# Chapter 10
# Artificial Intelligence Across Industries: A Comprehensive Review With a Focus on Education

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## ABSTRACT

*Artificial intelligence (AI) has become a disruptive force that is changing conventional wisdom in a wide range of sectors. This thorough analysis threads through the complex web of AI applications, providing a nuanced examination of its effects in several industries while narrowing down on its revolutionary impact on education. Education stands as a cornerstone experiencing significant changes, radically changing how students learn and educators educate, as companies throughout the world adjust to the disruptive force of AI. The assessment begins by outlining the broad effects of AI on important industries. Artificial intelligence (AI) in healthcare is redefining diagnostic accuracy and treatment techniques, with consequences for healthcare professional education. Gamification, adaptive learning platforms, and intelligent tutoring systems are essential instruments that are changing the face of education. The study examines the advantages of these AI applications, including improved accessibility, reduced administrative procedures, and personalized learning experiences.*

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## 1. INTRODUCTION

Artificial Intelligence (AI) has become a disruptive force that is redefining conventional wisdom and drastically changing the face of many different businesses. The swift progress of AI technology has led to unparalleled levels of creativity, efficiency, and decision-making capabilities. This thorough analysis seeks to negotiate the complex network of AI applications across sectors, paying special attention to how technology is revolutionizing education. AI stands at the forefront of technological innovation, permeating virtually every facet of modern society and revolutionizing industries worldwide (Yang et al., 2023). From healthcare and finance to manufacturing and entertainment, AI-driven solutions have demonstrated remarkable potential in optimizing processes, enhancing decision-making, and unlocking new possibilities for advancement. Among the myriad domains undergoing profound transformation, education emerges as a particularly fertile ground for the integration of AI technologies. As an increasingly interconnected global society places greater emphasis on the acquisition of knowledge and skills, the traditional paradigms of teaching and learning are being reimagined to meet the evolving needs of students and educators alike (Wei & Zhou, 2023).

In recent years, AI has emerged as a driving force in education, offering a diverse array of applications and opportunities for innovation. Leveraging machine learning algorithms, natural language processing, and data analytics, AI-powered tools are revolutionizing the learning experience, enabling personalized instruction, and facilitating more effective knowledge acquisition. While AI's impact on education is still in its nascent stages, the field is witnessing rapid growth and innovation as researchers, educators, and technology developers collaborate to harness its transformative potential. From adaptive learning platforms and intelligent tutoring systems to data-driven insights and administrative automation, AI is reshaping the educational landscape, promising to revolutionize teaching methodologies, enhance student outcomes, and promote lifelong learning (Xu et al., 2023). This review aims to provide a comprehensive overview of the role of AI in education, highlighting its potential benefits, challenges, and implications for educational stakeholders. By examining current research findings, identifying key trends, and offering insights into future directions, this review seeks to inform educators, policymakers, and researchers about the transformative potential of AI in shaping the future of education.

The Chapter is structured into six sections. Section 2 covers the evolution of AI in education and various sectors, and objective of the chapter. Section 3 covers the AI applications in various Industries. Section 4 covers the AI in Education, different types of AI in Education, AI for students and AI for teachers. Section 5 covers the benefits and Challenges faced. Future directions are discussed in Section 6.