Application of Immersive Media Technology in Ideological and Political Theory Courses Instruction at Shandong Vocational Colleges

Guoqing Liu[1,2], Tingting Guo[2], Ohamariah Samu[1,2]*

[1]Faculty of Education and Liberal Studies, City University Malaysia, 46100 Petaling Jaya, Selangor, Malaysia
[2]Binzhou Polytechnic, Binzhou 256603, Shandong Province, China

*Corresponding author: Ohamariah Samu, qhamariah@gmail.com

Abstract: This paper describes how virtual classrooms and out-of-classroom instruction can be used to help students in ideological and political theory courses strengthen their identities and improve the efficiency of their assignments. By using immersive media technology, the course is turned into a form of entertainment, enriched with content, and combined with methods such as digital video editing and manipulation to meet the needs of students in university ideological and political theory courses. Virtual reality technology can create realistic virtual environments created by computers, enabling students to perceive and manipulate a variety of virtual objects, interact with them, and create a sense of immersion in the virtual environment. Research has shown the potential benefits of using immersive media technologies and augmented reality in education. The potential of virtual reality in education has been increasingly emphasized and has been widely researched and applied.

Keywords: Immersive technology; High school ideological and political program; Virtual classroom; Shandong education

1. Introduction

Virtual reality is a technology that uses realistic virtual computer environments created by computers. Students can use their visual, auditory, and tactile abilities to perceive and manipulate various virtual objects in the virtual environment, interacting with them and creating a sense of immersion. Immersive learning is a training method that involves immersive media technology that utilizes virtual reality (VR) to create simulated environments that mimic real-world scenarios. This allows teachers to train their students and teach effectively in a safe and comfortable environment and companies to train their employees in a safe and comfortable environment.

The use of immersive media technology and technology-enhanced education (TE) has been researched for a long time and there is evidence that it can be a useful teaching method. However, in modern Chinese universities, there is a lack of information timeliness in the application of virtual reality technology. In the online environment, such information spreads rapidly, exacerbating the conflict between values. This poses

a great challenge in managing and controlling information, guiding and modifying public opinion, and other online phenomena. Students have several advantages over teachers when using the online environment. This environment does not use traditional lagging teaching methods and extensive information transfer.

This project will explore the application of immersive media technology, such as virtual reality (VR), in the teaching of ideological and political theory classes at Shandong Vocational College, and explore the relationship between the application of immersive media technology in the teaching of ideological and political theory classes and practice. This project will focus on the use of immersive learning to train employees through the use of virtual reality (VR) simulations of real-world scenarios. These simulations are safe, engaging, and designed to help employees learn in a more realistic environment.

2. Literature review

According to American psychologist Mihaly Csikszentmihalyi, the term "immersion" refers to the enjoyment that one could have when completely devoting oneself to and concentrating on a continuing activity or circumstance [1]. People are able to achieve a mental state of heightened focus when they are engaged in an activity that can attract their full attention and if the challenge that comes with it matches their ability. This allows them to proceed with the activity in a smooth and efficient manner, with all irrelevant perceptions being filtered out and the passage of time appears to stand still for them.

Immersive media technology-enabled education requires teachers in this field to consider not only the course content and curriculum but also the psychological characteristics and needs of university students, encouraging new ideas and methods for education [2]. In addition, the use of immersive media technology has both positive and negative effects [3]. On the one hand, immersive media technology has positive effects because it helps university students improve their communication, coordination, aesthetics, and mental and physical health skills. On the other hand, immersive media technology has negative effects because it can be dangerous. Several different pieces of research literature investigate the connection between virtual reality and academic achievement.

In order to revitalize ideological and political theory at universities, there is a need to update the educational content and build more effective educational institutions and modes of education. Computer virtualization, sensors, and networks will continue to thrive as these technologies advance and mature [4]. The rise of computerization in education has unprecedentedly brought the power of education to the core. Immersive media technology has become one of the most well-liked and cutting-edge instruments in the global field of educational reform by integrating educational informatization, cutting-edge teaching methods, enrichment of educational resources, and enhancement of educational efficacy [5].

3. Methodology

3.1. Research design

This investigation used an experimental research design to investigate the question of whether the traditional group or the virtual reality group is more effective at fostering the development of students.

The problem was investigated based on the following research questions:

(1) Is the immersive media technology in its application to university teaching of ideological and political theory courses convenient and effective in enhancing emotional experience compared to traditional media?

(2) Do VR groups promote the growth of students' comprehensive ability much better than traditional

groups?

    (3) What are the ways in which immersive media technology can improve the teaching effect of ideological and political theory courses in universities?

For the control group, all students were taught using a traditional approach that did not involve the technological tools of I-VR. The experimental group in this experiment was those who taught using immersive media technologies. Both groups answered a post-test after two full courses. In the post-test of the experimental design, there were analysis and explement to test if there are differences between lessons learned from those who were taught using immersive technology and those who were not.

3.2. Population and sample

Students from Shandong Vocational Colleges made up the population, and 626 students from Shandong Universities were recruited as subjects for the experiment, with the exception of those who were already familiar with the nature of the investigation.

3.3. Methods of data collection

The data were collected using both questionnaires filled and collected during the projected five-day experimental period. This study also used traditional teaching tools such as static text and images as control experiments. The test might be performed in the assembly room and multi-purpose school room of Shandong Vocational Colleges. The assembly room has a large display screen for displaying videos. A classroom that is multifunctional was equipped with 10 computers that can be used with virtual reality devices. The selected participants in the Pedagogy major were divided into two groups. The control group used traditional educational media to learn, while the experimental group used immersive educational media.

3.4. Ethical considerations

The research techniques were explained to the subjects in detail. They were informed as to the degree to which the research would interfere with their typical activities. The researcher had a responsibility to notify the subjects of what was expected of them during the research procedure, and the subjects always had the option to withdraw from the study at any moment. In addition to this, the subjects needed to be given the assurance that they would not suffer any negative consequences as a result of their involvement. For the subjects' own peace of mind and protection of their privacy, it is imperative that any sensitive information be kept under wraps.

4. Results

Based on the given data sample, we can summarize the following general characteristics:

    (1) Gender distribution: The gender distribution of respondents was almost equal, with slightly more than half of the respondents being male. In the control group, 53.3% were male and 46.7% were female; in the experimental group, 52.0% were male and 48.0% were female.

    (2) University distribution: Respondents were also almost equally distributed in terms of study sites, with slightly more than half coming from Binzhou Polytechnic. In the control group, 55.7% of the respondents were from Binzhou Polytechnic and 44.3% from Rizhao Polytechnic; in the experimental group, 52.0% of the respondents were from Binzhou Polytechnic and 48.0% from Rizhao Polytechnic.

In summary, this data sample is generally characterized by an almost equal distribution of gender and university, with slightly more than half of the respondents being male and slightly more than half of the

respondents being from Binzhou Polytechnic.

Based on the result, this paper found that for enhancing students' comprehension growth, immersive media technology was significantly recognized and supported in the experimental group. For example, the findings indicate that the majority of respondents in the experimental group [M (mean) = 3.82; SD (standard deviation) = 1.03] agreed that immersive media technology improved students' critical thinking skills compared to the control group (M = 2.09; SD = 1.33). The findings of the study indicate the positive impact of immersive media technology in promoting the growth of students' general skills. It enhances students' critical thinking skills, problem-solving skills, creativity and imagination, communication and collaboration skills, and knowledge acquisition and retention skills. These findings are consistent with previous research and show the potential for immersive media technology to have a wide range of applications in education.

The study findings demonstrated that immersive media technologies have a positive impact on enhancing information literacy. For example, the study findings demonstrated that the majority of the respondents in the experimental group (M = 3.86; SD = 1.12) agreed that immersive media technology helped students in evaluating the credibility and reliability of information, compared to the control group (M = 2.29; SD = 1.46). In conclusion, immersive media technologies can help students assess the credibility and reliability of information, improve their ability to locate and access relevant information, enhance their understanding of ethical and responsible information use, and promote the ability to organize and synthesize information effectively. These findings are consistent with previous research and demonstrate the potential of immersive media technologies to enhance information literacy in education.

The study findings also demonstrated that immersive media technologies have a significant impact on enhancing cognitive and affective experiences. The majority of the respondents in the experimental group (M = 3.95; SD = 0.81) agreed that to a great extent, they believed that immersive media technology enhanced cognitive engagement and concentration, compared to the respondents from the control group (M = 3.05; SD = 1.67). Findings suggest that immersive media technologies can enhance students' cognitive engagement and concentration, improve memory recall and retention, promote emotional engagement and empathic experiences, and foster users' creativity and imagination. These findings are consistent with previous research and demonstrate the potential of immersive media technologies to enhance cognitive and affective experiences in education.

Based on the findings described above, it can be summarized that immersive media technologies have a significant impact on enhancing media literacy. In this regard, the study findings demonstrated that the majority of the respondents in the experimental group (M = 3.61; SD = 1.26) agreed that they believed that immersive media technology helped students in analyzing and interpreting media messages effectively, compared to the respondents in the control group (M = 3.02; SD = 1.26). In summary, the findings suggest that immersive media technology has a positive impact on enhancing media literacy. It can help students effectively analyze and interpret media messages, improve their understanding of media production techniques and narrative elements, critically assess media content for bias, accuracy, and credibility, and develop awareness of ethical issues related to media consumption and creation. These findings are consistent with previous research and demonstrate the potential of immersive media technologies to enhance media literacy in education.

Based on the findings described above, immersive media technologies have a significant impact on enhancing ICT literacy. In this regard, the majority of the respondents in the experimental group (M = 4.02; SD = 0.82) agreed that they believed that immersive media technology enhances students' understanding of ICT concepts and principles, compared to less agreement from the control group (M = 2.43; SD = 1.40). It enhances students' understanding of ICT concepts and principles, improves skills in the practical application of digital

tools and software, the ability to critically evaluate and utilize information and resources on digital platforms, develops students' digital communication and collaboration skills, as well as supports the overall development of students' ICT literacy. These findings are consistent with previous research and demonstrate the potential of immersive media technologies to enhance ICT literacy in education.

Based on the findings described above, immersive media technologies have significant effects as learning tools. In this regard, the study findings demonstrated the majority of the respondents in the experimental group (M = 3.84; SD = 1.20) agreed that videos were easy to use during the educational process, compared to a minority in the control group (M = 2.82; SD = 1.69). It can provide easy-to-use learning, increase flexibility and interactivity in learning, enhance learning outcomes and learning engagement, as well as increase motivation to learn.

Pearson's correlation analysis shows that there is a positive and strong correlation between the effectiveness of immersive technology and students' comprehension, enhancement of information literacy, cognitive and affective experience, media literacy, and ICT literacy during the teaching and learning process. This means that students' improvement in comprehension, information literacy, cognitive and emotional experience, media literacy, and ICT literacy significantly contributes to the effectiveness of immersive technology.

The model statistics showed that when there is a unit change in ICT literacy, enhanced information literacy, and media literacy, there will be a 28% change in the effectiveness of immersive technology. In this case, enhanced information literacy and media literacy were positively predicted, while ICT literacy was negatively predicted.

The results of the study were analyzed by ANOVA, and the regression model has a good fit with an F value of 41.309 and a P value of less than 0.05, which indicates that the model is able to accurately predict the correlation between the independent variables and the dependent variable. This implies that improving information literacy and media literacy has a significant impact on the effectiveness of immersive technology.

In summary, the findings indicate that there is a significant positive correlation between students' comprehension, enhanced information literacy, cognitive and affective experiences, media literacy, and ICT literacy with the effectiveness of immersive technology. Enhanced information literacy and media literacy had a positive impact on the effectiveness of immersive technology during instruction, while ICT literacy had a negative impact.

5. Discussion

Immersive media technology can improve the teaching effect of ideological and political theory courses in colleges and universities in the following aspects:

(1) Enhancing students' participation: By using immersive media technology, students can actively participate in the learning process and interact with the virtual scene. This increased participation can stimulate students' initiative and enthusiasm, and promote their deeper understanding and exploration of ideological and political theory.

(2) Providing an immersive learning experience: Immersive media technology allows students to feel and experience the course content immersively, providing a more authentic and emotionally resonant learning experience. Students can participate through virtual reality (VR) or augmented reality (AR), creating a stronger emotional identity and experience.

(3) Multi-sensory stimulation: Immersive media technology enables students to receive information more comprehensively through multi-sensory stimulation such as visual, auditory, and tactile. This multi-

sensory stimulation helps to strengthen the perception and cognition of course content and enhance the effectiveness and efficiency of learning.

(4) Providing interactive and practical opportunities: Immersive media technology can provide students with interactive and practical opportunities. They can simulate operations and practical applications in virtual scenarios, thus promoting the cultivation of thinking skills and creativity. Through hands-on participation and practice, students can better understand and apply the ideological and political theory knowledge they have learned.

(5) Increasing the fun and attractiveness of learning: Immersive media technology can create rich and diverse learning environments and situations, increasing the fun and attractiveness of learning. This fun can stimulate students' learning interest and enthusiasm, and increase their attention and participation in the course content.

To summarize, immersive media technology can improve the teaching effect of ideological and political theory courses in colleges and universities by enhancing students' participation, providing immersive learning experiences and multi-sensory stimulation, providing interactive and practical opportunities, and increasing the fun and attractiveness of learning. These advantages help to enhance students' learning effectiveness and engagement and promote their deeper understanding and application of ideological and political theory knowledge.

6. Recommendations

This paper suggests the following recommendations when utilizing immersive media technology to improve the teaching effect of ideological and political theory courses in colleges and universities:

(1) Determining the teaching objectives: Before using immersive media technology, the teaching objectives and expected results are defined. The specific teaching goals to be achieved through immersive media technology are determined, such as enhancing students' emotional experience, deepening their understanding of concepts, or cultivating innovative thinking skills.

(2) Choosing the appropriate immersive media technology: The appropriate immersive media technology is selected according to the teaching objectives. Virtual reality and augmented reality are commonly used immersive media technologies that can provide immersive learning experiences. It is necessary to ensure that the chosen technology meets the teaching needs and matches the course content.

(3) Designing effective immersive learning environments: An immersive learning environment that is engaging, authentic, and interactive is created. Virtual scenarios, characters, and situations are designed to excite and engage students. It is ensured that scenarios and content are relevant to the curriculum and promote student thinking and understanding.

(4) Providing opportunities for interaction and practice: Immersive media technologies are utilized to provide opportunities for student interaction and practice. It enables students to operate, explore, and practically apply simulations in a virtual environment. This will help deepen their understanding and application of ideological and political theories, as well as develop innovative thinking and problem-solving skills.

(5) Integrating multiple media resources: In addition to immersive media technology, a variety of other media resources can be integrated to enhance the teaching effect. For example, the use of video, audio, images, and other forms of media can enrich the learning content and experience.

Disclosure statement

The authors declare no conflict of interest.

References

[1] Mihaly C, 2017, Flow: The Psychology of Optimal Experience [Zhang D, Trans.], China CITIC Press, Beijing, China, 63.

[2] Anaru NA, 2017, A Critical Analysis of the Impact of Colonisation on the Māori Language Through an Examination of Political Theory, Doctoral dissertation, Auckland University of Technology.

[3] Richards J, 2017, Infrastructures for Immersive Media in the Classroom, in Virtual, Augmented, and Mixed Realities in Education, Springer, Singapore, 89–104.

[4] Erturk E, Reynolds GB, 2020, The Expanding Role of Immersive Media in Education, IADIS International Conference E-Learning 2020, Lisbon, Portugal, 191–194.

[5] Zhang Y, 2022, A Case of Ideological and Political Teaching in A Bank Accounting Course: Take Deposit Business as An Example. Frontiers in Business, Economics and Management, 5(1): 68–70.