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On the Issue of Teaching Psychological and Pedagogical Disciplines at Universities Using Immersive Technologies

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Abstract: The use of immersive technology enables high-quality educational simulations. The immersive technology in the classroom initiative provides access to virtual, augmented, and mixed-reality simulations for students and faculty across the pedagogical spectrum. The Virtual Immersive Teaching and Learning Initiative contributes to a growing body of research in this area. Through research that compares traditional educational simulation methods with immersive methods, the findings from an experiment conducted among BSMU medical psychology students are presented. Until recently the teaching of any discipline was considered to be the mastering of the necessary theoretical and practical knowledge and skills by the students, but recently, with the development of science and the increase in the necessary amount of knowledge, it has become more and more important to provide students with an excellent theoretical basis for independent study of the subject, and this in distance conditions becomes possible thanks to technology and immersive learning. To confirm the working

hypothesis, a qualitative survey of 34 students of the Bukovinian State Medical University, specialty "Medical Psychology" was conducted. A closed questionnaire survey of students helped to diagnose their deep learning needs and determine the effectiveness and feasibility of using immersive learning. In addition, the results of the survey made it possible to reveal students' opinions about the profile of the ideal teacher in the era of digital and immersive technologies. It turned out that the use of immersive learning for psychologists yields high results is perceived with enthusiasm by students and is a feasible element for the methodology of teaching a foreign language.

Keywords: higher education, digital technology, innovation, survey.

Introduction

Along with the need for the education system to respond instantly to the current situation with the Covid-19 pandemic and the shift to online/synchronous/asynchronous mode of operation, the need to establish new types of interaction directed by new technologies has arisen (Changtong et al., 2020). Many the online learning environments focus on maintaining learning effectiveness and management rather than pedagogical innovation (Al Abed, 2020). For a long time, the concept of virtual immersion has largely been associated with gamification approaches rather than learning technologies (Jansri & Ketpichainarong, 2020). We believe that under the new educational norm, digital technologies and technology-enabled learning environments must adapt and evolve to support pedagogical learning processes. Immersive technologies offer a broader range of opportunities to engage future psychologists in learning activities, such as full immersive/interactive experiences beyond text and video (Concannon et al., 2019). Even though new immersive technologies are at an early technical stage for widespread adoption, it is critical to engage students in conceptualizing these technologies (Ma, 2021). Methodologically, current pedagogical practice identifies three main methods for teaching psychology: programmatic, problem-based, and interactive learning (Pirker et al., 2020). The most traditional is program instruction, in which a program is created or adjusted in accordance with the subject of training, goals, objectives, and didactic methods of knowledge delivery, as well as forms of their control (Kurnaz et al., 2020). The training problem involves the simulation of various problem situations in which the personality of the listener may find itself (Yuliono & Rintayati, 2018). Here, the understanding of knowledge occurs through the manner of that problem, from within, as we look for ways to solve it. Learning psychology through an interactive method allows us to immerse ourselves in the subject matter and construct the learning process through creative interpersonal communication and group interaction. It is interactive teaching that allows the use of immersive technology. Human psychology is a complex and multifaceted subject. Many controversial scientific theories and thoughts are polemized and interpreted differently by different scientific schools and directions. In addition, interest in psychology as a science is caused by the desire of people to know themselves, to be able to project their behavior, to successfully interact in society through the acquired knowledge. This, of course, should be considered when teaching this subject (Molero Jurado et al., 2019). Consequently, teaching methods for psychologists should focus on improving the professional training of psychologists and future educators. With the rapid development of technology and geopolitical crisis, the need to combine traditional techniques with new, immersive methods - situational immersion with the help of Internet resources and virtual reality (Tai & Chen, 2021). The methodology of teaching psychology should

primarily be based on practical innovative teaching methods when students become not only active subjects of the educational process but also shape the process itself taking into account their interests.

Research Problem

The purpose of this article is to analyze the use of immersive learning among psychology students. Disclosure of the hypothesis that new technologies have an unconditional positive impact on improving learning in higher education. The problematic aspects of the work arise in the rather small number of theoretical works devoted to the issue of immersive learning in practical experience. Problems arise not only on a theoretical basis but also on a practical one. To introduce elements of virtual immersion into the learning process, appropriate technical support and technical expertise of the pedagogical staff are needed. But the main issue is the perception of this type of work by students. After all, even though teachers are now teaching the "Internet generation", not all students perceive this type of work in terms of cognitive and psychological processes of perception of the material in conditions of virtual immersion.

Research Focus

As mentioned above, the problem of introducing the immersive element into teaching is the lack of a methodology for such teaching, the lack of proper technique, and the lack of teachers' experience in using it. In addition, another important problem is the lack of training of the students themselves and their inability to learn, especially in the first or second year of study. With this in mind, this paper focuses on the question of whether the immersive element in learning will improve knowledge and how students themselves perceive this new element in education.

Research Aim and Research Questions

The main questions of this research paper are, how do digital technologies contribute to innovation in higher education? What an immersive education with the introduction of virtual reality complements the usual ways of teaching psycho-pedagogical disciplines. What role does the media training of students and teachers play in such learning, and can we talk about implementation on the part of reverse pedagogy, in which the student is stimulated by the fact that he is a co-author in the project, not only performing tasks?

Research Methodology

General Background

To answer the question, a qualitative closed questionnaire survey was conducted among 34 second-year students, specialty "Medical Psychology". The survey was conducted at the Bukovinian State Medical University (Annex A).

Sample / Participants / Group

Thirty-four students in the 2nd year of medical faculty № 4 specialty – 225 "Medical Psychology", educational degree – second (master's degree), subject – foreign language (English) took part in the experiment. BSMU has a powerful Center for Simulation Medicine and Innovative Technologies. The experiment was conducted in the teaching-methodological unit for the improvement of teaching technology with the participation of all departments and clinical bases of the university. The simulation center of BSMU trains a professionally competent specialist who is able and ready to apply his

knowledge and practical skills in a clinical situation. With the help of InMind 2 – it is a scientific VR game concerning the chemistry of human emotions. The game can be useful in terms of interdisciplinary integration with biology, psychology, or humanities subjects. It is ready to help in the teaching of a foreign language subject because its themes and research correspond to the curriculum.

Instrument and Procedures

The virtual game InMind 2 was offered to students as part of the theme, “Biological Bases of Behaviour”. Because InMind 2 allows you to immerse yourself in the human brain, the game is appealing in that the student can indirectly control the destiny of teenage John as he grows up, control his behavior and emotions. InMind 2's fully functional, virtual brain provides an opportunity to expand on the educational theme of English. Students can learn how certain changes in the brain can affect a person, learn new vocabulary accordingly, and hear live English. In addition, this type of activity clearly defines its interdisciplinary integration with the subjects of anatomy, biology, psychology. The game does not give too much guidance on how the very movement of this or that synapse will affect John, but by immersing themselves, students can get a good idea of the teenager's psychological processes and changes and immerse themselves not only in English but also work through the themes of behaviorism. Their decisions only virtually, but tangibly shape the course of the character's real story, making for a very engaging game.

Data Analysis

The study is guided by the view that the impact of using devices belonging to immersive learning refers to the cognitive theory of learning using artifacts (Divekar et al., 2021). This theory describes the student's cognitive processing of information using two main channels: visual and auditory. In addition, we emphasize the importance of motivation (in the perspective of cognitivism) in learning. For the immersive learning game, the groups were offered virtual reality via Oculus Rift Development Kit 2. First, the students went through the aforementioned topic during traditional classroom instruction. The next session took place in the simulation center, where students went through the same topic, but in the form of a virtual game. The purpose of this study is exactly the students' reaction to the virtual immersion. To this end, a survey was conducted after the traditional and immersive session. Their answers indicate the appropriateness or inappropriateness of creating appropriate immersive techniques and programs.

Research Results

The results of the survey made us aware of an important but relative dimension of the use of immersive technology in higher education. Through this survey, among other things, students had no general idea about the use of virtual reality. Nevertheless, the results demonstrated that immersive learning can be seen as a way to influence the quality of teaching and, therefore, student success.

Table 1

The Reaction of the Focus Group to the Closed Questionnaire

Questions of the closed questionnaire	Positive answer	Negative answer

Question 1	32	2
Question 2	34	0
Question 3	30	4
Question 4	27	7
Question 5	34	0
Question 6	34	0
Question 7	30	4
Question 8	34	0
Question 9	23	32
Question 10	3	31

Source: own author development.

Figure 1

In Mind2 an Adventure Game About a Scientific Journey Inside the Emotion's Chemistry of the Human Brain



Source: https://store.steampowered.com/app/522220/InMind_2_VR/?l=ukrainian

According to the results of the survey and theoretical research in education and science, the impact of the use of immersive technologies on pedagogy is positive. Thus, let us note that the potential of the educational use of immersive learning is at least threefold:

First, immersive learning makes the student more active and autonomous in learning beyond simply acquiring knowledge.

Second, immersive is a matter of giving more meaning to learning: the activity is no longer just between the student--or even a group of students--and his/her teacher but is really done in a virtual context where the student can react, interact, and even critique.

Third, given the low digital skills of students, there is a need for technologically educated educators, who still need to remain at the center of the learning process.

Besides certain disadvantages of immersive learning, according to the survey, students note more positive aspects, we formulate immersive as the education of the not-too-distant future.

Digital technology has its place in higher education because it can make it better, that is, more effective concerning its educational goals (Lai & Chen, 2021). Specifically, because students' learning experiences will be enriched, they will be able to mobilize digital skills and knowledge. Learning through new technologies certainly has a positive impact on learning outcomes. For example, an analysis of student success during distance learning in 2021-2022 at BSMU showed better results than in previous years.

Immersive learning is not limited to the process of teaching and learning with immersion but also affects organizational structures and educational management practices. We believe that the use of immersive learning elements in WHS can lead to improved educational effectiveness in terms of scale (number of students enrolled), student success, and cost.

Discussion

In the context of this paper, it should be noted immediately that for more technologically advanced countries, immersive technologies in learning are not new. New forms of learning in many areas of higher education can be explained by the shift from a teacher-centered to the student-centered model of learning (Blumenthal & Blumenthal, 2020). Oriented model in which teaching methods must be tailored to the needs and profiles of students has also been used for quite some time (Hauze & Frazee, 2019). In the states, the development of digital learning has been received positively because of the low cost and flexibility that the Internet allows. This has allowed institutions and teachers to adapt their teaching practices to new dominant forms of learning, such as synchronous/asynchronous online learning, networking the use of forums, and immersive technologies (Avcu & Ayverdi, 2020). In this context, the scholarly work (Simsek, 2020) is interesting. The author analyzes how to balance and maximize the use of new technologies in learning. In addition, raises the issue of one of the constant fears of teachers that the latest technology can completely replace them. The opposite view is revealed (Gulden et al., 2019). The authors are convinced that it is the use of digital social media that gives the teacher an even more important role in today's environment. The modern educator must constantly be searching for appropriate digital media, considering the methods and system they introduce. He must also think about how to integrate these tools into the flow of his class. Issues of course pedagogical alignment are raised by (Christopoulos et al., 2020). The authors describe consistency between goals, methods, and assessment as one of the guarantees of a quality course. The generalization of new technologies facilitates access to information and documentation (dissertations, international journals, etc.), which have always been at the center of academic research. (Dedebali, 2020) questions the sorting

and validity of Internet information arising in a globalized context, and therefore increasingly difficult to control. We agree that the introduction of immersive technology into higher education has a positive impact on student success, but technology is not enough if it is not supported by general and specific intellectual goals, which the teacher must clearly communicate to the interested audience. For faculty, whether at the university or in vocational schools, the diffusion and use of digital tools contributes to conceptual, intellectual, and technical advancement. Other scholars (Martin & Collie, 2019; Repetto et al., 2021) raise questions about generational conflict. In higher education, educators must avoid generational conflict. Above all, be able to make good use of social media, which for today's youth are essential tools for communication. In addition, modern higher education must meet three criteria: flexibility, proximity, and content fulfillment. The role of the teacher is radically changing according to the challenges facing society (Badilla-Quintana et al., 2020). Modern higher education must be based, in particular, on great enthusiasm on the part of educators and manifested in practical work and case studies that give a lively dimension to learning.

Conclusions and Implications

In this paper, we tried to determine the limits and feasibility of introducing immersive technologies into the educational process. Their use is aimed at improving student performance in higher education. Questions about the new roles of university faculty in a fully digital era were uncovered. The main touchstone was to consider students' opinions on the content and appropriateness of using immersive methods. The student responses were a valuable contribution and an excellent opportunity to have an in-depth academic reflection on the role of the immersive element in psycho-educational teaching. The results showed that despite the students' high interest in virtual reality, in their opinion, the teacher should epicenter the learning process.

Annex A

The purpose of the survey was summarized in the following points:

1. Define the appropriateness of immersive learning and show how it can help to learn.

2. Describe the profile of the "ideal educator" in the digital age. What kind of teacher is better, one who does without the blackboard and chalk and imparts academic knowledge and expertise through technology alone, or a traditional teacher?

The closed questionnaire, for its part, was developed in google forms version, the links students received on the email boxes of the BDMU domain and consisted of seven questions:

1-In your opinion, the profile of the ideal teacher in the digital age is one who introduces many new elements to teaching:

Yes

No

2-Teachers' use of immersive technology improves your knowledge:

Yes

No

3-Good content, technology, proximity...these are the three ingredients for effective learning:

Yes

No

4 Conducting classes in a traditional format is an outdated method, even if there are additional audio-visual elements:

Yes

No

5.In innovative higher education, (digital) technology alone is not enough:

Yes

No

6.The traditional teacher, as the main element of learning, must manage the process:

Yes

No

7.Virtual immersion projects allow students to quickly absorb learning material:

Yes

No

8.Would you like more virtual reality induction classes:

Yes

No

9.- Outdated teaching methods are a major flaw in the educational process in higher education:

Yes

No

10. Would you like to give up the traditional occupation altogether:

Yes

No

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