

Chapter 17

Applications of Artificial Intelligence Techniques in Education

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ABSTRACT

In the rapidly evolving landscape of education, the integration of Artificial Intelligence (AI) has emerged as a transformative force, promising to revolutionize the way to teaching and learning. This book chapter presented the applications of AI tools in online education in these online learning environments, the interaction between learners and instructors significantly influences satisfaction and learning outcomes. Therefore, understanding how AI impacts this interaction is crucial for identifying potential challenges and ensuring safe and effective learning environments. Also, this book chapter presented the case studies, success stories, and benefits of AI applications in online education. This chapter will be useful for educational institutions to improve their efficiency with their stakeholders and learners.

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INTRODUCTION

Artificial intelligence (AI) has become essential in modern society, providing enhanced efficiency and convenience across multiple industries. Its influence in educational institutions is also widespread, revolutionizing various aspects of education. AI-based education replaces traditional methods, bringing about significant transformations in the educational sectors. Additionally, stakeholders in educational systems are highly involved with AI-enabled educational platforms. The integration of AI in education offers promising opportunities alongside genuine concerns regarding its successful deployment. The potential uses of AI in online learning and teaching are vast, encompassing personalized student learning, automated instructor responsibilities, and AI-driven assessments. (Abulibdeh et.al. 2024). For instance, AI tutoring systems can offer tailored guidance and feedback based on individual learning patterns, while AI teaching assistants streamline instructors' workload by handling routine queries in online forums. Additionally, AI analytics empower instructors to gain insights into students' performance and progress through data analysis (Corba & Bennasar 2024). The internet has become integral to the educational landscape, enabling learning anytime and anywhere.

Enhancing student learning outcomes and satisfaction remains a primary goal of educational systems. To tailor teaching methods to individual student needs and preferences, accurate evaluations of their competencies are essential. However, in traditional classroom settings, limitations such as class size and the teacher's ability to accurately evaluate each student's characteristics hinder optimal education for all simultaneously (Domínguez et.al. 2024). Adaptive educational systems, which monitor learner characteristics and adjust instruction accordingly, are gaining prominence for their ability to provide tailored content and analysis. These systems actively adapt to individual student requirements, offering personalized support and enhancing the learning process.

There are five sections to this chapter. The goals and methodology are covered in the first section. The second section explores AI strategies used in corporate investment planning. The application of AI approaches to various functional areas of online education and courses.

This chapter comes out with the following objectives. They are,

1. The first objective of this study is to understand AI tools in online education. These tools can include Natural language processing (NLP); AI-powered grading systems, virtual reality, augmented reality, and chatbots.

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