The Potential of Artificial Intelligence to Replace Teachers: Insights from Pre-service Teacher Trainees

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***Abstract*— This study examines the perceptions of in-service teacher trainees regarding the potential replacement of human instructors by artificial intelligence (AI). Employing a purposive survey design and qualitative thematic analysis, the research evaluates trainees' perspectives on AI's limitations, including deficits in emotional intelligence, algorithmic bias, diminished student-teacher connectedness, and concerns about data authenticity and cultural responsiveness. The study further investigates the critical gatekeeping role of teachers in filtering information and the risk of professional obsolescence for future educators lacking AI expertise. Findings indicate a preference for a collaborative model between human teachers and AI to support future classrooms. The implications for teacher education curricula are discussed.**

***Index Terms*— Artificial intelligence, teacher replacement, emotional intelligence, algorithmic bias, AI literacy, teacher education, human-AI collaboration**

I. INTRODUCTION

The rapid advancement of artificial intelligence (AI) technologies has sparked extensive discourse regarding their impact on various professions, particularly education. The potential for AI to supplant human educators has garnered attention as AI is increasingly integrated into instructional and administrative functions (Zhang et al., 2023). This study addresses this issue by exploring the perspectives of in-service teacher trainees, who represent the future teaching workforce and whose insights can illuminate emerging professional challenges and opportunities. While AI can automate routine tasks and offer personalized learning experiences, it encounters significant limitations. These include a deficiency in emotional intelligence, algorithmic bias, reduced student-teacher connectedness, and concerns regarding the authenticity and cultural sensitivity of AI-generated data (Dayagbil et al., 2025; Isave, 2024). Furthermore, the teacher's role as a gatekeeper responsible for filtering, contextualizing, and ethically managing information is crucial and not easily replicated by AI (Isma'il et al., 2024). This study posits that a synergistic partnership between human teachers and AI, rather than outright replacement, represents the most promising direction for education ("September 2024 Full Issue," 2024). Understanding the perspectives of teacher trainees is essential for informing teacher education programs to incorporate AI literacy and ethical training, thereby ensuring educators remain effective facilitators in AI-augmented classrooms.

II. CONCEPTUAL BACKGROUND

Artificial intelligence in education involves the application of computational algorithms and machine learning techniques to support, enhance, and personalize teaching and learning processes. AI can automate administrative tasks, deliver adaptive learning pathways, and analyze educational data on a scale. However, it lacks essential human attributes such as emotional intelligence, ethical judgment, and relational sensitivity, which are fundamental for fostering motivation, engagement, and critical thinking in learners (Dayagbil et al., 2025). Teachers mediate learning not only by delivering content but also by providing emotional support and fostering socio-cognitive development. The socio-constructivist framework emphasizes that knowledge construction is a social process requiring emotional and cognitive

engagement between teachers and students. AI's current capabilities are insufficient to replicate these complex interactions (Isave, 2024). The "teacher as gatekeeper" concept further underscores educators' role in filtering and ethically managing information, a function AI cannot fully assume due to its limitations in critical analysis and ethical reasoning.

III. THEORETICAL MODEL

This study utilizes a socio-constructivist theoretical framework alongside the Technology Acceptance Model (TAM). The socio-constructivist perspective underscores the interactive and relational aspects of teaching and learning, emphasizing the importance of emotional and cognitive engagement. AI's inability to facilitate these socio-emotional interactions positions it as a supportive rather than a substitutive agent. The TAM framework aids in understanding how teacher trainees' perceptions of AI's usefulness and ease of use influence their acceptance or resistance to AI integration in education. This model advocates for a collaborative human-AI partnership, suggesting that such synergy aligns with the complex socio-emotional demands of education and the evolving role of teachers as ethical gatekeepers (Isma'il et al., 2024).

IV. CURRENT SCENARIO OF AI IN EDUCATION

AI applications in education have rapidly expanded, encompassing intelligent tutoring systems, automated grading, personalized learning platforms, and administrative tools. These technologies offer enhanced efficiency, scalability, and data-driven insights (Zhang et al., 2023). However, persistent challenges include algorithmic bias, data privacy concerns, and reduced human interaction in teaching (Isma'il et al., 2024). The COVID-19 pandemic accelerated the adoption of AI-enabled hybrid educational models, highlighting the necessity for AI to support, rather than replace, teachers. Current research emphasizes that AI cannot replicate the emotional and ethical dimensions of teaching, reinforcing the indispensability of human educators (Dayagbil et al., 2025). Consequently, teacher preparation programs are increasingly integrating AI literacy to equip future educators with the skills required to navigate and utilize AI responsibly.

V. LITERATURE REVIEW

Research acknowledges AI's transformative potential in education but consistently highlights its limitations in replicating human emotional intelligence and relational dynamics (Dayagbil et al., 2025; Zhang et al., 2023). Emotional intelligence, which includes empathy, motivation, and social skills, is a uniquely human trait essential for student engagement and well-being (Isave, 2024). Algorithmic bias within AI systems raises significant concerns regarding fairness, inclusivity, and the perpetuation of inequalities (Isma'il et al., 2024). AI-generated data frequently lacks authenticity and may produce homogenized responses, undermining cultural sensitivity and diversity of thought (Tunjera & Chigona, 2023). These issues diminish student-teacher connectedness, a fundamental aspect of effective pedagogy, by weakening personalized mentorship and relational bonds. The gatekeeping role of teachers is essential for filtering, contextualizing, and ethically managing large volumes of information, a function that AI cannot fully replicate (Isma'il et al., 2024). The literature emphasizes the urgent need for educators to develop AI competencies to remain relevant and effective in increasingly technology-mediated classrooms (Zhang et al., 2023; "September 2024 Full Issue," 2024). Despite these insights, empirical studies examining in-service teacher trainees' perceptions of AI replacing teachers, particularly through qualitative thematic analysis, remain limited. This gap provides the rationale for the present study.

VI. RESEARCH GAP

While the capabilities and limitations of artificial intelligence (AI) in education are well-documented, there is a paucity of research examining the nuanced perceptions of in-service teacher trainees regarding AI's potential to supplant educators. Existing literature predominantly emphasizes theoretical or technological perspectives, often neglecting the lived experiences and concerns of prospective teachers. Furthermore, the intersection of AI expertise and teacher preparedness, particularly the risk of professional obsolescence in the absence of AI skills, remains underexplored. This study addresses these gaps by providing qualitative insights into teacher trainees' perspectives on AI's emotional, ethical, and

relational implications, as well as their preference for collaborative human-AI educational models.

Rationale of the Study: The pervasive integration of AI in education necessitates an understanding of how future educators perceive these advancements, as their attitudes will significantly influence AI adoption and pedagogical practices. In-service teacher trainees, positioned between theory and practice, offer valuable insights for shaping teacher education curricula. This study aims to elucidate their perspectives on AI's limitations, ethical concerns, and the evolving gatekeeping role of teachers. Through qualitative thematic analysis, the research provides a nuanced understanding of AI's challenges and opportunities in education. The findings are intended to inform the development of teacher preparation programs that balance AI literacy with the preservation of human-centered educational values, thereby promoting collaborative human-AI classrooms.

Methodology: A purposive survey design was employed to investigate in-service teacher trainees' perceptions of AI's potential to replace human teachers. Forty-two participants (6 males, 36 females) were purposively selected to ensure relevance and diversity in teaching experience. Data collection involved structured interviews focused on key thematic areas: emotional intelligence, algorithmic bias, student-teacher connectedness, data authenticity, and teachers' gatekeeping roles in AI-integrated education. The structured format ensured consistency while allowing for detailed responses. Qualitative data underwent thematic analysis involving open coding to identify broad categories, axial coding to explore relationships among themes, and selective coding to consolidate dominant constructs. This rigorous approach facilitated the capture of complex perceptions and nuanced viewpoints. Ethical protocols included informed consent, confidentiality, and anonymized reporting. The qualitative purposive approach prioritized depth over generalizability, aiming to produce contextually rich insights to inform AI integration in teacher education.

Thematic analysis identified six principal themes:

1. AI's Deficiency in Emotional Intelligence: Participants underscored AI's inability to emulate empathy, emotional support, and interpersonal sensitivity, which are vital for student motivation and engagement. The mechanistic nature of AI responses was deemed inadequate to address students' psychological and social needs.

2. Concerns Regarding Algorithmic Bias and Data Authenticity: Respondents expressed apprehensions about biases inherent in AI algorithms, which may perpetuate unfairness and exclusion. The authenticity and reliability of AI-generated data were questioned, with "homogeneity of responses" and a lack of cultural sensitivity identified as significant limitations.

3. Reduced Student-Teacher Connectedness: Trainees expressed concern that AI-mediated instruction could undermine personal relationships and mentorship roles, which are essential for providing tailored pedagogical support and fostering trust, particularly among culturally diverse students.

4. Teachers as Information Gatekeepers: Participants emphasized the irreplaceable role of teachers in critically filtering, contextualizing, and ethically managing vast amounts of information. AI's limitations in critical analysis and ethical judgment were noted as obstacles to replacing this function.

5. Necessity for AI Literacy and Ethical Use: Knowledge of AI, including prompt engineering and ethical considerations, was deemed crucial for future educators. Teachers were viewed as authorized agents responsible for guiding students in the ethical and critical use of AI.

6. Collaborative Human-AI Model as the Future: There was a consensus in favor of a collaborative approach where AI supports but does not replace teachers. Participants stressed the need for critical evaluation of AI outputs due to risks such as "hallucination" (generation of false information). The irony of AI still "learning" while humans increasingly depend on it was highlighted, underscoring the importance of balanced integration.

VII. DISCUSSION

The findings highlight the role of artificial intelligence (AI) as a supportive, rather than substitutive, agent within educational settings. The lack of emotional

intelligence in AI confirms its inability to fulfill socio-emotional teaching requirements, aligning with socio-constructivist perspectives that emphasize relational learning. Concerns regarding algorithmic bias and data authenticity reflect broader ethical debates, underscoring the risks of homogenized responses that may marginalize culturally diverse learners. The theme of diminished student-teacher connectedness supports prior research on the importance of personal relationships in effective pedagogy, affirming the indispensability of human teachers. The role of teachers as gatekeepers emerges as a critical safeguard against misinformation and ethical lapses, underscoring the necessity of human oversight. The urgent need for AI literacy among educators aligns with calls for integrating AI competencies in teacher education to harness AI benefits while mitigating risks. The ethical stewardship assigned to teachers positions them as custodians of responsible AI use, tasked with fostering students' critical engagement and digital ethics. This pedagogical shift emphasizes empowering learners to thoughtfully interact with AI tools. The preference for a collaborative human-AI model aligns with contemporary hybrid educational frameworks, combining AI's efficiency with teachers' uniquely human skills. Caution against overreliance, due to phenomena such as hallucination and AI's evolving nature, underscores the need for continuous teacher engagement and critical review. Overall, the findings advocate for balanced AI integration, equipping future teachers with both AI expertise and human-centered pedagogical skills to create technologically advanced yet relationally grounded classrooms. Conclusion In-service teacher trainees perceive AI as a valuable tool but not a substitute for human teachers due to emotional, ethical, and relational limitations. The future of education lies in collaborative human-AI models that leverage AI's capabilities alongside teachers' unique skills. Teacher education programs must integrate AI literacy and ethical training to prepare educators for this evolving landscape, ensuring they remain indispensable facilitators of learning. This balanced integration promises futuristic classrooms that are technologically sophisticated yet deeply rooted in human values and relational dynamics.

VIII. CONCLUSION

In-service teacher trainees recognize artificial intelligence (AI) as a valuable educational tool but do not view it as a replacement for human teachers due to AI's inherent emotional, ethical, and relational limitations. The study underscores the necessity of a collaborative human-AI model that leverages AI's strengths while preserving the indispensable human qualities of empathy, ethical judgment, and personalized mentorship. To prepare educators for this evolving landscape, teacher education programs must integrate AI literacy and ethical training, equipping future teachers to act as critical gatekeepers and responsible facilitators in AI-augmented classrooms. This balanced integration promises to foster technologically advanced educational environments that remain deeply rooted in human values and relational dynamics.

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