

**APPLICATION OF IMMERSIVE TECHNOLOGIES AND THEIR POTENTIAL IN
UKRAINIAN HIGHER EDUCATION INSTITUTIONS IN THE CONDITIONS OF WAR**

In today's context, when the proportion of students with physical, social or cognitive disabilities is increasing every day as a result of the Russian war, the use of immersive technologies in the educational process of Higher Education Institutions (HEIs) will create an inclusive learning environment that takes into account the needs and capabilities of each student. The use of immersive technologies in higher education can be one of the important steps in the democratization of knowledge and the positive practice of “open science”.

Immersive education can take different forms, depending on educational goals and available resources (Table 1).

Table 1

Forms	Characteristics
Training in virtual reality (VR)	Students use VR headsets to immerse themselves in a virtual environment that simulates real-life scenarios, from historical events to scientific experiments.
Augmented reality (AR) training	Augmented reality overlays digital information on the real world, improving the user's understanding of physical objects and spaces.
360-degree video	Applicants can watch 360-degree videos that transport them to different places or situations, providing a sense of presence and immersion.
Mixed reality (MR) training	MR combines aspects of both VR and AR, allowing learners to interact with virtual objects in a real-world context.
Simulations	Immersive education often includes learning simulations and gamified experiences that encourage problem solving and critical thinking.

Source: systematized based on [1]

In 2023, the Chronicle of Higher Education published an analytical note “Immersive technologies: Moving Beyond the Hype”, which explores the impact of immersive technologies and their potential in the educational institution group and beyond. The survey involved 285 college administrators, 89 percent of whom cited the ability for students to test real-world classes in low-risk situations as one of the benefits of immersive learning [2].

A study conducted in 2022 by researchers from the University of Maryland found that people remember information better if it is presented in virtual reality rather than on a two-dimensional personal computer [3].

According to the 2018 Internet2 survey “VR/AR in Science and Education”, 29 percent of HEIs in the EU are implementing virtual reality to some extent, 18 percent have fully deployed it, and about half are either testing or have not yet deployed it. Their study also shows that 55 percent of institutions have a dedicated space for virtual reality [4].

The benefits for both teachers and students of higher education institutions associated with immersive technologies are numerous. They not only help to visualize complex concepts, but also stimulate creativity and develop soft skills in students.

The above proves that education in virtual reality can be better than learning on tablets or other devices. Virtual and augmented reality technologies give students the opportunity to study disciplines more deeply, analyze the consequences of world events, participate in hazardous chemical

research without harming their health, and much more (Table 2). AR and VR allow students to gain experience that they usually do not have access to, especially during wartime.

Table 2

Positive aspects of using immersive technologies in the educational process for higher education students

Attributes	Characteristics
Visibility	In a virtual space, you can examine any process or object in detail without any obstacles, which is much more interesting and useful than looking at an image in a textbook (including an electronic one)
Focused Ness	In a virtual environment, the applicant will not be distracted by external stimuli, which will allow them to fully focus on the material
Maximum involvement	Immersive technologies provide an opportunity to fully control and change the scenario of events. The applicant can witness the practical implementation of projects, conduct experiments on their own, or solve problems in a playful and easy-to-understand way
Safety	With the help of VR and AR technologies, you can conduct a business simulation, conduct experiments with hazardous chemicals, and not harm yourself or others
Efficiency	Better understanding and memorization of the material

Source: systematized based on [5]

Immersive technologies allow students and researchers to test real-world scenarios to inform their research and practice in various fields.

These opportunities have been fully demonstrated by the ongoing educational project “VEHUB4YOU” - the organization of a network of international virtual business hubs and business training for high school, college, and university students of both economic and non-economic specialties by creating an international network of virtual youth business hubs, which will include 70 virtual international business hubs. Thus, the project promotes cooperation between schools, universities, and rural libraries in Ukraine and Azerbaijan.

Virtual spaces connect Ukrainian educational institutions with the New European Movement and its values of sustainable development, inclusiveness, and community, which is especially relevant in times of war.

References:

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