of this technology.

Theme 2: Challenges and Concerns

Despite optimism, though, participants said they have serious concerns about the adoption of AI. Other identified challenges were technical challenges, a lack of institutional infrastructure, and a lack of appropriate training. As one participant remarked: "Sometimes the system malfunctions, or there are no devices available for the students, and then all my AI tool planning goes to waste" (Participant 7). These narratives mirror a broader issue present in the literature, namely the unequal distribution of school resources (Alwaqdani, 2025; Uygun, 2024). Teachers repeatedly positioned such obstacles as impediments to confidence in taking the practical application of AI.

Besides, participants expressed concerns for accuracy and reliability. For example, AI-generated feedback was considered potentially misleading to students if there was a mistake in the input. This is similar to what was observed in the classroom for mathematics and science, where teachers questioned AI's ability to provide clear explanations for its reasoning (Tashtoush et al., 2024; Al Darayesh, 2023). Another issue that stood out was workload. While several teachers reported that AI made things more efficient, other teachers made numerous comments that AI

caused additional workloads, either because the system required a learning curve or because it required problem-solving. As noted by Ismail et al. (2024), the lack of proper preparation for teachers has increased such burdens and created resistance to adoption. Thus, while AI was viewed as the functional, successful integration of it was conditional on overcoming these systemic and logistical barriers.

Theme 3: Professional Development and Preparedness

One theme showed a common need for professional development tailored to specific needs. Participants emphasised that training opportunities were closely linked to their willingness to take up AI. One teacher commented: "I had no professional preparation; I just tried things out for myself." It feels like we're in the dark and we have to work it out on our own." (Participant 12)

This accounts for many teachers' self-directed learning, reflecting claims that planned training is usually lacking in AI integration initiatives (Tatar et al., 2025). Teachers preferred hands-on workshops for self-learning, peer-to-peer exchange forums, and curricular models of AI applications. Similar points are highlighted in the literature. Chounta et al. (2022) and Velander et al. (2024) illustrated that PD leads to the development of not only technical skills but also pedagogical imagination that allows teachers to transcend the shallow application of AI tools. Otherwise, teachers may restrict AI use to administrative roles instead of examining new teaching methods.

Participants also emphasised the need for context-sensitive approaches. For example, EFL teachers mentioned the need for culture and language-appropriate training resources (Pokrivcakova 2023). While acknowledging that preparation in AI literacy affects pedagogical decisions in future teaching, pre-service teachers also confessed that training should start early in teacher education programs. Professional preparedness was therefore a crucial element, but if they perceived their own professional preparation, teachers felt more confident and creative about the application of AI. In case of a lack of guidance, they did not go further than the minimal and minimal applications.

Theme 4: Ethical and Social Implications

These concerned teachers are equally worried about ethical issues, including those of equity, confidentiality, and children's dependency. Several participants were concerned about the marginalising effect of AI. One teacher remarked: "Students who don't have devices or internet at home are already disadvantaged, and with AI, they're just even further behind" (Participant 4). This echoes concerns from existing research in terms of AI exacerbating the digital divide (Alwaqdani, 2025; Uygun, 2024). The phrase unequal access was used to describe not only a technical but also a moral problem with the inclusion of devices that were not being used uniformly by all students.

Concerns over privacy persisted. Just like the international debates on AI-based educational systems, several teachers interviewed did not know how student data was (or wasn’t) stored and utilised (Velander et al., 2024). Data over privacy concerns also made some teachers uncomfortable because it was secured by systems they didn’t fully understand. Finally, dependency and lack of critical thinking was another concern. AI-augmented systems sparked worries over students' writing skills and creativity, resulting in over-reliance on the technology. This is in line with Barrett and Pack (2023) who describe students as skipping the reflective stages of problem-solving in order to obtain an AI-provided solution. This explains why teachers placed emphasis on the ethical duty of educators and policymakers to safeguard equity, transparency, and balanced approaches to learning on the adverse impacts of AI.

Theme 5: Future Visions of AI in Education

Teachers struck a balanced tone as they expressed their hopes concerning the role of AI in the future. AI has the potential to be an excellent, transformative educational tool–if it is thoughtfully designed and incorporated. One teacher explained, "In five or ten years, I see AI as something we can not avoid. It will be part of every lesson, but we need to shape how it's used" (Participant 9). As policymakers, educators, and trainers engage with the educational uses of AI, the focus will be on how to integrate it into teaching and learning. As the study envisioned, educators will not be replaced, but their roles will be redefined from the traditional instructor to inquiry facilitator and critical thinking mentor (Ismail et al., 2024).

Teachers expected AI to encourage interdisciplinary teaching and uphold the principles of education for sustainability, parallel to emerging frameworks for teaching "sustainable AI" (Lin et al., 2022). More than a few voiced the need for ethics and digital literacy to be taught as core content, allowing students to interact with AI more than as passive consumers. Once again, the educators' visions resonate with the global literature: responsible use of AI is critical (Velander et al., 2024; Tatar et al., 2025).

Synthesis of Findings

The gathered insights reveal a two-fold narrative: educators view the possible positive enhancement of teaching and learning through AI, yet they remain sceptical. Their concerns correspond with global patterns of enthusiasm and system constraints, ethical issues, and professional needs (Park et al., 2023; Alwaqdani, 2025). Most importantly, considering the question of value and context, participants perceived AI as a pedagogical, not an external tool. This is consistent with Vera (2023) and Sumakul et al. (2022) that teacher agency is pivotal in determining the influence of AI in education.

Table 2:

Thematic Analysis of Findings

Theme	Sub-theme	Codes	Description
Perceptions of AI as a Pedagogical Tool	Personalisation & Feedback	Adaptive learning, real-time feedback, inclusion	Teachers perceived AI as enhancing differentiation, enabling targeted support, and reducing repetitive administrative work.
	Efficiency & Support	Automated grading, time-saving, instructional aid	AI was valued for streamlining tasks, allowing teachers to focus more on student engagement.
Challenges and Concerns	Technical & Infrastructure Issues	System crashes, device access, connectivity gaps	Teachers faced challenges related to unreliable infrastructure and limited student access to devices.
	Reliability & Accuracy	Inaccurate feedback, over-reliance risks	Concerns about AI errors undermining teaching effectiveness.
Professional Development and Preparedness	Lack of Training	Self-learning, informal experimentation, unpreparedness	Teachers highlighted inadequate training, leaving them to experiment independently.
	Desired Support	Workshops, peer exchange, early training	Teachers called for structured, contextualised professional development on AI.

Ethical and Social Implications	Equity & Access	Digital divide, fairness, resource gaps	AI was seen as potentially widening educational inequalities.
	Privacy & Dependency	Data security, over-reliance by students	Teachers expressed worries about data misuse and excessive student reliance on AI tools.
Future Visions of AI in Education	Role of Teachers	Facilitation, mentorship, inquiry-driven roles	Teachers envisioned AI reshaping but not replacing their roles.
	Sustainable AI	Ethics education, digital literacy, responsible use	Teachers supported embedding critical AI literacy and sustainability themes into curricula.

Summary of Findings

The results showed that there are five themes that are interrelated. First, there was an ownership of AI by teachers, representing general goodwill for the educational use of AI technology due to the ability of IT to create more personalised learning, save time, and assist in the education of different learners. Second, they found that many challenges exist, in particular, technical reliability, infrastructure, and accuracy concerns. Third, teachers repeatedly expressed the shortage of structured professional development and, therefore, the lack of confidence and creativity in using AI tools. Fourth, substantial concerns about ethical and social implications, especially equity of access, privacy, and over-reliance, were raised. Finally, teachers expressed their views towards the future, which they perceived as cautious optimism - this is, AI seen as inevitable but needing responsible integration, clarifying training pathways and ethical safeguards. Overall, the research raises a complex story - one of excitement and caution, in which teachers' views are heavily influenced by institutional support, training, and ethics.

Practical Recommendations

The results of the research lead to a row of recommendations that can be applied to the further evolution of AI integration into the sphere of education. Firstly, investments in the infrastructure are urgently needed in order to be able to rely on the availability of the devices, software, and internet connection. Teachers kept stressing the point that even the most promising applications of AI become useless if their systems are not stable. Teacher training should also be prioritised alongside infrastructural training (Sargiotis, 2024). Peer-learning networks should support teachers to develop their confidence and competence through structured professional development programs that offer hands-on exposure to AI tools (Adeoye & Sabela, 2024). The role of the teacher must not be perceived as passive—they must be active participants in the integration of technology. Innovations can be developed on meaningful pedagogical collaborations as teachers co-design AI-related curricula. Ethical considerations must also include confidentiality, fair use, the avoidance of over-reliance on AI tools by students, and other considerations (Klimova et al. 2023). Appropriate frameworks to safeguard the interests of students and their information and to ensure the application of AI to teaching and learning does not exacerbate inequities is the responsibility of schools and policymakers.

AI literacy should be introduced in teacher education programs early in their training, so that teachers can more thoughtfully and critically assess AI tools for classroom use in pedagogically appropriate ways. AI should be used to augment, not replace, the humane side of teaching (Farooqi et al. 2024). Achieving this balance will entail the alignment of disparate policies, strong institutional support, and a focus on pedagogy.

Future Research Directions

This study proposes several future research directions. A similar comparative study within different contexts, for example, across urban and rural schools, or between countries with different levels of digital infrastructures, will provide important insights into how contextual differences impact teacher experiences with AI. It will also be important to conduct survey studies to understand how teachers' attitudes and practices change over time as they learn about AI and receive support from their institutions (Kuleto et al., 2021). Understanding students' perspectives must be prioritised as they engage with AI tools, which will determine their utility within educational environments and raise concerns about engagement, equity, and ethical use.

More work is needed to understand the differences across disciplines, particularly in the use of AI for mathematics, science, and language learning, to understand how those discipline-specific applications create different opportunities or challenges. Further research should identify which professional development models most effectively enable teachers to become responsible AI users (Fakhar et al., 2024). Such research could articulate evidence-based models showing how to integrate AI in teaching in ways that are pedagogically defensible, equitable, and sustainable.

Conclusion

This study demonstrated that teachers, in educational contexts, are experiencing increasingly complex and emergent interactions with AI. Findings show that AI integration in teaching transformed the roles, practices, and even the professional relationships teachers held with students. Concerning the integration of AI, there are opportunities and challenges to be negotiated. On the positive side, teachers recognised the time and administrative task efficiencies AI tools offered, as well as the quick access to student performance data—affordances that teachers felt enhanced the learning process in terms efficiency, personalization, and engagement. On the negative side, there are ethical concerns regarding the integration of AI in education, particularly around hyperautomation and the potential dehumanization of relationships in education, data privacy, and overreliance on technology.

Thematic analysis of the teachers' experience suggested the influence of digital competence, institutional backing, and professional development opportunities. Some teachers were ready to engage with AI as the next step of their ongoing implementation, while others were reluctant or concerned about the educational, equity, and pedagogical outcomes. Most importantly, the findings pointed out that the efficacy with which AI technologies were implemented rested less on the presence of technologies and more on the teachers' sustained collaboration, the unambiguous framing of policies, and their promotion within the educational ecosystem.

As articulated in this work, while it is true that AI technologies offer unprecedented opportunities to redefine educational practices, effective and meaningful educational change is only possible when it is approached with innovation tempered by prudence. Teacher involvement is vital for the responsible use of AI, as it is crucial to ensuring that the technology is used to enhance, rather than erode, the human aspects of education. AI technologies should be used as an assistive tool, rather than a replacement, to strengthen pedagogy and deepen learning.

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