

Chapter 20

Transforming Higher Education Through Technology: The Impact of Artificial Intelligence in Education 5.0

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ABSTRACT

This chapter analyses recommended journal articles to explore the impact of AI in Education 5.0. These reviews indicated that the establishment of intelligent tutoring systems, personalized learning, curriculum development and evaluation, research support, learning analytics, and gamification of learning were the main uses of artificial intelligence in Education 5.0. The key findings from the chapter are the transformative role that artificial intelligence has played in education by creating a more independent, student-centred and student-directed learning environment that enables learners to demonstrate their innovative skills. The main obstacles to the adoption of Education 5.0 were concerns about ethics, security, and finances as well as legislation. The chapter went on to suggest investments in infrastructure development, user training, and policy initiatives.

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INTRODUCTION

The exponential expansion in computer power has facilitated the rapid development of information processing technologies and processes, which has resulted in multiple artificial intelligence advancements that have spread to various sectors of the global economy. The education industry has not been immune to the swift advancements in artificial intelligence (AI)-driven breakthroughs, as evidenced by the growing adoption of AI advances dubbed Artificial Intelligence in Education (AIEd). Globally, educational systems have also changed to meet the needs of the populations they serve and from literature; it is society's duty to keep education relevant. Due to these advancements in both education and the digital world, there is no room for education to change. As a result, many new educational paradigms, including Education 1.0, Education 2.0, Education 3.0, Education 4.0, and Education 5.0, have emerged. When it comes to the use of AIEd and the endorsement of Industry 4.0, Industry 5.0, Society 4.0, and Society 5.0, the latter two paradigms have triumphed. Conversely, three AIEd paradigms—AI-directed, learner-as-recipient; AI-supported, learner-as-collaborator; and AI-empowered, learner-as-leader—have arisen from the advancements of AI-mediated learning (Ouyang and Jiao, 2021). Intelligent tutoring systems, recommender systems, learning analytics, teaching robots and chatbots, language translators, essay writing and scoring systems, and more are examples of AIEd developments that have surfaced. Artificial neural networks, machine learning, and natural language processing are a few examples of AI technology techniques that have been employed. Several categorization and prediction models that have been utilized by teachers and students to make judgments about teaching and learning have been developed as a result of these being used to create intelligent learning environments for behavioural detection. The advancements in AI and education, as well as the advancements in education and the internet, have significant roles in all these processes. Studies have also revealed a substantial correlation between the aspiration of nations to have education-driven breakthroughs in businesses and to align education with the industrial demands of their economy and education reforms. The developmental goals of communities must therefore be addressed in educational programs, and for several years, state ideology has been driving these changes based on the necessity of addressing socio-political concerns, some of which may be historical. But in other countries, the necessity to meet industry's demands for human capital—which includes producing a trained labour force and conducting evidence-based research that frequently spurs inventions and industrialization—may be the driving factor behind improvements in education. However, the literature identifies a variety of strategies that different countries have used to embrace different educational systems. Since the focus of this chapter is AI's role in Education 5.0, the authors acknowledge that there is no agreement

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