

VIRTUAL REALITY AND ITS IMPACT ON EDUCATION

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Анотація

У цій статті досліджується роль віртуальної реальності (ВР) у сучасній освіті. Обговорюються переваги та перешкоди, пов'язані з інтеграцією навчальних інструментів на основі VR, імерсивних симуляцій та інтерактивних освітніх платформ. У дослідженні підкреслюється, як VR сприяє залученню, підтримує практичне навчання і трансформує традиційні методи викладання, а також розглядаються технічні та фінансові виклики. Ключові слова: віртуальна реальність, цифрова освіта, імерсивні технології, інтерактивне навчання, симуляційне навчання

Ключові слова: віртуальна реальність, цифрова освіта, імерсивні технології, інтерактивне навчання, симуляційне навчання.

Abstract

This article examines the role of virtual reality (VR) in contemporary education. It discusses the benefits and obstacles associated with the integration of VR-based instructional tools, immersive simulations, and interactive educational platforms. The study highlights how VR fosters engagement, supports hands-on learning, and transforms traditional teaching methods, while also considering technical and financial challenges. Keywords: virtual reality, digital education, immersive technology, interactive learning, simulation-based teaching

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Introduction

Technological advancements have led to significant innovations in education, with virtual reality emerging as one of the most promising tools. VR offers students an opportunity to interact with digital environments, engage in experiential learning, and visualize complex subjects in an interactive way [1].

This article explores how VR is shaping modern education by enhancing learning experiences and addressing pedagogical challenges.

Result of work:

Virtual reality is revolutionizing education by providing a multisensory and highly engaging learning environment. Unlike traditional classrooms, VR allows learners to step into digitally created worlds, where they can conduct experiments, visit historical landmarks, and interact with 3D models of abstract concepts. The adoption of VR-based educational tools has led to a shift in how knowledge is acquired and retained.

VR-powered learning tools, such as ClassVR and zSpace, offer immersive lessons where students can explore different subjects through realistic simulations [2]. For instance, VR can transport learners into ancient civilizations, helping them better understand history by virtually experiencing past events. Similarly, in science education, students can conduct virtual dissections or chemistry experiments without requiring physical specimens or lab setups.

Moreover, VR has significantly influenced medical and engineering education by providing risk-free training environments. Medical students can practice surgeries with VR applications like Osso VR, gaining hands-on experience before working with real patients. Engineering students, on the other hand, can manipulate 3D models of complex machines, improving their understanding of structural mechanics [3].

Another significant advantage of VR is its ability to personalize education. Platforms like EngageVR allow educators to tailor lessons to individual students' learning speeds and preferences, creating a more effective learning experience [4]. By offering interactive and adjustable content, VR helps address different learning styles and enhances comprehension across disciplines.

Despite its many advantages, VR in education faces obstacles such as high implementation costs, accessibility barriers, and potential health concerns like motion sickness. Schools require substantial investment in VR hardware and software, making large-scale adoption difficult. Additionally, not all students have access to VR equipment at home, which may limit the technology's reach. Overcoming these challenges will be crucial for VR to become a mainstream educational tool.

In conclusion, virtual reality has the potential to reshape education by offering immersive, interactive, and customizable learning experiences. While obstacles exist, the benefits of VR-based learning make it a valuable asset for the future of education.

СПИСОК ВИКОРИСТАНОЇ ЛІТЕРАТУРИ

1. Steven, M. (2023). Virtual Reality. Cambridge University Press.
2. Richard Lamb, Jing Lin, Jonah B Firestone (2020). Virtual Reality Laboratories: A Way Forward for Schools?, Modestum Limited.
3. Dorota Kamińska, Grzegorz Zwoliński, Anna Laska-Leśniewicz, Luis Pinto-Coelho (2022). Virtual Reality in Healthcare: A Survey, ResearchGate
4. EngageVR, Benefits of Virtual Reality for Education. Retrieved from <https://engagevr.io/>

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