Artificial Intelligence in the Classroom: Redefining Teaching Skills

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Abstract

Artificial intelligence (AI) is no longer a futuristic concept—it's already transforming classrooms, reshaping how students learn, and redefining what it means to teach. As AI becomes more present in education, the role of the teacher is evolving in real time. This paper takes a closer look at how the teaching profession must adapt to these changes. It argues that today's educators are not just knowledge transmitters but must increasingly become AI-literate professionals, capable of navigating digital environments and making informed, ethical decisions about the use of intelligent technologies in their practice (Holmes et al., 2022; Luckin et al., 2016).

Recent literature emphasizes that teaching in the age of AI requires new competencies, including technological fluency, data interpretation, and an understanding of the ethical implications of AI-driven systems (Zawacki-Richter et al., 2019; UNESCO, 2021). Zou et al. (2023) also highlight the importance of pedagogical reasoning when using AI, insisting that teachers must learn how to align AI tools with learning objectives and contextual classroom needs.

The study was guided by three key questions:
1. What new skills and knowledge do teachers need to thrive in an AI-driven education system?
2. How can teachers transition from traditional roles to becoming confident users—and even designers—of AI-enhanced pedagogy?
3. What are the main challenges they face along the way, and how can these be addressed?

Methodology

This research took a qualitative, exploratory approach. A purposive sample of 28 school teachers, covering both primary and secondary education, participated in the study. University-level instructors were excluded to focus specifically on the practical classroom realities of schoolteachers.

Participants completed an online questionnaire designed with open-ended questions. These explored their current understanding of AI, how they are using AI tools in the classroom (if at all), what skills they believe they need to develop, and what barriers they encounter—including concerns related to privacy, data use, or a lack of institutional support. Thematic analysis of

the responses revealed common patterns and informed recommendations for future training and policy development (Creswell & Poth, 2018).

Results

The findings show that while 82% of participating teachers had heard of or interacted with AI tools, only 29% had integrated AI meaningfully into their classroom practices. Participants associated AI primarily with administrative functions, such as automated grading or scheduling, and only a few reported using AI for instructional design or personalized learning support.

Teachers expressed a strong desire for professional development in this domain: 93% indicated that they lacked sufficient training to implement AI confidently. The absence of national or institutional strategies to guide AI integration was seen as a significant barrier, especially in public schools, where infrastructure and digital access were limited.

Ethical concerns were also widespread. Teachers voiced apprehensions about student data privacy, algorithmic bias, and the potential dehumanization of education. Despite these concerns, several teachers shared creative examples of AI-supported learning—such as adaptive platforms for differentiated instruction and AI-generated feedback tools that helped students reflect on their work more independently.

Three teacher profiles emerged from the analysis: the AI-aware but hesitant user, the motivated early adopter, and the critical skeptic. These categories reflect the varying degrees of readiness, confidence, and pedagogical alignment with AI that exist across educational contexts.

Conclusion

AI presents real opportunities to enhance education—but only if teachers are equipped to take part in shaping its use. This study makes the case for supporting teachers not just with tools, but with meaningful training, space to experiment, and a strong ethical foundation (Castañeda & Selwyn, 2018). In this evolving landscape, teachers must remain central—not as technicians following instructions, but as professionals who critically guide how technology is used in learning. The ultimate goal is not to turn teachers into engineers, but to help them become confident, informed, and reflective educators who can lead students through a world where human values and artificial intelligence intersect.

Keywords: Artificial Intelligence, Teacher Training, Digital Competencies, Ethics