


Chapter 1


Dreams, Distortions, and Disruptions: Deconstructing the Educational Promises of Agentic AI

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ABSTRACT

The emergence of Agentic AI marks a profound shift beyond generative AI, introducing autonomous systems capable of goal-directed action, dynamic interaction, and adaptive learning. This chapter critically explores the educational implications of Agentic AI through a scoping review and thematic analysis. Findings reveal that while ethical concerns and technological innovation dominate current discourse, educational applications remain significantly underexplored. Agentic AI holds promise for personalized learning, experiential education, and enhanced student support, but raises serious risks related to data privacy, transparency, and learner autonomy. The chapter emphasizes the need for human-centered pedagogical models, robust ethical governance, and interdisciplinary collaboration to harness Agentic AI's potential responsibly. Without cautious integration, there is a risk of undermining human agency and deepening educational inequities. Future directions urge critical research, policy development, and AI literacy to ensure ethical and inclusive deployment in learning environments.

DOI: 10.4018/979-8-3373-1195-1.ch001

INTRODUCTION

The emergence of generative artificial intelligence (GenAI), particularly marked by the release of OpenAI's ChatGPT in 2022, has heralded a transformative era across diverse areas (Bozkurt, 2023a, 2023b, 2025; Bozkurt et al., 2024; Bozkurt & Sharma, 2025). This technological breakthrough has not only revolutionized the way information is created and consumed but also prompted profound reflections on the future of human-computer interaction (Artsın & Kılıç Çakmak, 2024; Xiao et al., 2025). One of the most critical developments has been the democratization of AI access, making powerful generative models available to the general public and sparking an unprecedented surge in user engagement. As millions embraced these new tools in record time, urgent debates emerged about their societal, ethical, and educational implications.

While generative AI represents a significant paradigm shift, it also sets the stage for an even more profound transformation with the advent of Agentic AI. Moving beyond content generation, Agentic AI systems are envisioned as autonomous entities capable of performing complex, real-world tasks, learning from interactions, and exhibiting agent-like behavior (Koutra et al., 2024; Shavit et al., 2023). This evolution not only redefines the boundaries of artificial intelligence but also poses new opportunities and challenges for teaching and learning environments.

Despite the growing body of research on generative AI, scholarly attention to Agentic AI, particularly within educational contexts, remains limited. Most existing discussions focus on technical, theoretical, or industrial applications, leaving a critical gap regarding its pedagogical implications.

Against this backdrop, this chapter aims to systematically explore the concept of Agentic AI and its potential impact on education. By employing a scoping review methodology combined with bibliometric and social network analysis, it seeks to identify emerging themes and trends at the intersection of Agentic AI and educational sciences. Furthermore, the chapter critically examines how Agentic AI could transform teaching and learning practices in the educational landscape.

DEFINING AGENTIC AI: CHARACTERISTICS, BOUNDARIES, AND CRITICAL REFLECTIONS

The evolving discourse around artificial intelligence has recently witnessed the rise of Agentic AI—a paradigm that transcends traditional content generation to embrace goal-directed, autonomous action in complex environments. Unlike conventional AI systems, which primarily perform pre-programmed tasks or generate outputs based on static models, Agentic AI is conceptualized as an autonomous

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