World Bulletin of Management and Law (WBML)
Available Online at: https://www.scholarexpress.net
Volume-44, March -2025
ISSN: 2749-3601

INTEGRATION OF THE IMMERSIVE APPROACH INTO THE EDUCATIONAL PROCESS

Mamadjanova Svetlana Valentinovna
Kokand State University
e-mail: svetlika699@gmail.com

Article history:

Received: 7th February 2025
Accepted: 6th March 2025

Abstract:

The article discusses the features of the immersive learning method and its integration into the educational process, which makes learning more interesting and engaging for the younger generation, as well as helps in their comprehensive development. This method not only immerses students in an interactive environment but also increases their interest, motivation, and quality of knowledge.

Keywords: immersive technologies, virtual and augmented reality, teaching methodology

INTRODUCTION

Currently, the integration of digital technologies into the educational process is rapidly developing. The main innovations in the educational process in this direction are allocated to the digitalization of information. A modern schoolchild or student will prefer information displayed on the screen of their smartphone rather than text printed on the pages of a book. Such a preference is easy to understand since information on the screen can be displayed in the form of various videos or text accompanied by an audio track, which immerses them deeper into the learning process. Extended reality technologies, which provide the effect of full or partial presence in an alternative space, are also called immersive technologies. Lessons using immersive technologies open new opportunities for teachers for professional growth, methodological and subject self-improvement. Two types of immersive technologies are distinguished – VR (virtual reality) and AR (augmented reality).

PROBLEM STATEMENT

Modern technological development allows the application of various new methods for learning. For example, the development of virtual and augmented reality technologies allows the integration of various dynamic digital models or three-dimensional images into the educational process. Augmented reality (AR) and virtual reality (VR) technologies are relevant and have several advantages over traditional learning, so the teacher's task is to introduce these technologies into the educational process at a level accessible to students [1].

Virtual reality (VR) is understood as a set of technologies that allow creating an artificial world that does not physically exist but is perceived by the senses in real-time according to the laws of physics.

Augmented reality (AR) is an environment that, in real-time, complements the physical world as we see it with digital data using some devices — tablets, smartphones, etc., and software.

The main advantages of these technologies include:

- **Visualization** – using three-dimensional graphics, various mechanical processes, chemical reactions, and other examples can be shown in detail down to the atomic level.
- **Safety** – immersing users in various situations such as fires, train, or aircraft control while remaining in the safety of the classroom under the supervision of a teacher.
- **Engagement** – virtual reality allows changing the scenario into various game forms, influencing the course of an experiment, solving various tasks in a game format, and the ability to see the world of the past as a historical character.

LITERATURE REVIEW

Many domestic and foreign researchers study the problem of applying various immersive approaches. Among them, the opinions of A.I. Azevich [3], Ya.G. Podkosova, O.O. Varlamov, A.V. Ostroukh, M.N. Krasnyansky [4], A.I. Sosnilo, and N.N. Rezvanov [2] should be highlighted, who believe that immersive learning tools differ from standard ones primarily in that, in the traditional pedagogical paradigm, the assimilation of new knowledge occurs through informing and persuasion, whereas immersiveness implies learning through informing and suggestion.

RESEARCH METHODOLOGY

The foundation of this teaching methodology and the integration of digital technologies into the educational process is the introduction of new technologies and equipment. It also includes training teachers to work

World Bulletin of Management and Law (WBML)
Available Online at: https://www.scholarexpress.net
Volume-44, March -2025
ISSN: 2749-3601

with this equipment and providing consultation on its use and maintenance.

RESEARCH RESULTS AND DISCUSSION

In general, augmented reality represents a combination of real and additional objects placed in the field of perception using some devices (tablets, webcams, smartphones, etc.) and software [6].

Virtual reality is a digital space with which the user interacts using special virtual reality glasses or a helmet, gloves, or controllers (joysticks, remotes).

A typical augmented reality system includes [4]:

1. Printed markers – a drawing (black and white or colored) to determine 3D models;
2. A webcam;
3. Software for augmented reality recognition.

The smartphone's webcam detects the marker, then special software or an application "reads" it and displays the augmented reality object on the screen, then tracks all its movements and rotations. In various cases, any flat surface can serve as a marker.

There is also the possibility of using special symbol markers, such as a QR code, which, when scanned, displays specific information. For example, interactive books can bring fairy tale characters and various historical figures to life.

A typical virtual reality system includes:

- A device in the form of virtual reality glasses or a helmet;
- Markers to determine boundary zones or a camera to determine spatial positioning;
- Manipulators such as joysticks, gloves, or remote controls for interaction;
- A computer to run the software if the helmet does not support standalone operation.

Markers are set to define immersion boundaries and prevent the user from colliding with real objects while working in virtual space. The VR helmet or glasses display an image and, thanks to built-in sensors, determine the user's position relative to the markers. Manipulators allow the user to interact with virtual objects. If the virtual reality helmet does not allow running software on it, it connects to an external computer via wired or wireless networks.

CONCLUSION

Immersive learning is a dynamic strategy that can enhance e-learning and revolutionize the world of education. This method has great potential to lead the future of learning and help achieve its important goals. Progressive times require progressive teaching methodologies. The integration of immersive technologies improves the quality of education and increases student engagement in the learning process. It allows for a more detailed description of many technical, physical, and chemical processes, increasing the clarity of examples, and also enables some problem-solving to be transformed into a game format. Today, there are many different educational programs for augmented and virtual reality, such as:

- Jigspace
- Famous Fossil
- Handbuilt Creative
- ARLoon
- SketchAR
- WRENCH
- Hold the World

The integration of virtual and augmented reality into the educational process is also supported by the fact that interest in and accessibility to these technologies are growing every year.

REFERENCES

1. Bacca-Acosta J., Baldiris S., Fabregat, R., Graf S., Kinshuk. Augmented reality trends in education: A systematic review of research and applications. Education Technology and Society. 2014;17(4):133–149. Availableat:
2. Sannikov S., Zhdanov F., Chebotarev P., Rabino-vich P. Interactive educational content based onaugmented reality and 3D visualization. Procedia Computer Science. 2015;66:720–729. DOI:10.1016/j.procs.2015.11.082
3. Мамаджанова, Светлана. "ОРГАНИЗАЦИЯ ДОМАШНЕЙ РАБОТЫ ПО ИНФОРМАТИКЕ, НА ОСНОВЕ МОБИЛЬНЫХ ТЕХНОЛОГИЙ." Scienceproblems. uz 1.1 (2020): 6-6.
4. Mamadjanova S.V, . (2022). DESIGN FEATURES OF VIRTUAL LEARNING ENVIRONMENTS. European International Journal of Multidisciplinary Research and Management Studies, 2(06), 1–5. Retrieved from https://inlibrary.uz/index.php/eijmrms/article/view/23533