

Chapter 12

The Implementation of Virtual Reality Technology in Enhancing University Student Learning Engagement: A Five-Year Systematic Literature Review

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ABSTRACT

Virtual reality has a lot of potential, and researchers are becoming increasingly interested in using it in the classroom. However, there is little systematic work on how researchers can apply VR to higher education for the purpose of improving student engagement. Therefore, we propose to use systematic mapping to investigate how VR can be used to improve engagement in higher education. The review synthesizes the results of various studies conducted over the past five years, highlights the effectiveness of VR in creating immersive and interactive learning environments, and provides

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a literature review of related studies. The results of the study show that students who use VR technology are more engaged and motivated to learn. The demand for virtual reality technology is surging as a means to enhance student engagement in educational settings. Consequently, the future development of effective tools that promote student involvement is imperative. Nevertheless, it is crucial to meticulously consider design, accessibility, and pedagogical strategies to optimize its efficacy.

1. INTRODUCTION

A wide range of information is necessary for effective teaching, but so is the capacity to raise student interest in and engagement levels. Since the turn of the twenty-first century, VR technology has been progressively incorporated into a variety of fields thanks to the quick advancement of information technology. One of its main areas of application has progressively evolved into higher education. With its immersive qualities and cutting-edge interactive techniques, VR technology has expanded the possibilities for traditional education. VR technology is pushing the boundaries of education by providing more individualized and engaging learning experiences among the difficulties faced by traditional classroom formats. The purpose of this article is to examine how VR technology is used in higher education and how it enhances students' learning engagement. We can better comprehend VR technology's impact on educational innovation and how to optimize its potential to enhance students' learning engagement and overall learning experience by conducting thorough study on the subject. diversity in the classroom.

1.1. VR Applications

With the rapid progress of information and communication technologies, numerous new platforms and tools aimed at improving social and collaborative learning have emerged (Oliveira et al., 2019). Virtual reality (VR) is among the most prominent of these technologies, offering immense potential to transform education (Oumaima et al., 2023). VR refers to a deeply immersive, interactive experience that relies on computer-generated, real-time, 3D images (Petersen et al., 2022). This technology allows users to interact with virtual spaces dynamically, creating a sense of presence that replicates real-life experiences (Hamad & Jia, 2022). VR can be classified in different ways, such as by its application, interaction mode, or degree of immersion (Yin et al., 2021). This study comprehensively examines all forms of VR, including

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