Chapter 2
The Role of AI in Immersive Learning in Teacher Education:
Simulated Environments, Tools, and Practices

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ABSTRACT

AI is revolutionizing teacher education by creating immersive learning experiences that simulate real classroom environments. Through AI-powered tools such as simulated teaching platforms, intelligent tutoring systems, and virtual teaching assistants, pre-service teachers can gain hands-on experience and develop crucial teaching skills. These technologies offer personalized learning experiences, allowing teachers to practice at their own pace, receive instant feedback, and engage in

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reflective practices to refine their instructional techniques. AI's ability to provide tailored support for diverse learning styles further enhances teacher development. However, challenges related to the lack of human interaction, ethical concerns, and the potential for over-reliance on technology must be addressed to ensure responsible implementation. As AI continues to shape teacher education, it offers transformative potential in preparing educators for the dynamic and complex classroom of the future.

INTRODUCTION

Artificial Intelligence (AI) is rapidly transforming education, particularly in teacher preparation and professional development. AI-driven immersive learning environments, characterized by simulations, digital tools, and adaptive learning systems, are reshaping how educators acquire, practice, and refine their skills. These platforms offer dynamic, interactive, and flexible learning experiences that go beyond traditional methods, enhancing pedagogy and improving classroom readiness for future teachers (Graham & Perera, 2022). This chapter explores AI's impact on teacher education, supported by relevant research and examples.

At the core of AI's role in teacher education is its ability to create **simulated environments** that mirror real classroom dynamics. These simulations offer a safe, controlled space where teachers-in-training can practice skills like classroom management and student engagement without the fear of real-life consequences (Johnson et al., 2021). For example, AI-powered platforms like Mursion and TeachLivE provide virtual classrooms with AI-driven avatars that mimic students' behaviors and emotions (Dieker et al., 2014). These avatars challenge teachers to adjust their strategies and decision-making in real-time, providing valuable practice for managing diverse classroom scenarios. By engaging with these lifelike simulations, educators gain confidence and competency before entering actual classrooms.

AI simulations also offer **personalized learning experiences**, adapting to the individual needs of each teacher-in-training. Unlike traditional one-size-fits-all programs, AI tools can analyze data from users to identify strengths, weaknesses, and areas for improvement (Woolf, 2010). For instance, if a teacher struggles with managing classroom disruptions, the system can present additional scenarios focused on this challenge. This personalization accelerates skill development, ensuring teachers are better prepared to tackle the complexities of real classrooms (Luckin et al., 2018).

In addition to simulations, AI has introduced a range of **digital tools** to enhance teacher education. Platforms like Coursera, Edmodo, and Google Classroom incorporate AI to track progress, offer real-time feedback, and support adaptive learning (Popenici & Kerr, 2017). These tools allow educators to engage in self-paced learning, explore instructional strategies, and access resources tailored to their professional