

3. McCallum K. Immersive Experience: Convergence, Storyworlds, and the Power for Social Impact. Handbook of Research on the Global Impacts and Roles of Immersive Media. Jacquelyn Ford Morie, Kate McCallum. 2020. pp. 453–484. P. 457.

LIMITATIONS AND CHALLENGES OF USING IMMERSIVE TECHNOLOGIES IN EDUCATION

Solomashenko N. V.

Senior Lecturer at the English Language Department

National University of “Kyiv-Mohyla Academy”

Kyiv, Ukraine

Introduction. Immersive technologies, including virtual reality (VR), augmented reality (AR), and 3D simulations, are seen as the future of education, promising to revolutionize the learning experience, using a regular smartphone to create augmented reality or a helmet and glasses – for virtual [1]. These tools create environments where students can explore new concepts in interactive ways. Recent publications highlight that immersive technologies enhance students' spatial understanding and memory by enabling first-person, visual learning experiences. This approach aids comprehension of complex subjects, theories, and languages [2].

However, while these technologies are often presented as a panacea for educational challenges, a critical examination reveals significant limitations and concerns that challenge their effectiveness, practicality, and inclusivity. This proposal explores the shortcomings of immersive technologies in education, highlighting the technical, pedagogical, and accessibility issues that question their widespread use.

Challenges in Integrating Immersive Technologies: Infrastructure, Pedagogical Concerns, Accessibility, and Teacher Training Gaps. Immersive technologies face technical challenges that hinder widespread adoption, particularly due to infrastructure needs like high-speed internet, powerful devices, and technical support—resources many schools, especially in rural areas, lack. Moreover, issues such as VR headset latency, which can cause physiological discomfort, and technical failures during lessons disrupt learning and frustrate teachers and students. These challenges make immersive tools unreliable for consistent use, reinforcing a reliance on traditional teaching methods.

Proponents of immersive technologies argue that they enhance student engagement, but it is apparent that this engagement is often superficial. While VR and AR can create excitement and captivate users, there is a risk that the technology overshadows the educational content. Instead of promoting deep learning and critical thinking, developing problem-solving skills, and fostering meaningful interactions between students and educators, immersive technologies may lead to passive consumption of pre-packaged information, where students focus more on the visuals than on the concepts being taught. Moreover, teachers might lean too heavily on immersive technologies, reducing their role to mere facilitators of tech-based lessons rather than active participants in guiding and shaping students' understanding.

While immersive technologies have shown promise in certain fields, such as medical or airspace training, their usefulness across other subjects is questionable. Not all disciplines lend themselves to immersive experiences. For instance, subjects like literature, philosophy, and history require deep analysis, abstract thinking, and reflective discussion, which may not be fully supported by immersive tools. In these fields, the emphasis is often on dialogue, interpretation, and critical engagement with texts and ideas—elements that can be hindered by an overreliance on immersive environments.

Immersive technologies present notable accessibility challenges. Students with limited mobility or visual impairments may struggle to interact with VR or AR tools. Additionally, issues like motion sickness or discomfort with VR headsets can make extended use impractical. These technologies can also unintentionally exclude students who lack access to the necessary devices or infrastructure, or who face physical or cognitive challenges, undermining the goal of equal learning opportunities. Additionally, a high cost of immersive technologies poses a significant obstacle for many educational institutions, particularly those in underfunded areas. Not all students can afford personal devices capable of supporting these technologies, leaving many unable to fully engage, and deepening educational disparities.

A major concern is educators' readiness to adopt and integrate immersive technologies, as this requires specialized training. Teachers should not only know how to use these tools but also design pedagogically sound lessons. Without alignment with curriculum goals, immersive technologies risk being inefficient or even turning into distractions rather than effective learning aids.

Conclusion. While immersive technologies have great potential for enhancing educational experiences, their obvious limitations cannot be ignored. The high cost of devices and infrastructure, technical challenges,

superficial engagement, and accessibility concerns pose significant barriers to their widespread and equitable adoption. Furthermore, overreliance on immersive tools risks diminishing the role of educators and undermining the importance of critical thinking and deep learning.

In light of these challenges, it is essential to approach immersive technologies in education with caution. Rather than viewing them as a one-size-fits-all solution, educators and institutions must critically assess when and how these tools can be used effectively and ensure that they complement rather than replace traditional teaching methods. Only then can immersive technologies truly enhance the learning experience without compromising educational equity or quality.

Bibliography

1. Малицька І. Д. Immersive Technologies in Teaching Natural Sciences: Foreign Experience. «Імерсивні технології в освіті» : збірник матеріалів І Науково-практичної конференції з міжнародною участю. Інститут інформаційних технологій і засобів навчання НАПН України, Київ, 2021. <https://lib.iitta.gov.ua/> Accessed 26.09, 2024. ISBN 978-617-95182-9-4

2. Сороко Н. В. Використання імерсивних технологій у закладі загальної освіти (зарубіжний досвід). Кафедра Інформатики і Інформаційно-комунікаційних Технологій. informatika.udpu.edu.ua/?page_id=652 (Accessed 26.09, 2024).

A MODERN PERSPECTIVE ON THE NECESSITY OF USING IMMERSIVE TECHNOLOGIES IN THE EDUCATION OF MEDICAL UNIVERSITY STUDENTS

Strakhova O. P.

PhD in Biological Sciences,

*Senior Lecturer at the Department of Medical
and Pharmaceutical Informatics*

*Zaporizhzhia State Medical and Pharmaceutical University
Zaporizhzhia, Ukraine*

Introduction: The importance of innovation in medical education includes some aspects, such as: modern medicine requires specialists to have a high level of knowledge, skills, and competencies, which must be combined with practical experience, because of the traditional teaching