DIGITAL PEDAGOGIES AND AI INTEGRATION IN MODERN CLASSROOMS

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Abstract: Digital pedagogies and artificial intelligence (AI) have redefined the structure of modern classrooms by transforming instructional design, assessment, and learner engagement. Through adaptive technologies, educators can personalize learning experiences

and promote creativity, collaboration, and self-directed learning. This article explores how AI integration in digital pedagogical models improves learning outcomes, fosters inclusivity, and reconfigures traditional roles of teachers and students in the evolving educational landscape.

Key words: digital pedagogy, artificial intelligence, hybrid learning, personalization, educational innovation

The rapid evolution of digital technologies has brought about significant transformations in educational systems worldwide. The integration of artificial intelligence (AI) into digital pedagogies has become a key driver of innovation, reshaping how knowledge is delivered, accessed, and assessed. Digital pedagogy refers to the strategic use of digital tools and platforms to enhance teaching and learning processes, while AI introduces intelligent systems capable of analyzing, adapting, and personalizing learning experiences (Yadav, 2025). Together, these innovations foster active learning environments where students become participants rather than passive recipients. As noted by Pusca (2024), hybrid education models supported by digital pedagogy and AI enable greater flexibility, collaboration, and inclusivity-making education more responsive to the needs of the digital generation.

This article is based on a comprehensive literature review of recent scholarly works on digital pedagogy and AI in education. Sources include academic journals and studies published between 2024 and 2025 that address technological integration, hybrid learning models, and AI-driven instructional strategies. The analysis synthesizes findings from researchers such as Ray and Sikdar (2024), Pusca (2024), Siddiqui et al. (2025), and Sayfullaevna (2025), providing a critical overview of current trends, practical applications, and implications for educational innovation.

Results

The literature reveals that AI integration significantly enhances the effectiveness of digital pedagogies. Ray and Sikdar (2024) emphasize the AI-driven flipped classroom model, which replaces passive lecture-based instruction with dynamic, learner-centered approaches. In this model, students engage with AI-curated content before class, allowing teachers to use classroom time for collaborative problem-solving and discussions. This method not only increases engagement but also improves critical thinking and retention.

Moreover, Pusca (2024) highlights the role of technological platforms-such as intelligent tutoring systems, learning analytics, and virtual classrooms-in enabling hybrid learning environments. These systems adapt to learners' progress, providing real-time feedback and personalized recommendations. Such approaches ensure equity by supporting students with diverse learning needs and backgrounds.

Siddiqui et al. (2025) propose the AI-TEACH model, which integrates machine learning and data analytics to design customized learning paths. This model demonstrates how AI can automate routine teaching tasks, freeing educators to focus on mentoring and creative instruction. AI-driven feedback systems also assist teachers in identifying gaps in understanding and adjusting instruction accordingly.

Sayfullaevna (2025) underscores the importance of technological integration in fostering student autonomy and digital literacy. AI tools such as chatbots, adaptive testing systems, and digital assistants help learners develop self-regulated learning habits while building technological competence essential for modern careers. These innovations bridge the gap between theoretical knowledge and practical application.

Saira et al. (2025) introduce the concept of "smart pedagogy," where digital media and AI converge to enhance engagement through gamification, virtual reality (VR), and augmented reality (AR). These immersive environments allow students to experience

contextual learning, particularly in STEM and creative disciplines. By integrating AI algorithms that analyze student emotions and engagement levels, smart pedagogy personalizes instruction to maintain motivation.

Erişti and Freedman (2024) demonstrate AI's potential in art and visual education, emphasizing the need for teachers to acquire new digital competencies. AI-based creative tools enable learners to explore visual culture and digital aesthetics, thereby expanding artistic expression and interdisciplinary learning. This aligns with the broader goal of cultivating creativity and critical awareness in digitally mediated societies.

The reviewed studies collectively suggest that AI-enhanced digital pedagogy supports a more personalized, interactive, and data-informed approach to teaching. It promotes learner autonomy while equipping educators with analytical tools to evaluate performance and adapt teaching methods. However, challenges remain-particularly regarding data privacy, ethical concerns, and teacher readiness to adopt AI technologies (Yadav, 2025). Addressing these issues requires targeted professional development and policy support for digital literacy.

Furthermore, as Pusca (2024) and Sayfullaevna (2025) note, successful integration depends on institutional infrastructure and a shift in pedagogical culture. Teachers must transition from being content transmitters to learning facilitators, guiding students in navigating digital and AI-enhanced environments. The development of interdisciplinary frameworks and AI ethics education is essential to ensure responsible and sustainable use of technology in schools.

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