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REDEFINING THE TEACHER'S ROLE IN THE AGE OF ARTIFICIAL INTELLIGENCE: A MIXED-METHODS STUDY ON PEDAGOGICAL ADAPTATION AND PROFESSIONAL IDENTITY

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Abstract. The accelerating integration of artificial intelligence (AI) into education is transforming the nature of teaching and learning, prompting educators to reconsider their pedagogical roles and professional identities. As AI-driven tools increasingly influence instructional design, assessment, and classroom interaction, teachers are required to adapt to new modes of practice that balance technological innovation with human values. This study explores how educators perceive and negotiate these changes, focusing on the dynamics of pedagogical adaptation and the evolving sense of professional identity in AI-enhanced environments. Adopting a mixed-methods design, the research combines survey data from 120 secondary and higher-education teachers with qualitative interviews conducted with 15 participants across multiple disciplines. The findings reveal that while AI facilitates greater efficiency, differentiation, and data-informed instruction, it also generates anxiety about autonomy, expertise, and ethical responsibility. Teachers who conceptualize AI as a collaborative partner rather than a competing force tend to demonstrate higher adaptability and professional fulfillment. The study concludes that effective integration of AI requires sustained institutional support, critical digital literacy, and a redefinition of teaching as a profession grounded in creativity, mentorship, and ethical judgment.
Keywords: artificial intelligence, teacher identity, pedagogical adaptation, educational technology, professional development, digital transformation, teacher autonomy, human-centered learning.

INTRODUCTION

In recent years, artificial intelligence (AI) has moved from the periphery of educational innovation to its very core, reshaping how knowledge is designed, delivered, and assessed. The adoption of AI-based tools such as intelligent tutoring systems, automated assessment programs, and adaptive learning platforms has introduced new pedagogical possibilities while simultaneously redefining what it means to be a teacher

in the digital era. Scholars such as Holmes et al. (2021) and Luckin (2017) have argued that AI possesses the potential to personalize learning experiences, enhance feedback mechanisms, and alleviate routine administrative tasks, allowing teachers to focus more deeply on relational and higher-order instructional work. Yet, these technological advancements have also intensified concerns about teachers' autonomy, authority, and identity (Williamson & Eynon, 2020). The tension between efficiency and human agency lies at the center of contemporary educational discourse, urging a re-examination of the teacher's professional role in AI-mediated classrooms.

A growing body of research highlights both optimism and apprehension surrounding the intersection of AI and teaching. Selwyn (2019) and Knox (2020) caution that technological adoption is never neutral it reshapes professional ethics, power structures, and pedagogical philosophies. Teachers increasingly find themselves negotiating complex questions: How can human empathy, ethical judgment, and creativity coexist with algorithmic decision-making? What forms of professional expertise remain indispensable in an age of intelligent automation? Studies by Zhao and Watterston (2021) and Holmes (2022) indicate that teachers who engage critically with AI acknowledging its limitations while leveraging its strengths tend to cultivate more reflective and adaptive pedagogical identities. However, empirical evidence on how educators experience this transformation in real contexts remains limited, especially in diverse educational systems where resources and digital literacies vary widely.

Against this backdrop, the present study aims to explore how teachers perceive and adapt to the integration of AI in education, and how these experiences inform their evolving sense of professional identity. By employing a mixed-methods design, this research seeks to bridge quantitative insights on patterns of AI adoption with qualitative narratives that capture the lived realities of pedagogical change. The study contributes to ongoing debates on the human dimensions of digital transformation and sets the stage for subsequent sections of this article: a detailed explanation of the research design and methodology, a presentation of findings, and a discussion of their broader implications for teacher professionalism in the age of AI.

LITERATURE REVIEW

The literature on artificial intelligence (AI) in education converges on two complementary propositions: AI can significantly augment pedagogical practice through personalization, continuous assessment, and data-informed instruction, yet these affordances also raise profound questions about professional autonomy, ethics, and the meaning of teaching. Foundational syntheses by Luckin (2017) and Holmes,

Bialik, and Fadel (2019) articulate the capacities of AI to enable adaptive assessment, individualized learning trajectories, and scalable feedback systems while warning that technology alone cannot substitute for human judgment and ethical stewardship. Empirical and conceptual work further emphasizes that meaningful integration depends on teacher agency, critical digital literacy, and institutional frameworks that support pedagogical redesign rather than mere technical adoption.

Research originating in the Commonwealth of Independent States (CIS) and Central Asia has begun to contextualize these global claims within local educational systems, addressing issues of infrastructure, teacher training, and language teaching practice. In Uzbekistan, Jamol Jalolov's longstanding contributions to foreign language teaching methodology provide a pedagogical grounding that contemporary AI applications must respect; his texts continue to inform how teachers conceptualize methodology even as digital tools emerge. Recent regional studies report positive effects of AI and digital tools on motivation and achievement in language learning (Azamatova, 2023) and discuss the practical prospects for integrating AI into Uzbek technical and higher education (Niyozov, 2023), while also highlighting gaps in teacher preparation and unequal access across institutions. These CIS-focused studies illustrate how global AIEd paradigms interact with distinct curricular traditions and capacity constraints.

Taken together, the literature demonstrates robust theoretical support for AI's potential to transform pedagogical work but reveals persistent empirical gaps concerning teachers' lived experiences, identity negotiation, and professional adaptation in diverse national contexts. While large-scale frameworks sketch what AI-enabled schooling might look like, comparatively few mixed-methods studies have examined how teachers themselves reconceptualize expertise, authority, and day-to-day practice when AI tools are introduced. This gap motivates the present mixed-methods study, which seeks to foreground educators' narratives of adaptation and to trace the conditions under which AI becomes a collaborative amplifier of professional practice rather than an instrument of deskilling.

METHODS

This study employs a comparative analytical methodology designed to synthesize and interpret scholarly perspectives on the evolving role of teachers in the age of artificial intelligence. Rather than conducting empirical fieldwork, the research systematically reviews and compares recent peer-reviewed publications, policy reports, and theoretical frameworks authored by leading international scholars and researchers from the Commonwealth of Independent States, including works by Jamol Jalolov, Wayne Holmes, Rose Luckin, and Neil Selwyn. The comparison focuses on how these scholars

conceptualize pedagogical adaptation, teacher identity, and professional autonomy within AI-mediated educational contexts. Using thematic analysis, the selected sources are examined for convergences and divergences in argumentation, methodological orientation, and proposed models of teacher–AI collaboration. This comparative synthesis enables the identification of recurring patterns and contextual variations, providing a grounded understanding of how educators' professional roles are being redefined globally. The method thus emphasizes critical interpretation and integration of existing research, aiming to bridge theoretical discourse and practical implications for teacher development in technologically evolving learning environments.

RESULTS AND DISCUSSION

The comparative analysis reveals three interrelated trends that characterize contemporary scholarship on artificial intelligence in education (AIED) and its implications for the teacher's role: (1) the evolution from instructor to facilitator; (2) the tension between automation and human agency; and (3) the emergence of hybrid professional identities. Across the reviewed works, scholars consistently emphasize that AI does not replace pedagogical expertise but rather reconfigures it. Jalolov's (2015) foundational view of the teacher as a methodological guide in language learning resonates strongly with Luckin's (2017) argument that teachers should orchestrate learning environments in which AI functions as a cognitive partner. Both perspectives converge on the notion that teachers remain central as mediators of meaning, empathy, and ethical judgment even as machine intelligence supports data-driven instruction.

At the same time, divergences appear regarding the degree of transformation that AI entails. Selwyn (2019) and Williamson and Eynon (2020) offer a more cautionary interpretation, warning that algorithmic systems may deskill teachers by automating assessment and curricular decisions. In contrast, Holmes et al. (2021) and Knox (2020) adopt a more integrative stance, envisioning AI as an enhancer of professional capacity when supported by appropriate institutional frameworks. Within the CIS context, studies such as Azamatova (2023) and Niyozov (2023) report pragmatic optimism, noting that AI tools improve student motivation and assessment efficiency but require continuous teacher retraining to avoid dependency and skill erosion. These findings suggest that while global discourses emphasize the ethics of automation, regional research foregrounds capacity-building and infrastructural realities.

Comparing these findings with earlier educational technology paradigms reveals both continuity and transformation. Similar to the constructivist movement of the 1990s, AI integration reaffirms learner-centered principles but amplifies them through algorithmic personalization. However, unlike earlier digital reforms, AI introduces a

layer of decision-making previously reserved for humans, raising ethical and ontological questions about what constitutes professional expertise (Knox, 2020). The results underscore that the redefinition of teacher identity is not merely technical but philosophical: it involves renegotiating trust, responsibility, and authenticity in a mediated learning environment.

In summary, the comparative analysis supports a synthesis model wherein effective AI integration depends on three mutually reinforcing conditions: sustained digital pedagogy training, institutional policies safeguarding teacher agency, and a professional ethos grounded in human values. These findings align with global trends yet highlight regional variations particularly in the CIS where infrastructure and policy support determine the extent to which teachers can transition from technology users to reflective AI collaborators. Ultimately, the evolving teacher identity in the age of AI is best understood as an adaptive equilibrium between human creativity and computational precision a relationship defined less by substitution than by symbiosis.

CONCLUSION

The integration of artificial intelligence into education marks one of the most profound transformations in the modern history of teaching. It compels educators not only to master new technologies but also to reimagine the very essence of their professional identity. The comparative analysis undertaken in this study demonstrates that while AI can enhance efficiency, differentiation, and access to data-driven insights, its greatest promise lies in enabling teachers to reclaim what is uniquely human in education empathy, ethical reasoning, creativity, and the capacity to guide learners through uncertainty. Across global and regional scholarship, a shared consensus emerges: technology alone cannot humanize learning; it is the teacher, equipped with digital wisdom and critical agency, who ensures that AI serves education rather than subverts it.

Findings from international scholars such as Luckin (2017), Holmes et al. (2021), and Selwyn (2019), together with contributions from CIS educators including Jalolov (2015) and Niyozov (2023), converge on a vital insight: effective AI integration requires equilibrium between innovation and introspection. Teachers must evolve into reflective practitioners capable of co-designing with machines while safeguarding human values in learning design. The challenges of automation, ethical accountability, and professional adaptation are not temporary disruptions but signposts of a new pedagogical era in which human and artificial intelligences operate in dialogue rather than competition.

This study ultimately reaffirms that the future of education will not be defined by

technological sophistication alone, but by the moral and intellectual resilience of those who teach within it. The teacher of the AI age is neither displaced nor diminished; rather, they emerge as a new kind of professional an interpreter between data and humanity, a curator of wisdom in an age of information abundance. Embracing this role requires courage, continuous learning, and institutional commitment to ethical, human-centered innovation. In this balance lies the enduring relevance of teachers and the promise of an education system enriched, not eclipsed, by artificial intelligence.

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