

Negotiating Professional Identity Through AI: A Meta Analysis of Teachers' Emotional Geography

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Abstract

The increasing integration of Artificial Intelligence (AI) in education has significantly transformed teachers' professional practices and roles. While previous research has largely focused on technology adoption, AI literacy, and instructional effectiveness, limited attention has been given to how AI influences teachers' emotional experiences and professional identity. This meta-synthesis reviewed 42 empirical studies, including qualitative, quantitative, and mixed-method research published between 2020 and 2026, to examine the relationship between AI integration, emotional geography, and teachers' professional identity. Guided by the concept of emotional geography, the study explores how teachers experience and navigate emotional connections and tensions with students, colleagues, institutions, and AI technologies. Extending emotional geography to AI-mediated educational contexts, the analysis conceptualizes AI not merely as a technological tool but as a socio-technical actor that shapes teachers' emotional experiences, professional relationships, and perceptions of expertise. The findings indicate that AI integration generates both positive and negative emotional responses. On one hand, AI enhances teachers' confidence, creativity, instructional efficiency, and willingness to innovate. On the other hand, it raises concerns related to professional relevance, role ambiguity, technological dependence, and the changing nature of teacher expertise. The analysis further reveals that teachers actively reconstruct their professional identities by shifting from traditional knowledge transmitters to facilitators of learning, mentors of critical thinking, ethical guides, and human-centred educators within AI-supported learning environments. These identity negotiations are shaped by emotional interactions across multiple professional contexts. The study highlights the importance of addressing teachers' emotional needs and professional identity development to promote sustainable and meaningful AI integration in education.

Keywords: *Artificial Intelligence; Emotional Geography; Professional Identity.*

INTRODUCTION

Artificial Intelligence (AI) has become one of the most transformative developments in contemporary education. The rapid advancement of generative AI, machine learning,

intelligent tutoring systems, and learning analytics has reshaped educational practices worldwide. Educational institutions increasingly encourage teachers to integrate AI-supported technologies into lesson planning, instructional delivery, assessment, and feedback processes. As a result, AI is no longer perceived merely as a technological innovation but as an influential component of teaching and learning ecosystems that affects pedagogical decision-making, classroom interactions, and professional practice (Cukurova et al., 2025; Zhang et al., 2025). The growing presence of AI in educational settings reflects broader digital transformation efforts aimed at improving instructional effectiveness, personalizing learning experiences, and preparing learners for an increasingly technology-driven society.

The educational benefits of AI have been widely documented in recent scholarship. Studies indicate that AI can facilitate personalized learning, automate administrative tasks, provide adaptive feedback, and support data-informed instruction (Holmes et al., 2022; Zhang et al., 2025). Teachers can utilize AI-powered tools to generate learning materials, analyze student performance, and design differentiated instructional activities more efficiently. Such developments have encouraged policymakers and educational institutions to invest in AI-related initiatives and teacher professional development programs. However, alongside these opportunities, concerns have emerged regarding ethical issues, data privacy, algorithmic bias, professional autonomy, and the changing role of teachers in technology-mediated educational environments (Zawacki-Richter et al., 2019; Zhu et al., 2025). These concerns suggest that AI integration is not solely a technical matter but also a professional and emotional challenge for educators.

Although research on AI in education has expanded significantly, much of the literature has concentrated on technology acceptance, AI literacy, digital competence, and instructional outcomes. Recent systematic reviews have highlighted teachers' readiness to adopt AI technologies and the pedagogical implications of AI-supported learning environments (Ng et al., 2023; Zhang et al., 2025). While these studies provide valuable insights into technological adoption, they often conceptualize teachers primarily as users of technology rather than as professionals whose identities, emotions, and professional relationships may be transformed through interactions with AI. Consequently, important questions remain regarding how teachers experience AI emotionally and how these experiences influence their professional identities.

Teaching has long been recognized as an emotional practice. Teachers' work involves continuous interaction with students, colleagues, school leaders, parents, and policy expectations. These interactions generate emotional experiences that shape professional commitment, motivation, well-being, and identity development. To understand these dynamics, Hargreaves (2001) introduced the concept of emotional geography, which explains how patterns of closeness and distance within professional relationships influence emotional understanding and experiences. Emotional geography consists of sociocultural, moral, professional, physical, and political dimensions that affect how educators perceive and negotiate their relationships with others. Research has demonstrated that emotional geographies influence teachers' responses to educational reforms, accountability policies, professional collaboration, and changing workplace expectations (Hargreaves, 2001; Zembylas, 2007).

The emergence of AI introduces a new dimension to teachers' emotional geographies. Unlike conventional educational technologies, AI systems are capable of generating content, providing feedback, making recommendations, and performing tasks that have traditionally been associated with teacher expertise. Consequently, teachers increasingly interact with AI not simply as a tool but as an active presence within educational practice. Some teachers perceive AI as a supportive partner that enhances creativity, reduces workload, and enables innovative pedagogy. Others experience uncertainty, anxiety, and concerns about professional relevance as AI assumes functions previously considered uniquely human (Kral et al., 2026; Li & De Costa, 2026). These contrasting experiences suggest that AI may influence emotional relationships within educational settings in ways that extend beyond existing conceptualizations of emotional geography.

These emotional experiences are closely linked to teacher professional identity. Professional identity refers to how teachers understand themselves, their roles, and their professional purposes within educational contexts (Beijaard et al., 2004). Rather than being fixed, professional identity is continuously negotiated and reconstructed through social interaction, professional experiences, and contextual changes (Day & Gu, 2010). Technological innovations often challenge established understandings of teacher expertise and authority, creating opportunities for identity transformation. Recent studies suggest that AI integration encourages teachers to redefine their roles from knowledge transmitters toward facilitators of learning, mentors of critical thinking,

ethical guides, and designers of meaningful learning experiences (Cukurova et al., 2025; Kral et al., 2026). Such shifts indicate that AI is reshaping not only instructional practices but also the ways teachers perceive and enact their professional identities.

Despite increasing scholarly attention to AI in education, research examining the intersection of AI integration, emotional geography, and teacher professional identity remains limited. Existing studies have generally investigated these topics separately. Research on AI integration has primarily focused on technological adoption and effectiveness, whereas studies on emotional geography have traditionally examined relationships among teachers, students, colleagues, and institutions. Similarly, scholarship on professional identity has rarely explored how interactions with AI technologies contribute to identity negotiation and reconstruction. As a result, there is a lack of comprehensive understanding regarding how AI influences teachers' emotional experiences and professional identities across diverse educational contexts.

Furthermore, current applications of emotional geography theory have largely been confined to human relationships. Few studies have considered whether AI technologies can function as socio-technical actors that shape emotional interactions, perceptions of expertise, and professional meaning-making. This represents a significant theoretical gap because the increasing presence of AI suggests that teachers' emotional landscapes now extend beyond human actors to include intelligent technological systems. Exploring this possibility may contribute to the development of emotional geography theory while providing new insights into teachers' experiences in AI-mediated educational environments.

To address these gaps, the present study conducts a systematic review and thematic meta-synthesis of empirical studies published between 2020 and 2026 that examine AI integration, teachers' emotional experiences, and professional identity. By synthesizing evidence across diverse educational settings, the study seeks to answer the following questions: (1) How does AI integration influence teachers' emotional geography? (2) What emotional responses emerge from teachers' interactions with AI technologies? and (3) How do teachers negotiate and reconstruct their professional identities within AI-mediated educational environments? The study contributes to the literature by extending emotional geography theory through the conceptualization of AI as a socio-technical actor and by providing a comprehensive understanding of the emotional and professional dimensions of sustainable AI integration in education.

METHOD

This study employed a systematic literature review and thematic meta-synthesis to examine the relationship between Artificial Intelligence (AI), teachers' emotional geography, and professional identity. The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a transparent and systematic approach to identifying, screening, assessing eligibility, and selecting relevant studies (Page et al., 2021). The review focused on empirical research investigating teachers' experiences with AI technologies, including generative AI, intelligent tutoring systems, adaptive learning platforms, learning analytics tools, and other AI-supported educational applications.

The literature search was conducted between April and May 2026 using four major academic databases: Scopus, Web of Science, ERIC, and ScienceDirect. These databases were selected because they contain high-quality peer-reviewed publications in education, educational technology, teacher education, and digital learning. The search process combined keywords related to AI, teacher identity, and emotional experiences. The following search strings were adapted according to the requirements of each database "artificial intelligence", "generative AI", "AI in education", "teacher" or "educator", "professional identity", "teacher identity", "emotion*", "emotional geography", "emotional experience". Additional manual searches were conducted through reference lists of selected articles to identify relevant studies that were not captured during the database search.

Studies were included if they met the following criteria: (1) Published between January 2020 and June 2026; (2) Published in peer-reviewed journals; (3) Written in English; (4) Focused on teachers or educators as primary participants; (4) Examined the use, implementation, or impact of AI technologies in educational contexts; (5) Reported findings related to emotions, emotional experiences, professional identity, professional roles, or teacher perceptions and (6) Employed qualitative, quantitative, or mixed-method research designs.

The database search identified 326 records. After duplicate removal and screening of titles and abstracts, 83 full-text articles were assessed for eligibility. Following the application of the inclusion and exclusion criteria, 42 empirical studies were selected for the final synthesis. A structured data extraction form was developed to ensure consistency during the review process. Information extracted from each study included:

(1) Author(s) and publication year; (2) Country and educational context; (3) Research design; (4) Participants; (5) Type of AI technology examined; (6) Key findings related to teachers' emotional experiences; (7) Key findings related to professional identity and (8) Implications for teaching and learning. The extracted information was organized in a spreadsheet to facilitate systematic comparison across studies.

The selected studies were analyzed using thematic meta-synthesis to identify recurring patterns across diverse educational contexts. Following the procedures proposed by Thomas and Harden (2008), the analysis was conducted in three stages: coding key findings, grouping similar codes into broader categories, and synthesizing categories into overarching themes. Guided by Hargreaves' (2001) emotional geography framework, the analysis examined how emotional relationships were shaped through interactions with students, colleagues, institutions, and AI technologies, and how these interactions contributed to the negotiation and reconstruction of teachers' professional identities.

To enhance the credibility of the review, the study employed several quality assurance procedures. The inclusion and exclusion criteria were applied consistently throughout the screening process. Data extraction was conducted using a standardized protocol, and coding decisions were reviewed repeatedly to ensure consistency across studies. Furthermore, thematic interpretations were continuously compared with the original findings reported in the included studies to maintain analytical transparency and reduce researcher bias. The systematic review process enabled the identification of robust patterns across diverse educational contexts while preserving the complexity of teachers' emotional and professional experiences with AI integration.

RESULTS AND DISCUSSION

The thematic meta-synthesis of 42 empirical studies revealed four major themes concerning the relationship between AI integration, emotional geography, and teachers' professional identity: (1) AI as a source of professional empowerment, (2) emotional tensions and identity threats, (3) AI-mediated emotional geography, and (4) professional identity reconstruction.

AI as a Source of Professional Empowerment

Across the reviewed studies, teachers reported that AI technologies contributed positively to their professional practice. AI-assisted tools supported lesson planning, instructional design, assessment, and feedback processes, enabling teachers to perform

routine tasks more efficiently. As a result, many teachers experienced increased confidence, creativity, and willingness to experiment with innovative pedagogical approaches (Cukurova et al., 2025; Zhang et al., 2025).

Several studies highlighted that AI reduced administrative workload and provided opportunities for more personalized instruction. Teachers perceived AI as a supportive resource that enhanced their professional capacity rather than replacing their expertise. In particular, generative AI tools enabled teachers to access instructional materials quickly and adapt learning activities to diverse learner needs (Kral et al., 2026).

Emotional Tensions and Identity Threats

Despite these benefits, AI integration also generated significant emotional concerns. Many teachers expressed uncertainty regarding their future professional relevance in educational environments where AI systems increasingly perform tasks traditionally associated with teaching expertise. Feelings of anxiety emerged when teachers perceived AI as challenging their authority, professional autonomy, or specialized knowledge (Li & De Costa, 2026).

Role ambiguity was another recurring issue. Several studies reported that teachers struggled to determine the boundaries between human and AI responsibilities in teaching and assessment processes. Concerns regarding technological dependence and the reliability of AI-generated outputs further contributed to emotional discomfort and professional insecurity (Zhu et al., 2025).

AI-Mediated Emotional Geography

The synthesis revealed that AI influences teachers' emotional experiences through multiple relational contexts. Traditionally, emotional geography focuses on relationships between teachers and students, colleagues, parents, and institutions (Hargreaves, 2001). However, the reviewed studies suggest that AI has become an additional actor within these relationships.

Teachers experienced emotional closeness when AI supported instructional effectiveness and facilitated meaningful interactions with students. Conversely, emotional distance emerged when AI disrupted established professional practices or created uncertainty regarding teachers' roles. These experiences demonstrate that AI

shapes emotional relationships not only directly but also indirectly through its influence on existing professional interactions.

Professional Identity Reconstruction

The reviewed studies consistently indicated that teachers actively negotiated and reconstructed their professional identities in response to AI integration. Rather than viewing themselves solely as providers of knowledge, teachers increasingly positioned themselves as facilitators of learning, mentors of critical thinking, ethical guides, and designers of meaningful learning experiences (Cukurova et al., 2025).

This identity shift reflects the recognition that human qualities such as empathy, ethical judgment, emotional support, and relationship building remain central to educational practice. As AI assumes a greater role in information generation and routine instructional tasks, teachers increasingly emphasize uniquely human dimensions of teaching as a basis for professional identity.

DISCUSSION

The findings demonstrate that AI integration represents not only a technological transformation but also an emotional and professional one. While previous studies have primarily focused on AI adoption and instructional effectiveness, the present review highlights the emotional consequences of working alongside intelligent technologies. Teachers' responses to AI are characterized by a dynamic interplay between empowerment and uncertainty, reflecting broader tensions associated with educational change.

The first major contribution of this study is the extension of emotional geography theory to AI-mediated educational environments. Hargreaves (2001) conceptualized emotional geography as arising from relationships among human actors within educational settings. However, the present synthesis suggests that AI increasingly functions as a socio-technical actor capable of influencing emotional experiences, perceptions of expertise, and professional relationships. Teachers' emotional responses were often shaped by how AI altered their interactions with students, colleagues, and institutional expectations.

The findings also contribute to research on teacher professional identity. Consistent with previous identity research (Beijaard et al., 2004; Day & Gu, 2010), professional identity was found to be dynamic and context-dependent. AI integration

created new conditions that required teachers to reconsider their professional roles and sources of expertise. Rather than resisting technological change, many teachers adapted by redefining their professional value in terms of human-centered competencies that AI cannot easily replicate.

Another important finding concerns the coexistence of positive and negative emotional responses. Teachers simultaneously recognized the practical benefits of AI and expressed concerns about its implications for professional autonomy and authority. This tension reflects the complex nature of technological innovation in education. AI may increase efficiency and instructional effectiveness while simultaneously challenging traditional understandings of what it means to be a teacher.

These findings have important implications for teacher education and professional development. Current AI training initiatives often focus on technical competencies and digital literacy. However, the present review suggests that successful AI integration also requires attention to teachers' emotional well-being and professional identity development. Professional learning programs should therefore provide opportunities for teachers to reflect on changing professional roles, discuss ethical concerns, and develop strategies for maintaining meaningful human relationships in AI-supported learning environments.

Overall, the findings indicate that sustainable AI integration depends not only on technological readiness but also on teachers' capacity to navigate emotional and professional transitions. Supporting teachers in this process may help ensure that AI enhances rather than diminishes the human dimensions of education.

CONCLUSION AND SUGGESTION

This study demonstrates that the integration of Artificial Intelligence (AI) has transformed not only teaching practices but also teachers' emotional experiences and professional identities. The findings reveal that AI generates both opportunities and challenges, enhancing teachers' confidence, creativity, and instructional efficiency while simultaneously raising concerns about professional relevance, role ambiguity, and the changing nature of expertise. The review further indicates that teachers actively reconstruct their professional identities by moving beyond traditional roles as knowledge transmitters and embracing roles as facilitators of learning, mentors of critical thinking, ethical guides, and human-centred educators.

From a theoretical perspective, the study extends Hargreaves' concept of emotional geography by proposing that AI functions as a socio-technical actor that shapes emotional relationships, professional interactions, and identity negotiation within educational environments. These findings highlight that successful AI integration requires attention not only to technological competence but also to teachers' emotional well-being and professional development.

Based on these findings, educational institutions and policymakers should provide professional development programs that address both AI literacy and the emotional challenges associated with technological change. Such initiatives should support teachers in redefining their professional roles while maintaining the human dimensions of teaching, including empathy, ethical judgment, and meaningful interpersonal relationships. Future research is encouraged to investigate teachers' emotional geography and professional identity across different educational levels, disciplines, and cultural contexts, as well as to explore the long-term implications of AI integration for the teaching profession. Further empirical studies are also needed to refine and validate the conceptualization of AI as a socio-technical actor within emotional geography theory.

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