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The Implications of Artificial Intelligence for Teacher Agency and Teacher-Student Relationships through the Technology Acceptance Model

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Abstract

This study examined the impact of artificial intelligence (AI) integration on teacher agency and teacher-student relationships in secondary schools in Azerbaijan, using the Technology Acceptance Model (TAM) as an analytical framework. As AI-driven tools become more prevalent in classrooms, concerns have emerged regarding their influence on instructional authority, student engagement, and pedagogical practices. This qualitative study, involving 109 teachers and 225 students from 30 secondary schools, explored perceptions of perceived usefulness (PU), perceived ease of use (PEOU), attitude toward use (ATU), and behavioral intention to use (BIU) of AI in education. Findings indicate that while AI enhances personalized learning, efficiency, and student autonomy, it also challenges traditional teacher-student dynamics, potentially diminishing teacher agency and fostering over-reliance on AI-generated content. Teachers' ability to integrate AI effectively is largely influenced by AI literacy, professional training, and institutional support. The study underscores the need for structured teacher development programs, clear institutional policies, and AI literacy education for students to ensure that AI serves as a pedagogical tool that enhances teacher-student relationships and critical thinking skills.

Introduction

The rapid integration of artificial intelligence (AI) in education has significantly transformed teaching and learning dynamics, raising critical questions about its impact on teacher-student relationships (Cao, 2024; Gupta et al., 2024). AI tools such as chatbots and messaging platforms have altered traditional classroom roles, influencing both teaching and learning processes (Labadze et al., 2023). While AI has the potential to enhance student engagement through personalized feedback and adaptive learning pathways, concerns have emerged regarding these implications in how AI reduces teachers to "mere technology operators" while commercial AI systems dictate instructional decisions, diminishing "the professionalism and expertise of teachers and turns education into a commodity, where teachers are seen as service providers" (Holmes, 2023, p. III). These developments have sparked philosophical debates about the future role of teachers in AI-supported education (Selwyn, 2019), highlighting broader questions of authority and agency in the classroom. This study explored these evolving dynamics focusing on how AI integration is reshaping teacher-student relationships, teacher authority, and engagement in learning environments. As AI-driven educational platforms personalize learning and streamline

tasks, concerns remain about their implications for teacher agency and the broader pedagogical framework.

The Technological Acceptance Model (TAM) provides a useful theoretical framework for analyzing how teachers and students perceive and respond to AI tools, emphasizing factors such as perceived usefulness (PU), perceived ease of use (PEOU), attitude towards use (ATU), and behavioral intention to use (BIU). TAM has been widely applied to understand technology adoption in education (Davis, 1989; Nguyen et al., 2024; Or, 2024; Vogelsang et al., 2013). In the present study, TAM guides the inquiry into AI integration: for instance, how perceptions of AI usefulness and ease of use influence attitudes and intentions among teachers and students. Prior research suggests that appropriate training and supportive policies can help teachers integrate AI effectively (Alasgarova & Rzayev, 2024a; Bakhadirov et al., 2024; Chan & Hu, 2023). However, in classrooms where teachers have limited AI awareness, students may come to rely heavily on AI-generated explanations (Zhai et al., 2024), potentially undermining traditional teacher-led instruction.

The significance of this research lies in its focus on teacher agency and teacher-student relationships in the age of AI, thereby enriching the dialogue on how emerging technologies intersect with the core human elements of education. While many studies have assessed the impact of AI on learning outcomes and engagement (Zhai et al., 2024), fewer have critically examined how AI alters students' perceptions of teacher authority and the broader relational dynamics within classrooms. Additionally, concerns regarding over-reliance on AI tools (Zhai et al., 2024), the potential for passive learning habits, and ethical implications Alasgarova & Rzayev, 2024b) underscore the need for further research in this area.

To address these gaps, this study investigated the impact of AI integration on teacher-student relationships in secondary schools in Azerbaijan. In particular, it examined changes in teachers' instructional authority, students' perception of AI as a learning tool, and classroom interactions through the lens of TAM constructs. The research was guided by the following questions:

1. How does AI integration shape teachers' instructional authority and students' perceptions of AI usefulness in learning?
2. How does AI influence student engagement and learning behaviors, and what factors shape students' and teachers' attitudes toward AI use?
3. How do teachers adapt their instructional practices to AI integration, and what factors affect their ease of AI adoption?
4. How do students perceive AI as a learning tool, and what influences their intention to rely on AI versus teacher guidance?

These research questions align with TAM key components: perceived usefulness (RQ1), attitude towards use (RQ2), perceived ease of use (RQ3), and behavioral intention to use (RQ4). By examining teacher-student dynamics in relation to these constructs, the study provides a structured approach to understanding AI acceptance and its educational implications. In this way, the study adds to the discussion on AI in education by exploring how it shapes teacher-student relationships, teacher authority, and engagement in learning.

Literature Review

AI and Teacher Agency

A growing body of literature explores the benefits and challenges of AI in education, with particular attention to student learning outcomes, ethical concerns, and the need for relevant professional development (Charles & Charles, 2024; Labadze et al., 2023; Nguyen et al., 2024). These conversations are both new and old: the idea of active deployment of AI-driven tools in the classroom has emerged only recently, yet the rapid development of AI has quickly made such tools commonplace. The key question is no longer whether AI will enter education, but rather how teachers position themselves and are perceived in this AI-powered educational ecosystem. Teacher agency, defined as the capacity of educators to act purposefully and constructively to direct their professional growth and instructional practices in response to changing educational landscapes (Utami & Kuswandono, 2023), becomes particularly crucial as educators integrate AI in teaching and learning while maintaining pedagogical integrity and student-centered learning.

To explore teacher agency in AI-integrated classrooms, the researchers considered two essential dimensions: teaching efficacy and teacher authority. Teaching efficacy refers to the confidence teachers have in their ability to effectively integrate AI into their instructional practices (Bergdahl & Sjöberg, 2025). This encompasses not only technical proficiency with AI tools but also the pedagogical strategies to guide students in critically engaging with AI-generated content. Meanwhile, teacher authority in AI-supported settings pertains to the evolving role of educators as facilitators, mentors, and ethical gatekeepers.

A teacher's willingness to integrate AI is significantly influenced by their AI self-efficacy and the level of institutional support they receive (Bergdahl & Sjöberg, 2025). As AI automates more instructional tasks, educators must develop new competencies to ensure students use AI responsibly. This shift requires a reevaluation of traditional power dynamics in the classroom, where the teacher's role extends beyond knowledge transmission to include curating AI-generated information, modeling responsible AI use, and scaffolding student learning in an increasingly automated environment (Holmes, 2023; Nguyen et al., 2024). Bergdahl and Sjöberg (2025) further emphasize that teachers' AI self-efficacy significantly influences their willingness to adopt AI-driven tools, further shaping their evolving role in the classroom.

Several studies have examined the relationship between AI and teacher agency. Holmes (2023) argues that AI-enabled educational tools often prioritize efficiency over deeper engagement, reducing teachers to facilitators rather than knowledge providers. Gentile et al. (2023), in their systematic review of the impact of AI on education, found that AI is driving a paradigm shift in teacher-student dynamics, requiring teachers to transition from knowledge providers to AI facilitators. Their analysis highlights that an increasing role of AI in instructional tasks may diminish teacher authority, particularly when AI-generated content contradicts teacher explanations. The study underscores the need for teacher training and ethical AI integration to prevent a loss of professional agency. Relatedly, Nazaretsky et al. (2022) found that teachers' trust in AI-powered educational technology is influenced by their knowledge of AI decision-making and their ability to modify AI recommendations. Their study highlights that teachers may resist AI integration when they perceive AI-generated suggestions as conflicting with their

pedagogical judgment. This aligns with broader research on algorithm aversion, where educators distrust AI when its recommendations contradict their expectations (Dietvorst et al., 2015). To mitigate this resistance, AI tools should provide transparency and allow teachers to review, adjust, or override AI-generated assessments before implementing them in the classroom.

These concerns are further reinforced by Nguyen et al. (2024) who found that students with frequent exposure to AI tools like ChatGPT increasingly rely on AI-generated information for learning tasks, raising concerns about overreliance and its impact on student-teacher interactions. However, these findings raise the question of whether students' trust in AI stems from its actual reliability or from its perceived objectivity, as AI-generated information can sometimes lack the depth of teacher insights. As AI adoption increases, these shifts in teacher agency influence teacher-student relationships, altering perceptions of authority, trust, and engagement in classroom interactions. This underscores the importance of maintaining teacher agency. From a philosophical standpoint, such changes bring up concerns about the nature of educational authority and the role of teachers. Selwyn (2019) contends that even as technology becomes more embedded in classrooms, it must not supplant the human elements of teaching that make learning a transformative experience. The challenge, therefore, is ensuring teachers remain central as authoritative guides and moral mentors, even as AI takes on more routine tasks.

AI and Teacher-Student Relationships

The integration of AI in education has profound implications for teacher-student relationships, influencing aspects such as trust, engagement, and the perceived role of educators. While AI-powered tools provide enhanced personalization and efficiency in learning, research indicates potential risks, including the weakening of teacher authority and diminished direct interactions between students and educators (Cao, 2024; Gupta et al., 2024). The shift from teacher-led instruction to AI-supported learning environments necessitates evaluating how these technological transformations impact relational dynamics within classrooms. One primary concern is the potential erosion of the teacher's role as a knowledge authority. In traditional classrooms, teachers are the central source of knowledge, guiding students through inquiry and fostering critical thinking. However, studies suggest that students now increasingly perceive AI-generated content as more immediate and authoritative, which can reduce their reliance on teacher explanations.

For example, Alasgarova and Rzayev (2024b) found that students often turn to AI for quick answers, leading to a decentralization of expertise in which students question whether they need a teacher's input when an AI can provide instant responses. This altered power dynamic may challenge the traditional respect and trust students place in teachers. However, as Bergdahl and Sjöberg (2025) found, teachers' AI self-efficacy plays a crucial role in shaping how they integrate AI into their teaching practices. Their study highlights that teachers' confidence in using AI tools varies significantly depending on their prior experience, perceived relevance to their subject, and the level of institutional support. These factors influence whether teachers adopt AI as a complement to their instruction or struggle with its integration, which in turn may impact their perceived instructional authority in AI-enhanced learning environments.

AI integration also affects student motivation and engagement. On one hand, AI can facilitate personalized learning experiences and adaptive feedback that keep students engaged. On the other hand, over-reliance on AI tools may reduce student-teacher interactions, potentially weakening the relational bonds that are important for effective learning (Gupta et al., 2024; Labadze et al., 2023). In a study of Azerbaijani high school students, Alasgarova and Rzayev (2024b) observed that students who frequently used AI for academic assistance reported feeling less connected to their teachers. Without regular personal engagement with educators, students' intrinsic motivation can decline as they come to rely more on AI for solutions instead of seeking meaningful dialogue with teachers.

Zhai et al. (2024) further support this claim by discussing the risks of students developing passive learning behaviors when AI-generated answers become the primary source of information. Their study highlights that while AI can enhance comprehension, it may also encourage surface-level understanding when not moderated by teachers. Without teacher guidance, students may engage less critically with AI-generated content, relying more on automated responses than on active learning strategies. As Zhai et al. (2024) note, "This dependency is problematic as it can deter students from engaging in thorough research and forming their insights, potentially diminishing their critical faculties" (p.23).

Furthermore, teacher-student relationships play a critical role in students' emotional and social development, and the influence of AI in this domain has limitations. Cao (2024) argues that AI-driven education systems, while efficient in content delivery, lack the emotional intelligence needed to support students' social-emotional needs. Teachers provide encouragement, address anxieties, and offer mentorship, which are the elements of education that AI cannot replicate. From a philosophical perspective, this reflects Selwyn's (2019) warning that an excessive focus on AI could reduce education to a "purely transactional exchange" driven by data and efficiency, overshadowing the personal connections and intellectual autonomy that define meaningful education (p. 89).

The influence of AI also raises ethical and trust-related challenges in the classroom. Studies have documented concerns about the adoption of AI tools and institutional support for AI integration (Labadze et al., 2023). When students rely on AI for feedback or grades, they and their teachers must trust that the decisions AI makes are fair and transparent. Incidents of AI errors or biases can lead to student skepticism toward both the technology and their educators, especially if teachers are perceived as endorsing or depending on an untrustworthy system. For instance, increased use of AI for grading can make students feel that evaluations are impersonal or unfair, lacking the contextual understanding a teacher would provide (Alasgarova & Rzayev, 2024b). Such issues can strain the teacher-student relationship if students believe that teachers are ceding too much judgment to machines.

Despite these challenges, AI can also be utilized to strengthen teacher-student relationships when integrated thoughtfully. Bergdahl and Sjöberg (2025) highlight the role of teacher motivation and self-efficacy in influencing students' perception of AI as a learning tool in digital learning environments. In classrooms where teachers actively guide AI use, students are encouraged to see AI as a supplemental learning aid rather than a replacement for teacher guidance. Effective integration requires a balanced approach in which teachers remain central to the learning experience, using AI to support their roles. Educators should receive targeted training to use AI tools

ethically and pedagogically, ensuring that technology complements rather than undermines the relational and humanistic aspects of teaching (Gupta et al., 2024; Labadze et al., 2023). This aligns with the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the need for educators to develop the intersection of technological, pedagogical, and content knowledge to effectively integrate AI into teaching (Alasgarova & Rzayev, 2024a).

However, research shows that many teachers struggle with the AI-related components of TPACK, requiring additional professional development to integrate AI effectively (Celik, 2023). Addressing this gap is crucial for ensuring that AI and other educational technologies enhance, rather than hinder, the teaching and learning experience. As Celik (2023) emphasizes, "Teachers' TK is important to assess the outcome of AI-based systems. However, TK is not sufficient to effectively use AI-based systems in education. Therefore, teachers should know the pedagogical affordances of AI" (p.9). This aligns with Selwyn (2019) and others, who suggest that maintaining the primacy of human teachers is crucial; AI should serve as a tool to enhance human-led education, not as an end in itself.

AI and Student Learning Efficacy

While the impact of AI on teacher agency is a significant concern, research also highlights its role in enhancing student learning efficacy. AI tools provide adaptive learning pathways, instant feedback, and personalized learning experiences, leading to improved engagement and self-directed learning. Almassaad et al. (2024) found that among 859 university students in Saudi Arabia, 78.7% reported frequent AI use, with many citing increased confidence in their academic abilities. However, the same study highlighted concerns about over-reliance on AI, with some students becoming passive learners who lacked the ability to critically evaluate AI-generated content.

Providing an earlier perspective, Chan and Hu (2023) conducted a survey-based study on student AI perceptions in Hong Kong universities, revealing that students who viewed AI as useful exhibited higher engagement levels. Their findings also highlighted student concerns regarding over-reliance on AI, academic integrity, and the potential impact on critical thinking and creativity, underscoring the need for educators to play an active role in AI-integrated learning environments. Charles and Charles (2024) similarly found that high school students using AI tools for academic assistance experienced increased engagement but were also more likely to bypass critical thinking in favor of AI-generated solutions. The role of AI literacy in mitigating such concerns has been emphasized by several researchers. Nguyen et al. (2024) suggest that structured AI training programs can help students use AI responsibly, ensuring that it complements rather than replaces human instruction. However, the effectiveness of such programs remains an open question, as students' ability to critically engage with AI-generated content likely depends on broader pedagogical strategies and institutional support.

Similarly, Labadze et al. (2023) highlight the importance of AI training for educators, emphasizing the need for structured learning to support AI integration in pedagogy. While this recommendation aligns with the increasing role of AI in education, its practical implementation raises challenges. For instance, faculty members may require specialized training to effectively incorporate AI into their teaching, and there may be disparities in access to AI

resources across institutions. Without comprehensive support systems, AI could exacerbate educational inequalities rather than bridge learning gaps.

TAM and AI in Education

TAM model provides a theoretical lens through which to examine how teachers and students perceive and adopt AI in educational settings. Proposed by Davis (1989), TAM posits that technology adoption is driven by perceived usefulness (PU), perceived ease of use (PEOU), attitude towards use (ATU) and behavioral intention to use (BIU). The adaptability of TAM has led to its widespread application in quantitative studies examining AI adoption in education. Nguyen et al. (2024) applied TAM in their mixed-method study at Ho Chi Minh City University of Technology and Education, analyzing how students and faculty perceived the role of AI in learning. Their findings indicated that students were more likely to use AI when they perceived it as an effective educational aid, despite concerns about passive learning and reduced teacher interaction. Similarly, Bakhadirov et al. (2024), in their quantitative study of 306 teachers in Azerbaijan, found that perceived usefulness was a stronger predictor of AI adoption than ease of use, reinforcing the idea that educators are more likely to embrace AI when they recognize its pedagogical benefits.

In a broader examination of technology adoption in education, Or (2024) employed One-Step Meta-Analytic Structural Equation Modeling (OSMASEM) to revisit the role of attitude in TAM among educational participants, including teachers, lecturers, educators, and students in K-12, college, and university contexts. The study found that attitudes toward technology significantly mediate how perceived ease of use and perceived usefulness affect users' intentions to adopt technology. Including attitudes improved TAM predictive accuracy in educational settings where technology use is voluntary. Thus, the research suggests that attitudes should be considered in future TAM models to better understand and enhance technology adoption in educational environments.

Although TAM has been predominantly applied in quantitative research, its conceptual framework also provides a valuable lens for qualitative studies, enabling researchers to explore the deeper motivations, challenges, and contextual factors influencing technology adoption (Vogelsang et al., 2013). This is particularly relevant in education, where AI adoption is shaped not only by usability and perceived benefits but also by pedagogical philosophies, institutional support, and evolving teacher-student dynamics. For this reason, the current study adopted a qualitative approach to TAM, allowing for the investigation of AI adoption in a more contextually grounded manner.

Methodology

This study employed a qualitative research design to explore the impact of AI integration on teacher-student relationships in secondary schools in Azerbaijan. A qualitative approach was chosen because it allows for an in-depth understanding of participants' experiences, perceptions, and attitudes toward concepts, notions, and ideas in question (Creswell & Creswell, 2022). Teacher agency and student learning efficacy are subjective constructs influenced by socio-cultural and institutional contexts; qualitative methods enable a rich exploration of these

themes through participants' own voices and contextual observations.

Sampling and Participants

A purposive sampling strategy was used to select a diverse and relevant sample of participants based on their level of AI exposure and teaching/learning experience. The study involved 109 teachers and 225 students from 30 secondary schools across Azerbaijan, including both international schools and public state schools. In the international schools, English is the primary language of instruction, and all participating teachers and students were accustomed to communicating in English. In state schools, only English language teachers (and their students) were included to ensure that all focus groups and interviews could be conducted in English. This approach minimized linguistic inconsistencies and avoided the need for translation, allowing participants to express their views directly.

Data Collection

Multiple qualitative methods were utilized for triangulation, including focus group discussions and classroom observations. Focus groups were conducted separately for teachers and students, facilitating open discussion about experiences and perceptions of AI integration. The group setting encourages participants to compare perspectives, surface common concerns, and generate deeper insights through participant exchange (Patton, 2014). These discussions helped identify collective attitudes and peer-shared experiences regarding AI in education.

The interview protocols covered key themes informed by the literature and TAM framework. Participants were asked about their awareness and usage of AI tools, the impact of AI on the teacher's role and authority, changes in student learning behavior and efficacy, how teachers adapt their pedagogy in response to AI, emotional and relational aspects of using AI, and any suggestions for future practices. Classroom observations were carried out to capture real-time dynamics of AI usage in instructional settings. Researchers observed how teachers and students interacted with AI tools during lessons, noting instances of student engagement or distraction, teacher responses to AI-generated content, and any shifts in classroom atmosphere when AI was in use. Field notes and an observation checklist were used to systematically record these observations.

Data Analysis

Detailed notes from the focus group sessions and lesson observations were transcribed verbatim and analyzed using thematic analysis, following Braun and Clarke's (2006) framework for coding and theme development. An initial round of open coding was performed to label significant ideas and recurring concepts in the transcripts and observation notes. These codes were then reviewed and grouped into broader categories reflecting patterns in the data. Throughout this process, TAM provided a guiding lens. Codes relevant to perceived usefulness, ease of use, attitudes, and usage intentions were noted, as were codes related to authority, agency, and relational dynamics. Through iterative refinement, four primary themes emerged from the data: (1) *Perceived Impact of AI on Teacher Agency*, (2) *Student Learning Efficacy and Engagement*, (3) *Emotional and Social Dimensions of AI Use*, and (4)

Necessity for Strategic AI Implementation and Teacher Training. These themes encompass the core findings and are described in detail in the next section. Each theme is supported by representative quotes from participants (with teachers denoted as "T" and students as "S" along with an ID number) and illustrative examples from the classroom observations, to provide a comprehensive understanding of the impact of AI on teacher-student relationships.

Throughout the analysis, several strategies were employed to enhance trustworthiness. Triangulation of methods (focus groups and observations) ensured that findings were corroborated across different data sources, strengthening the credibility of interpretations (Carter et al., 2014). Member checking was conducted by providing participants with summaries of interpretations or key quotations to verify accuracy and intent (Creswell & Creswell, 2022). Participants generally agreed with the researchers' understanding of their views, and their feedback was incorporated to correct any misinterpretations. Peer debriefing involved discussions with fellow researchers in the field of educational technology. Preliminary results and themes were reviewed by two independent colleagues, which helped challenge potential biases and refine the theme definitions (Creswell & Creswell, 2022). A reflexive journal was maintained by the research team throughout data collection and analysis to record decisions, feelings, and reflections, thereby increasing transparency of the research process.

Ethical Considerations

The study obtained ethical approval from the relevant institutional review board and permissions from educational authorities in Azerbaijan. All participants (and parents/guardians for minors) gave informed consent after being briefed on the purpose and procedures of the study. All data were securely stored and only accessible to the research team. Given the involvement of teachers and students in discussing possibly sensitive perceptions, care was taken to create a trusting environment during discussions and to report findings respectfully and anonymously (American Psychological Association 7th Edition, 2019).

It should be noted that while this qualitative design yields deep insights, there are certain limitations inherent in the methodology. The findings may not be generalizable to all contexts, particularly beyond secondary schools in Azerbaijan, due to the focused sample and qualitative nature (Creswell & Creswell, 2022). The intention, however, is to provide rich, contextually grounded understanding rather than broad generalization. The qualitative data is also reliant on self-reported perceptions and the researchers' interpretations; to mitigate bias, the triangulation and validation steps described above were crucial.

Results

The analysis of the qualitative data yielded four interrelated themes, each illuminating a different facet of how AI integration is affecting teacher-student relationships. These themes are: (1) *Perceived Impact of AI on Teacher Agency*, (2) *Student Learning Efficacy and Engagement*, (3) *Emotional and Social Dimensions of AI Use*, and (4) *Necessity for Strategic AI Implementation and Teacher Training*. In presenting these findings, the researchers interwove participant quotes and observational evidence to illustrate the themes and noted connections to the

TAM factors where relevant.

Perceived Impact of AI on Teacher Agency

Teachers in this study reported that the integration of AI in classrooms has significantly altered traditional teacher-student dynamics. A majority of teachers described experiencing challenges to their instructional authority as students increasingly relied on AI-generated answers and resources. One teacher remarked, *"Students now challenge my explanations if AI provides a different answer. I feel like I have to constantly justify my knowledge"* (T86), highlighting a sense of agency displacement where AI functions as a competing source of knowledge in the classroom. In focus groups, several teachers echoed this sentiment that their expertise was under scrutiny in ways not experienced before AI became readily accessible to students.

Classroom observations supported these concerns. In classes where students had frequent access to AI tools, teachers were interrupted more often by students cross-referencing what the AI said. For example, in one observed history lesson, a teacher's explanation of a historical event was immediately fact-checked by a student asking, *"But ChatGPT said something else happened at that time, is that true?"* (Observation Note, School 14). This led the teacher into an impromptu discussion about the limitations of AI-generated content and the importance of critical evaluation rather than passive acceptance of answers. Gentile et al. (2023) argue that the growing presence of AI in classrooms is fundamentally transforming the teacher's role, pushing educators to shift from traditional authoritative instruction to more adaptive, AI-mediated teaching approaches. Their study highlights that while AI has the potential to support personalized learning and engagement, it also introduces challenges to teacher agency, particularly as students increasingly turn to AI as an alternative or competing source of knowledge. This evolving dynamic necessitates a redefinition of the teacher's role as an authoritative mentor rather than a sole distributor of information. As one teacher put it, *"It sometimes feels like there's a silent third participant in the class, and I'm competing with it for trust"* (T103). Gupta et al. (2024) similarly notes that the integration of AI technologies in education altered teacher-student dynamics, suggesting potential concerns about increased transactional interactions and reduced relational engagement.

However, not all teachers perceived AI as a threat. A subset of participants viewed AI as a pedagogical tool that, if used proactively, could complement their teaching. For instance, one teacher noted, *"Even when I use AI tools to create an activity or a project, my students still feel I am their teacher, not AI"* (T29). This teacher integrated AI in lesson planning (e.g., using an AI to generate examples or supplemental materials) and introduced it to students as an assistant under the teacher's guidance. Observations in that teacher's classroom confirmed that students directed their questions and attention to the teacher, using the AI tool only when prompted by the teacher for specific tasks. In such cases, the teacher's authority remained intact; students did not view AI as an independent knowledge source but rather as part of the teacher-orchestrated learning process.

These findings indicate that teacher agency in an AI-enhanced classroom is contingent on the teacher's own approach to AI. Teachers with higher AI literacy and confidence were able to maintain instructional control by framing AI as an assistant rather than an alternate authority. For example, a tech-savvy teacher (T11) told students

that *"the AI might have information, but it doesn't have wisdom. That's what I'm here for".* Such teachers used AI to handle minor queries or provide additional examples, while they themselves synthesized and validated the information for the class. On the other hand, teachers with limited AI knowledge experienced greater difficulty asserting their expertise. One less-confident teacher admitted, *"I feel left behind when students know more about AI tools than I do"* (T2), which corresponded with observed instances of students in that class frequently bypassing the teacher to consult AI on their own. This divergence underscores the importance of teacher agency as shaped by familiarity with AI. Teachers who adapted and incorporated AI maintained a stronger sense of authority, whereas those who were unprepared felt their agency diminish.

Student Learning Efficacy and Engagement

Students reported positive experiences with AI tools in terms of personalized learning support and increased engagement. Many students found that AI could act like a personal tutor, adjusting explanations until concepts were understood. One student explained, *"ChatGPT keeps explaining things in different ways until I finally get it"* (S4), reflecting the capacity of AI to provide multiple explanations or examples tailored to the student's queries . Another student shared that using AI for practice problems in math gave instant feedback, which motivated them to keep trying until they mastered the procedure (S87). Such accounts suggest that AI, when used as a supplement, can enhance learning efficacy, i.e. students' belief in their ability to learn, by providing timely, individualized assistance (Nguyen et al., 2024). Notably, this relates to TAM perceived usefulness (PU). Students perceived AI as highly useful for improving their understanding and performance.

Classroom observations provided evidence of heightened engagement among students using AI-driven learning tools. In several observed lessons, students with access to AI resources (like an educational app or chatbot) were actively experimenting and asking the AI follow-up questions, whereas peers without such tools were more passive. For instance, in an English class, one group of students engaged with an AI grammar checker; they were visibly enthused, correcting their essay and immediately seeing improvements, while students doing the task manually were less participative. Teachers also noticed this trend: *"Quiet students suddenly become curious when they can use the AI to explore answers"* (T74). Indeed, one teacher remarked that students who were usually shy about asking questions in class would readily *"ask"* the AI those same questions, then come to class more prepared or willing to contribute because they had obtained some understanding independently.

However, some students admitted to becoming over-reliant on AI, which in certain cases reduced their own critical engagement with learning materials. *"Sometimes I just go with whatever AI says without thinking about it. Even though I know I probably shouldn't",* one student confessed (S166). This admission points to the risk of passive learning behaviors. Students might accept AI outputs uncritically, leading to superficial understanding. An observed example was a student who, when asked by the teacher to explain an answer that the student had obtained from an AI, struggled to elaborate because they had not processed the reasoning themselves. The teacher noted that this student's assignments, while now consistently complete, lacked the depth of understanding shown earlier in the term before the student started using AI. This aligns with concerns in the literature (Zhai et al., 2024) that AI, if used without guidance, can foster dependency and reduce the development of independent problem-solving

skills.

Despite these concerns, the data suggests that AI integration is most effective when guided by teachers. One teacher recounted how they explicitly taught their students to verify and analyze AI-generated content: *"I show them how to analyze answers that AI provides as a starting point, Then, we together check or discuss the ChatGPT response"* (T89). In that classroom, observational data confirmed robust student engagement; students used AI to gather ideas but still participated actively in teacher-led discussions to critique and build on those ideas. When teachers framed AI as a tool to be used critically, students appeared to benefit from AI usefulness without entirely disengaging from the learning process or the teacher. This highlights a crucial point. The role of teacher guidance in mediating the impact of AI. Students in the study valued AI for the autonomy it gave them (*"I can learn stuff myself without waiting for the teacher"*, as one noted (S67)), but they also acknowledged that the best outcomes were achieved when teachers helped them make sense of AI-provided information. Thus, AI can boost student learning efficacy and engagement, but maintaining those gains in a meaningful way depends on the teacher's ongoing involvement in cultivating students' critical thinking and self-regulation.

Emotional and Social Dimensions of AI Use

Beyond academic performance, the emotional and social aspects of AI integration emerged as significant in shaping teacher-student relationships. Many students expressed that AI tools provided a *"no-judgment"* zone for learning, which affected how and when they seek help. For instance, students reported feeling more comfortable asking questions to an AI tutor or chatbot than to a teacher in front of peers. *"It's easier to ask ChatGPT questions because I don't feel like I'm interrupting the class",* said one student (S102). Another shared, *"I can ask ChatGPT the same question five times, and he won't think I'm stupid"* (S35). Such comments underline that AI, being an impersonal entity, removes some of the embarrassment or anxiety students might feel when admitting confusion to a human teacher. In focus groups, quieter or more anxious students praised this aspect of AI, as it allowed them to work through uncertainties at their own pace. This relates to TAM attitude toward use (ATU). Students had a positive attitude toward AI largely because it provided a stress-free learning support, which in turn boosted their confidence.

Observations corroborated that AI can encourage participation from students who normally hesitate. In classes where an AI-based activity was integrated, some typically reserved students showed more engagement. For example, during a science lesson, a student who rarely spoke up was tasked with using an AI simulation to demonstrate a concept; freed from the pressure of immediately knowing the answer, the student eagerly interacted with the simulation and then explained the outcome to the class. The teacher noted afterward that this student seemed proud to have *"taught the class something with the help of the AI".* In this way, AI tools can serve as social levelers, giving students a sense of accomplishment and voice, thereby positively influencing the classroom social dynamics.

However, teachers also observed potential downsides on the relational front. Several teachers noted that excessive reliance on AI could limit direct student-teacher interaction, which is essential for building trust and rapport. One

teacher commented, *"I sometimes realize I haven't had a real conversation with certain students in a while because they're so busy with their [AI] tools"* (T58). If students turn to AI for answers first and only come to the teacher if the AI fails, opportunities for spontaneous questions, personal feedback, and relationship-building conversations may diminish. Over time, this could weaken the teacher's understanding of individual students' struggles or learning progress, since the immediate feedback loop might be happening between student and AI instead of student and teacher.

There is also an empathic aspect to consider. Teachers fulfill not just an instructional role but also an emotional support role noticing if a student is frustrated, offering encouragement, or adapting to the mood of the class (Selwyn, 2019). AI, lacking emotional intelligence, cannot replicate these human touches. Some teachers worried that students might become less inclined to share their confusions or feelings, since they could attempt to resolve everything via AI. As one teacher put it, *"Usually if a student is stuck, they come to me, and I can sense their frustration or encourage them. Now they might just quietly ask the AI, and I miss that chance to help and connect"* (T22). Thus, while AI provides a judgment-free helper, it may inadvertently reduce moments of empathy and understanding between teachers and students.

From a broader perspective, these emotional and social dimensions tie back to fundamental philosophical questions about education. Apart from being a transmission of information, education is also a social process of mentorship and character building (Selwyn, 2019). The fact that students appreciate AI for its non-judgmental nature suggests a positive use case: technology, if used reasonably and ethically, can empower student inquiry. Yet it also emphasizes the importance of creating classroom environments where students feel safe to express ignorance or make mistakes with a human teacher. The findings suggest that teachers might learn from the AI appeal that fostering an atmosphere of psychological safety is key. If teachers can emulate that "no-stupid-questions" environment, students might rely less on the AI as an emotional crutch.

The presence of AI in the classroom can reshape the emotional landscape lowering anxiety for students in the short term, but potentially at the cost of reduced human interaction (Nguyen et al., 2024). Balancing this will require teachers to remain attentive to their students' emotional needs and perhaps even use the involvement of AI as an opportunity, for example, discussing openly in class that it is okay not to know something and encouraging students to bring what they asked the AI into the class discussion. This way, the role of AI in boosting confidence can be switched into a bridge between students and teachers. The role of a teacher as a compassionate mentor and the human connection in learning must be preserved even as AI tools become commonplace.

Necessity for Strategic AI Implementation and Teacher Training

Both teachers and students highlighted that the outcomes of AI integration, whether positive or negative, heavily depend on how AI is implemented in the classroom and how prepared teachers are to manage it. A consistent theme was the need for professional development and clear strategies to guide AI use in schools (Alasgarova & Rzayev, 2024a; Celik, 2023). The majority of teachers called for more training and institutional support regarding AI. *"Training helped me understand how to integrate AI effectively rather than feeling threatened by it",* one

teacher emphasized (T6). Teachers who had attended workshops or training sessions on educational AI reported greater confidence and pedagogical creativity in using AI tools. Celik (2023) highlights that AI literacy is essential for teachers to feel confident in AI integration. Their study found that teachers who received Intelligent-TPACK training were more likely to perceive AI as a pedagogical partner rather than a threat.

In observed classrooms led by trained teachers, AI integrated into lessons in a structured way, for instance, the teacher would introduce an AI tool, demonstrate its use, set guidelines (like *"use it to check your work, but you must still explain in your own words"*), and then let students proceed. These teachers maintained clear oversight and could step in when misunderstandings arose from AI outputs. In contrast, teachers without training often either avoided using AI altogether or allowed its use without clear guidelines, leading to some of the earlier-mentioned issues (like students consulting AI without the teacher's awareness or using AI in ways that bypassed learning).

Another aspect of strategic implementation is institutional policy and support. Teachers mentioned that having clear school policies on AI would help them navigate its use (Bakhadirov et al., 2024; Labadze et al., 2023). Some schools in the study had already issued guidelines (e.g., AI should be used for specific subjects or assignments only, or AI-generated content must be verified by a teacher), which teachers found useful. Others were operating in a vacuum of policy, causing uncertainty. Institutional stances on issues like plagiarism (if a student uses AI to generate content) or assessment (can AI be used in assignments?) were still evolving, and teachers desired clarity to set expectations in their classrooms.

From the students' perspective, strategic implementation mattered in terms of consistency and fairness. In focus groups, students noted that some teachers encouraged AI use while others discouraged it, sometimes within the same school, leading to confusion about whether using AI was *"cheating"* or smart learning. Chan and Hu (2023) similarly found that students expressed concerns about uncertain institutional policies on AI use, emphasizing the need for clear guidelines to foster ethical and transparent AI integration in education.

Students generally agreed that AI was most helpful when teachers integrated it into the curriculum intentionally, for example, a teacher assigning a task to compare an AI's answer with their own answer. Such activities not only legitimized AI use but also taught students how to critically appraise AI outputs. One student observed, *"In science class, we actually got homework to ask the AI a question and then find out where it might be wrong. That was fun and we learned a lot"* (S88). This indicates that with strategic planning, AI can be used to teach higher-order thinking rather than just giving answers.

Applying the TAM framework to these findings, perceived usefulness (PU) of AI was clearly high among those who had support and training (Nguyen et al., 2024). Students who saw real learning benefits and teachers who found AI could save time on tasks both viewed it as useful. Perceived ease of use (PEOU) was directly linked to training. Students found AI tools intuitive (often remarking how easy ChatGPT or similar tools were to use), but for teachers, ease of integration came with familiarity and practice. One teacher noted after training, *"ChatGPT is so easy to use and gives answers immediately"* (T90), a sentiment they likely would not have expressed before

training. Attitude toward use (ATU) for teachers became more positive when they felt in control of the technology rather than overwhelmed by it; conversely, some teachers had negative attitudes when they felt *"everything is changing so fast and there is no one to help or train us... we are losing control"* (T52). This anxiety underscores that attitude is shaped by the support system around the teacher. Behavioral intention to use (BIU) AI in the future was strong among students (most say they will continue using AI tools because of convenience and results), and among teachers it was strong if they had institutional backing and training, but weak if they remained unsupported.

Overall, the data suggests that to harness the advantages of AI while mitigating its drawbacks, schools must be proactive. Comprehensive AI literacy and pedagogical training for teachers is imperative (Nguyen et al., 2024; Bakhadirov et al., 2024). Teachers in this study explicitly recommended ongoing workshops, peer learning groups to share AI integration experiences, and updated curricula that include AI usage guidelines (Labadze et al., 2023; Nguyen et al., 2024). They also highlighted the need for ethical guidance, i.e. how to address issues of academic honesty, bias in AI content, and data privacy with students. Many felt that without a clear ethical framework, they were unsure how to handle situations like a student turning in AI-written essays or AI making biased statements about sensitive topics.

Discussion

The findings of this study provide a detailed understanding of the impact of AI integration on teacher-student relationships in secondary schools in Azerbaijan. The results align with and extend existing literature, highlighting both the opportunities and challenges associated with AI-mediated learning environments. Furthermore, philosophical considerations regarding authority, agency, and the nature of education in an AI era are integrated into the discussion, which helps contextualize the empirical findings.

Perceived Usefulness (PU) and Teacher-Student Dynamics

The perceived usefulness of AI in education emerged as a significant factor influencing its adoption and its impact on teacher-student relationships. Students in this study widely reported that AI tools enhanced their learning experiences by providing instant feedback, personalized explanations, and adaptive support. This corroborates prior studies that find AI-driven platforms can increase engagement by catering to individual learning needs (Nguyen et al., 2024). Students described AI as a non-judgmental resource that allowed them to explore concepts at their own pace, which reduced anxiety and increased confidence (S35, S102). In the context of TAM, these student experiences illustrate a high PU. Students clearly see AI as beneficial to their learning outcomes. This aligns with Alasgarova and Rzayev (2024b), who observed that Azerbaijani students frequently turn to AI for immediate answers, reducing their reliance on teacher feedback.

However, the way students perceive AI usefulness introduces challenges in teacher-student dynamics. Teachers observed that as students found AI to be a useful source of information, they began to challenge or bypass teachers, relying on AI-generated responses. Chan and Hu (2023) similarly reported that while students appreciated AI convenience and efficiency, concerns emerged regarding over-reliance, as some students tended to trust AI-

generated content without critically evaluating its accuracy or biases. This aligns with the findings of this study that when students perceive AI as highly useful, they may sideline teacher input or view AI as an alternative authority in the classroom.

This erosion of the traditional authority of educators aligns with broader concerns noted by Holmes (2023) regarding the impact of AI on educational authority and the shifting role of teachers in AI-integrated learning environments. Gentile et al. (2023) similarly argue that the increasing presence of AI in classrooms is reshaping the role of educators, requiring them to move away from traditional instructional authority toward a more adaptive, AI-integrated teaching model. Their study highlights that while AI can serve as an instructional aid, it also creates a parallel knowledge system that may diminish teachers' perceived expertise, particularly when students view AI responses as more objective or reliable. The observational data provided concrete examples of this phenomenon, reinforcing the idea that when AI is seen as highly useful, it may inadvertently set up a parallel authority in the classroom. Teachers with limited AI literacy, in particular, struggled to assert their pedagogical role under these conditions, as also reported by Bakhadirov et al. (2024) in an Azerbaijani context. This suggests that the perceived usefulness of AI by students needs to be complemented by teachers' own engagement with that usefulness. In other words, if teachers also recognize AI usefulness and incorporate it, they can channel it in productive ways; if they do not, students' high PU of AI can undermine teacher authority.

From a philosophical standpoint, this tug-of-war between AI utility and teacher authority touches on fundamental questions about the purpose of education. If students can easily obtain information from AI, what unique value does a teacher add? Selwyn (2019) and other theorists would argue that the teacher's role lies in the *interpretation, context, and human connection*, the aspects which a useful machine cannot provide. The findings of the current study underscore that while AI is useful for information delivery, the mentor role of the teacher remains essential for deeper understanding and wisdom. Thus, maximizing AI usefulness in education requires reimagining teacher usefulness as well. Teachers as facilitators of critical thinking, ethical understanding, and personalized mentorship in tandem with AI tools.

Perceived Ease of Use (PEOU) and Teacher Adaptation

The ease with which students and teachers can use AI significantly affected how deeply AI became embedded in classroom interactions. Students generally found AI tools intuitive and accessible; many noted how simple it was to ask a question on a chatbot or get instant help on an app (S11, S49). This aligns with the notion that ease of access is a strong predictor of technology adoption among students (Nguyen et al., 2024; Almassaad et al., 2024) . Because today's AI applications often have user-friendly interfaces, students' PEOU was high, which in turn positively influenced their ATU and BIU. They had little barrier to trying the tools and quickly integrated them into their study habits.

Teachers' perceptions of ease of use, however, varied widely based on their familiarity and training. Educators who had undergone AI training or were personally tech-savvy reported much greater confidence in integrating AI into their teaching practices. Chan and Hu (2023) highlight the importance of AI literacy in higher education,

noting that both students and educators require structured guidance to effectively integrate AI into learning environments. Their findings suggest that without institutional policies and professional development, AI adoption may remain inconsistent, reinforcing the need for teacher training initiatives.

This also mirrors findings by Bergdahl & Sjöberg (2025) that professional development plays a crucial role in educators' willingness to adopt new technologies. In this study, one teacher's comment that *"training made AI integration easier"* (T90) exemplifies how support and practice can transform a potentially intimidating tool into a manageable one. These teachers not only found AI easier to use but also discovered creative pedagogical uses for it, essentially expanding their teaching toolkit.

In contrast, teachers without training often perceived AI as an additional burden or something outside their competence. They encountered frustrations such as not knowing how to operate certain educational software, or how to respond when a student brings an AI-sourced answer. This division underscores a key implication that to ensure balanced AI integration, raising the collective PEOU among teachers is essential. If using AI becomes as easy and routine for teachers as using a search engine or a slideshow presentation, they are more likely to incorporate it thoughtfully. The importance of teacher AI literacy noted in the findings echoes research by Alasgarova and Rzayev (2024b), which argued that teacher preparedness mediates the impact of AI on instruction . Schools in Azerbaijan and elsewhere should thus invest in making AI tools not only available but also approachable for teachers, through user-friendly design and targeted training.

Attitude Toward Use (ATU) and Emotional Dimensions

Attitudes toward AI among students and teachers were found to be shaped by both practical outcomes and deeper emotional considerations. Students' attitudes were predominantly positive. They appreciated AI as a helpful, non-judgmental aid. This positive ATU is reflected in how students preferred consulting AI for doubt clearance, especially to avoid feeling embarrassed in front of peers or teachers (S102). Prior studies have noted that AI can reduce learning anxiety and increase student confidence (Gupta et al., 2024; Labadze et al., 2023), and our data strongly support that claim. Because these students felt *"safer"* with AI, their overall attitude towards using it was enthusiastic. It empowered them, making learning feel more personalized and less intimidating.

However, it is important to remember that an overly positive attitude (in the sense of unquestioning trust) toward AI can lead to complacency. Some students admitted to accepting AI output uncritically, which could be detrimental to critical thinking development. Zhai et al. (2024) warn that excessive AI reliance can lead to passive learning behaviors, where students fail to critically evaluate AI-generated content, reducing their deeper engagement with the material. This complicates the ATU. It is positive that students embrace the technology without fear, but educators need to ensure that *"enthusiasm"* does not become *"blind faith"*. The ideal student attitude is a balanced one: seeing AI as useful and even friendly but also understanding its limitations.

Teachers' attitudes toward AI were more mixed and complex. On one end, some teachers saw AI as enabling more student-centered learning; they had a forward-looking, optimistic attitude and often a growth mindset about

updating their teaching methods. On the other end, some teachers felt threatened and overwhelmed, viewing AI as encroaching on their professional domain. One teacher's statement regarding the loss of control (T52) reveals an attitude of anxiety and resistance stemming from a sense of powerlessness. This aligns with studies on teachers' trust and resistance toward AI-powered educational tools (Nazaretsky et al., 2022). Bergdahl & Sjöberg (2025) also found that AI skepticism among teachers is often linked to uncertainty about ethical implications and perceived lack of institutional support.

What influences a teacher's attitude? The findings suggest that familiarity with AI either through training or self-exploration and institutional support might be an answer. Teachers who had success stories of AI improving their teaching tasks naturally developed a more positive attitude. Those who encountered AI primarily as a source of problems (distractions, plagiarism, or simply an expectation to change without guidance) had a negative attitude. This underscores the responsibility of school leaders and policymakers to foster conditions that tilt teachers' experiences with AI toward the positive.

At a deeper level, attitudes are also shaped by personal beliefs about education. Teachers who fundamentally believe in the value of human interaction in learning may be more wary of AI. Those who are more enthusiastic about innovation might be more open. There is no one *"right"* attitude, but professional discourse in the school via workshops, discussions, and/or sharing of experiences can help calibrate extreme attitudes. For example, an overly optimistic teacher might need to be aware of the pitfalls, whereas an overly pessimistic teacher might need to see some benefits. Over time, developing a collective attitude in a school culture that AI is both a powerful but controllable tool can help.

Behavioral Intention to Use (BIU) and Long-Term Implications

Both students and teachers in the study provided indications of their future intentions regarding AI use, which carry implications for long-term educational practices. Students overwhelmingly expressed a strong intention to continue using AI tools for learning. The convenience, immediacy, and perceived effectiveness of AI were cited as reasons they would keep relying on these technologies (S67). This aligns with research suggesting that once students become accustomed to AI support, they tend to integrate it into their learning toolkit moving forward (Nguyen et al., 2024; Almassaad et al., 2024). We can anticipate that the next generation of learners will expect AI augmentation as a standard part of education, much as they expect internet access or modern computing. This means educational systems need to prepare for sustained AI use. Curriculum design, assessment methods, and teacher roles will likely continue evolving around the presence of AI.

However, the enthusiastic BIU among students comes with concerns about over-reliance. If students intend to use AI in every aspect of their studies, educators must ensure that this use remains productive. Critical thinking and problem-solving skills could atrophy if AI is used as a shortcut at every turn. Zhai et al. (2024) mention that excessive dependence on AI might weaken students' independent reasoning abilities. The data support this, showing instances of passive acceptance of AI answers. Therefore, while we acknowledge students' intent to keep using AI, a long-term educational goal should be teaching how to use AI wisely, as a starting point, as a research

tool, as a collaborator, rather than as an infallible answer machine.

Teachers' behavioral intention to use AI was more variable and closely tied to factors like institutional support and personal experience. Teachers who experienced positive outcomes and felt supported showed intent to deepen their integration of AI (e.g., planning more AI-involved activities in future classes). Those who felt unease or had negative experiences voiced reluctance or conditional intention (e.g., *"I'll use it if I have to, but I'd rather not"*). A significant finding was that institutional policies and training influence teachers' BIU. Educators who knew that their school had a clear vision and provided training were more inclined to continue using AI (and some even to advocate it to peers), whereas those in a policy vacuum were ambivalent or opposed. This reflects broader trends noted by Bakhadirov et al. (2024) and Alasgarova and Rzayev (2024b) that institutional environment can make or break technology adoption among teachers.

Looking ahead, if we want teachers to not only intend to use AI but actually do so effectively, systemic measures are needed. This includes developing curriculum guidelines on AI use, offering incentives or recognition for teachers who innovate with AI, and addressing valid teacher concerns, e.g., how to maintain academic integrity or how to evaluate learning when AI is involved. It also means addressing workload issues. As long as AI can truly save time on certain tasks, that benefit should be highlighted to teachers so they see an immediate practical reason to adopt it. Over time, as early adopters demonstrate successes and share stories, more teachers will form the intention to use AI, seeing it as integral rather than optional.

The long-term trajectory of AI in education forces us to consider what kind of educational experience we want for the future. The findings of the current study suggest that both teacher and student agency must remain at the forefront. AI can empower students, but educators must ensure it truly empowers rather than creating a dependency. AI can assist teachers, but teachers must steer its use in alignment with educational values. Scholars like Selwyn (2019) remind us that we should be intentional about not letting AI drive education into a purely utilitarian direction. The behavioral intentions we cultivate should be guided by an overarching intention: to use AI to enhance human learning, not to replace the human elements that make learning meaningful.

In sum, the discussion of these findings through TAM and a broader lens reveals a picture of cautious optimism. The presence of AI in classrooms is a complicated issue. It offers tangible benefits, e.g., personalization, efficiency, engagement, which drive its acceptance, but it also poses challenges to authority structures and demands new skills from both teachers and students. The findings and reflections lead into the conclusion, where we distill the implications, acknowledge limitations, and offer recommendations for policy, practice, and future research.

Conclusion

This qualitative study provides an in-depth exploration of how the integration of AI influences teacher-student relationships in secondary schools in Azerbaijan. By employing TAM as an analytical framework, this research demonstrated that AI perceived usefulness, ease of use, attitude towards use, and behavioral intentions

significantly shape how both teachers and students engage with AI tools, ultimately affecting instructional authority, student learning behaviors, and classroom interactions. The findings illuminate a connection between AI adoption, teacher agency, and the relational dynamics central to effective education, echoing global trends while underscoring local contexts unique to Azerbaijani educational settings. The findings clearly indicate that AI perceived usefulness enhances student engagement and learning efficacy, aligning with previous research (Nguyen et al., 2024). Students appreciated AI for providing personalized support, instant feedback, and a non-judgmental learning environment. However, these positive outcomes come with cautionary insights. When students perceive AI as overly authoritative, teachers' traditional instructional authority can erode, affecting their agency and classroom dynamics negatively.

Regarding perceived ease of use, teacher training emerged as a pivotal determinant of successful AI integration. Teachers who received targeted training or were personally tech-savvy easily adapted to AI tools, echoing the findings by Bakhadirov et al. (2024) who mention that structured professional development significantly improves teachers' confidence and willingness to integrate AI. Celik's Intelligent-TPACK framework (2023) also demonstrates that AI integration is most effective when technological, pedagogical, and ethical competencies are developed simultaneously. This suggests a clear imperative – systematic professional development must accompany AI integration initiatives to ensure equitable and effective adoption across diverse educational contexts.

Conversely, untrained teachers struggle with the adoption of AI-powered tools and viewed them as a disruptive addition to their workload. Nazaretsky et al. (2022) highlight that teachers lacking AI training are more likely to perceive AI as unreliable or unnecessary. Thus, without structured exposure to AI, teachers may distrust automated systems and resist integrating them into their teaching practices. The emotional and social dimensions of AI integration also offered critical insights. While AI reduced student anxiety and boosted participation for shy or hesitant learners, it risked diminishing direct teacher-student interactions essential for emotional and social development (Cao, 2024; Gupta et al., 2024). Teachers must remain attentive to preserving emotional connections with students, consciously balancing AI use with personalized, relational teaching. Selwyn (2019) emphasizes that education should remain a fundamentally human-centric endeavor, a view strongly supported by the findings of this study. Teachers should thus cultivate classroom environments where AI complements human interaction rather than substitutes it.

Behavioral intentions to continue using AI were strong among students, signaling a long-term integration of AI into educational practices (Nguyen et al., 2024; Almassaad et al., 2024). However, concerns about over-reliance and reduced critical thinking, consistent with Charles & Charles (2024) and Zhai et al. (2024), require educators to intervene proactively. Teachers should explicitly model and teach critical engagement with AI-generated content, thereby ensuring that AI enhances rather than inhibits intellectual independence.

Limitations

While offering rich qualitative insights, the study has some inherent limitations. Its qualitative nature, focusing

exclusively on secondary schools in Azerbaijan, restricts broader generalizability. Cultural factors, local educational policies, and infrastructure availability significantly influence AI adoption, and thus findings may differ in other contexts or countries. Additionally, reliance on self-reported perceptions introduces potential bias, though triangulation, member checking, and peer debriefing procedures were employed to mitigate these issues (Creswell & Creswell, 2022).

Recommendations

Given these findings, several recommendations emerge for policy, practice, and future research. First, school administrators and policymakers must develop clear training programs and institutional guidelines for AI integration to support teachers' professional agency. Nazaretsky et al. (2022) advocate for structured professional development programs that provide teachers with a clear understanding of AI decision-making processes. Importantly, they recommend that AI-powered tools should allow teachers to review and, if necessary, override AI-based recommendations, ensuring that AI serves as a supportive tool rather than a replacement for teacher expertise.

Second, systematic, structured professional development programs must be provided for teachers at all career stages, emphasizing both technical AI literacy and pedagogical integration skills. Training should address both the technological and pedagogical domains of TPACK, ensuring teachers can critically guide AI use (Alasgarova & Rzayev, 2024a; Celik, 2023). Professional development should not be a one-time event but an ongoing, collaborative process, enabling educators to share successful practices and build a professional community around AI-enhanced teaching.Third, educators should explicitly teach AI literacy to students, emphasizing critical engagement with AI-generated content. As Nguyen et al. (2024) suggest, AI literacy training helps prevent passive acceptance of AI outputs, nurturing students' critical thinking and independent problem-solving skills. By fostering student awareness of the strengths and limitations of AI tools, teachers can help students integrate AI as a valuable educational resource.

Finally, addressing the philosophical dimensions highlighted by Selwyn (2019), the human elements of education like mentorship, empathy, and critical dialogue must remain central. AI should enhance these human interactions rather than diminish them. Ensuring a balanced integration of AI requires policies and practices that prioritize teacher agency and meaningful student engagement.

Areas for Further Research

Future research should explore longitudinal effects of AI integration on educational outcomes, teacher professional identity, and student social-emotional development to better inform sustainable AI integration strategies. Additionally, comparative studies across different cultural and socioeconomic contexts would provide valuable insights into the generalizability of AI integration outcomes. Investigations into the specific impacts of AI-driven assessment methods on student motivation and academic integrity could further clarify ethical and pedagogical implications. Moreover, exploring the development of AI-enhanced teacher education programs and

their effectiveness in building sustainable digital competencies would be beneficial.

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Declaration of Generative AI Use

No generative AI was used in the writing of this manuscript. All analysis and writing are the original work of the authors, with AI tools used only for minor editing assistance (e.g., grammar checking and citation formatting) and not for content generation.

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