


# Chapter 4

## Transforming Student Engagement Through AI, AR, VR, and Chatbots in Education

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### **ABSTRACT**

*Emerging technologies have a relatively short history in the higher education sector. The term “AI-powered chatbots” refers to systems that use conversational AI. Many colleges and universities are taking advantage of conversational AI and deploying AI-powered chatbots to improve the student experience. It is possible to converse with a chatbot via text or voice using an AI-based interactive interface. Data is fed into chatbots, which are programmed to process information already given to them. They respond according to a pre-written script. By mimicking Alexa and Siri at home, conversational AI can help colleges and universities communicate with*

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*their students and prospective students in the same way. The primary aim of this chapter is to introduce the integration of Augmented Reality (AR) and Virtual Reality (VR) for AI-powered Chatbots for Transnational Higher Education to enhance the learning experience for students. The ultimate goal is to analyze the role of AI in improving higher education institutions around the globe.*

## **1. INTRODUCTION**

Machines that can make decisions without the help of a human brain are referred to as artificial intelligence (AI). Software-based systems and intelligent agents include modern data analytics and Big Data applications. An AI system may make judgments and conduct actions that mimic cognitive activities like learning and problem-solving by accessing this information library. AI has progressed rapidly since its inception in the mid-1950s as a scientific field, and it has quickly moved (Haenlein, 2019). Managing digital technology and corporate operations has become a vital instrument. Consider the fact that artificial intelligence is continually evolving. Optical character recognition and computer chess, previously thought to be cutting-edge technologies in artificial intelligence, are now considered standard fare. The Internet of Things (IoT) now uses AI in various ways, including robots, image recognition, real-time analytics, NLP, and other IoT-connected devices.

Artificial Intelligence (AI) can be divided into two broad groups. Modular artificial intelligence specializes in a single field and can hone its skills over time by doing more and more of the same. On the other hand, an all-encompassing artificial intelligence can solve a considerably more comprehensive range of problems, including those that demand comprehension of meanings and values (Adamopoulou, 2020). General and modular AI can 'learn' and increase their performance over time. In the same way that a golfer fine-tunes his swing or a violinist perfects her solo, a modular AI seeks to improve its domain performance. While the software and hardware of the system change with time, the core architecture does not. AI cannot expand beyond its specific skill and develop a general intelligence in the same way that being a golfer does not automatically imply becoming a chef because the inputs and goals are so different. We can make better, more informed decisions that have a broader impact using artificial intelligence. From a purely technical perspective, that is the solution. The advent of AI is likely to make it possible for humans to live more prosperous, more fulfilling lives, no longer burdened by the weight of manual labor, as well as to be able to govern the vast network of interconnected individuals, organizations, states, and nations which make up our world more efficiently (Algabri HK, 2020). Artificial intelligence is employed to streamline human effort and aid our capacity for improved decision-making. Throughout the past millennia, every

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