Innovative Application of Virtual Simulation in Ideological and Political Education Theory Course and Teaching

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Abstract: The aim of this article is to investigate the utilization of virtual simulation technology within the framework of Ideological and Political Education (IPE) theory courses. It delves into the practical steps and impact assessment methodologies, further validating its educational benefits through empirical studies. Initially, the article clarifies the concept of virtual simulation technology and its educational applications, highlighting its significance in enhancing instructional effectiveness and elevating the learning experience for students. Subsequently, a comprehensive overview is provided on the integration process of virtual simulation technology within IPE courses. This encompasses the design of educational content, the creation of virtual environments, student engagement strategies, and other pertinent aspects. Additionally, the article proposes evaluation methods to assess its impact, such as academic performance comparisons and student surveys. To substantiate the educational value of virtual simulation technology, an empirical study is conducted. The findings, derived from a comparison of academic performance and learning attitudes between an experimental group and a control group, reveal a notable enhancement in the academic performance and a more favorable learning attitude among students exposed to virtual simulation technology. This underscores the potential of virtual simulation technology to optimize the teaching and learning outcomes of IPE theory courses.

1. Introduction

In contemporary society, the swift advancement of science and technology, coupled with the escalating pace of globalization, has led the education sector to confront unparalleled challenges and transformations[1]. The IPE theory course, being a pivotal component of higher education, bears the significant responsibility of shaping students' worldviews, outlooks on life, and values[2]. Nevertheless, the conventional approach to teaching IPE theory often prioritizes theory over practicality and interaction, thus struggling to engage students and kindle their enthusiasm for learning[3]. Furthermore, as students' ideologies and information-gathering methods become more diverse, traditional teaching methods are proving inadequate in meeting their evolving needs, resulting in serious challenges to the effectiveness of instruction[4].

Virtual simulation technology, emerging as a cutting-edge educational tool, offers immersive, interactive, and conceptual experiences, thereby providing students with a more authentic and lively learning journey[5]. Its integration into ideological and political theory instruction not only transcends temporal and spatial limitations but also enriches students' learning resources and practical opportunities. Additionally, by simulating real-world scenarios and situations, it aids students in gaining a deeper understanding and mastery of theoretical concepts[6]. Consequently, exploring the application of virtual simulation technology in ideological and political theory education holds immense theoretical importance and practical significance.

2. Theoretical basis

Cognitive learning theory emphasizes learners' initiative and enthusiasm in information processing. According to this theory, learners acquire knowledge through cognitive activities such as perception, attention, memory, thinking and imagination of external information. In the virtual simulation environment, learners can perceive and experience abstract theoretical knowledge more

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intuitively, thus deepening their understanding and memory of knowledge[7]. Moreover, the interactive learning environment provided by virtual simulation technology can also stimulate learners' learning interest and motivation, and promote learners' active learning and independent inquiry.

Situational teaching theory emphasizes the correlation and interaction between knowledge and situation. According to this theory, knowledge is generated and developed in a specific situation, which provides the background and conditions for learners to understand and apply knowledge[8]. Virtual simulation technology can simulate real situations and scenes and provide learners with an immersive learning experience. This situational learning method not only helps learners to understand and apply knowledge, but also promotes learners' ability to solve problems and innovate in real situations.

3. Overview of virtual simulation technology

Virtual simulation technology is an advanced, multifaceted tool that utilizes computer simulations to craft a three-dimensional virtual realm. It immerses users in a multisensory experience, engaging their sight, hearing, and touch[9]. This innovative technology has the capability to replicate the real world or create an entirely new one, enabling users to freely interact and operate within these virtual spaces. Through this, it becomes possible to explore and experience both the tangible and imaginary worlds in an unprecedented manner.

According to different application requirements and implementation methods, virtual simulation technology can be divided into many types. See Table 1 for details.

Table 1 Types of virtual simulation technology

Classification method	Type	Describe	Application area
According to immersion degree	Desktop virtual simulation	Show the virtual world through the computer screen, and use interactive devices such as keyboard and mouse.	Education, entertainment, design, etc.
	Immersive virtual simulation	Use head-mounted displays, data gloves and other equipment to provide a highly realistic virtual environment experience.	Games, simulation training, virtual reality experience, etc.
	Distributed virtual simulation	Multiple users interact and cooperate in real time in a shared virtual space.	Military simulation, collaborative design, distance education, etc.
By application field	Educational virtual simulation	Used in education and teaching, simulating experiments and scenes, etc., to improve the instructional effect.	Science education, medical education, vocational training, etc.
	Military virtual simulation	Used in military training, simulated combat, etc., to improve the combat capability and coping ability of military personnel.	Operational command, equipment research and development, battlefield simulation, etc.
	Industrial virtual simulation	It is used to simulate industrial design and production process, and optimize product design and manufacturing process.	Automobile design, aerospace, machinery manufacturing, etc.

4. Application design of virtual simulation in IPE theory course

4.1. Application requirements analysis

In the instructional process of IPE theory course, there are some problems that traditional instructional methods can't effectively solve. For example, theoretical knowledge is abstract, historical events are difficult to reproduce, and students lack practical experience. These problems

make students face certain difficulties in understanding and applying ideological and political theory. In view of these problems, virtual simulation technology can play a unique advantage. First of all, by constructing a virtual teaching scene, abstract theoretical knowledge can be concretized and visualized to help students better understand and master it. Secondly, virtual simulation technology can simulate historical events and scenes, so that students can feel the historical process and the evolution of ideas in an immersive environment. Finally, virtual simulation technology can provide rich practical opportunities for students to practice and solve problems in a virtual environment, thus cultivating their practical ability and innovative spirit.

Therefore, in the instructional process of IPE theory course, the application points of virtual simulation technology mainly include: visual display of theoretical knowledge, simulation and reproduction of historical events, and improvement of students' practical ability.

4.2. Application case design

Based on the above analysis of application requirements, this article designs a specific virtual simulation teaching case:

Case Name: Virtual Historical Journey-Red Army Long March

Teaching content: By simulating the historical scene and process of the Red Army's Long March, students can deeply understand the background, process and significance of the Long March, and cultivate their patriotism and hard struggle spirit.

Teaching methods:

Scene simulation: Using virtual simulation technology to build key scenes on the way of the Red Army's Long March, such as snow-capped mountains, grasslands and rivers. Students play the role of Red Army soldiers in the virtual environment and experience the hardships and difficulties of the Long March.

Task challenge: design a series of tasks and challenges related to the Long March, such as crossing snow-capped mountains, crossing rivers and avoiding enemy pursuit. Students need to complete these tasks in a virtual environment and experience the dangers and challenges of the Long March.

Historical reappearance: the historical events and figures on the way of the Red Army's Long March are simulated by virtual simulation technology, such as Zunyi Conference and Sidu Chishui. Students can personally participate in these historical events in the virtual environment and understand the historical process and significance of the Long March.

Technical realization:

Three-dimensional modeling: Use three-dimensional modeling software to build scenes and character models on the way of the Red Army's Long March, including snow-capped mountains, grasslands, rivers and Red Army soldiers.

Interaction design: design user interaction interface and interaction logic to realize the natural interaction and task challenge between students and virtual environment.

System integration: the three-dimensional model, interactive design, historical data and other elements are integrated into the virtual simulation platform to form a complete virtual historical journey-the Red Army Long March teaching system.

Through the design and implementation of the above application cases, virtual simulation technology can be effectively integrated into the instructional process of IPE theory courses, and the instructional effect and students' interest in learning can be improved. Moreover, this instructional method is also helpful to cultivate students' practical ability, innovative spirit and patriotism.

5. Implementation and effect analysis of virtual simulation in IPE theory course

5.1. Implementation process

In the implementation of IPE theory course, the application of virtual simulation technology needs to follow certain steps and procedures to ensure the effectiveness and systematization of teaching. First of all, teachers should combine the course content and students' characteristics to

determine the application points and teaching objectives of virtual simulation technology. On this basis, the appropriate virtual simulation software or platform is selected to design and develop the teaching content.

After the design of teaching content is completed, teachers carry out virtual simulation teaching in the classroom. This includes introducing students to the use of virtual simulation technology, operating precautions, and guiding students to enter the virtual environment for learning and exploration. In the instructional process, teachers need to closely observe students' learning situation, give timely guidance and help, and ensure that students can successfully complete their learning tasks.

After class, teachers assess and reflect on the effect of virtual simulation teaching, sum up teaching experience, and constantly optimize and improve instructional methods and contents. Moreover, it is also needed to collect students' feedback to understand students' acceptance and satisfaction with virtual simulation teaching in order to better meet students' learning needs.

5.2. Effect assessment method

In order to scientifically and objectively assess the instructional effect of virtual simulation technology in IPE theory courses, it is needed to adopt various assessment methods and standards. First of all, we can assess the instructional effect through students' academic performance and compare the differences between virtual simulation teaching and traditional teaching in students' academic performance. Secondly, we can collect students' feedback on virtual simulation teaching by means of questionnaires and interviews, so as to understand students' acceptance and satisfaction with this instructional method. In addition, we can also observe students' learning performance and interaction in the virtual simulation environment, and assess the improvement of students' participation, cooperation spirit and innovation ability.

In addition to the above assessment methods, we can also combine the characteristics of IPE theory courses to formulate targeted assessment standards. For example, it can assess students' understanding and mastery of theoretical knowledge, their ability to recognize and assess historical events and people, and their ability to analyze and solve practical problems by using what they have learned. Through these assessment standards and methods, we can fully and deeply understand the instructional effect of virtual simulation technology in IPE theory courses.

5.3. Empirical research

In order to verify the instructional effect of virtual simulation technology in IPE theory course, this article makes an empirical study. The IPE theory course in a university is selected as the experimental object, and the virtual simulation technology is applied to it. By comparing the differences in academic performance, learning attitude and learning interest between the experimental group and the control group, this article analyzes the role of virtual simulation technology in improving students' learning effect and instructional effect. The experimental results are shown in Table 2 and Table 3.

Table 2 Comparison of academic performance

Group	Number of people	Average score	Highest score	Minimum score
Experimental group	50	89.5	98	80
Control group	50	82.3	92	70

Remarks: The experimental group used virtual simulation technology to assist teaching, while the control group used traditional instructional methods. From the average score, the highest score and the lowest score, the students in the experimental group are generally better than the control group in academic performance.

Table 3 Investigation results of learning attitude and learning interest

Survey items	Identification of experimental group (%)	Identification degree of control group (%)
Interested in the content of the course	90	75
Think that the course is helpful for personal growth.	92	80
Willing to actively participate in classroom interaction	95	82
Satisfied with virtual simulation technology	90	N/A

Remarks: During the examination of learning attitudes and interests, it was observed that students in the experimental group typically exhibited a deeper appreciation for IPE theory courses compared to their counterparts in the control group. Remarkably, a satisfactory rate of 90% was recorded among the experimental group students regarding virtual simulation technology, further underscoring its beneficial impact on elevating students' engagement and enhancing the overall effectiveness of instruction. As the control group did not incorporate virtual simulation technology, the satisfaction metric was deemed inapplicable.

The aforementioned experimental findings reveal that the experimental group students outperformed the control group in terms of academic achievements, learning attitudes, and interests. Specifically, the academic standards of the experimental group were consistently higher. Furthermore, they displayed a more proactive and enthusiastic approach towards learning IPE theory courses. This underscores the efficacy of virtual simulation technology in elevating the impact of IPE theory instruction and fostering a deeper engagement among students.

In conclusion, the empirical research conducted provides compelling evidence of the instructional benefits and advantages offered by virtual simulation technology in the context of IPE theory courses. As such, in future educational endeavors, it is prudent to expand the integration of virtual simulation technology as a means of refining and enriching the instructional methods and content associated with IPE theory courses.

6. Conclusions

In this article, a comprehensive examination of the utilization of virtual simulation technology within IPE theory courses is conducted. This emerging educational tool possesses distinctive advantages and holds considerable promise. Among its benefits, it has the capacity to translate abstract theoretical concepts into tangible and visual representations, thereby enhancing students' comprehension and retention. Additionally, it offers the capability to recreate historical events and settings, enabling students to experience firsthand the historical timeline and ideological shifts in an engaging and immersive manner. This innovation is pivotal in elevating students' engagement, participation, and overall educational outcomes.

Through rigorous empirical research, this article demonstrates that the integration of virtual simulation technology into IPE theory courses yields significant improvements in students' learning and instructional effectiveness. Notably, students in the experimental group exhibited superior academic performance, more favorable learning attitudes, and heightened interest compared to their peers in the control group. These findings underscore the transformative potential of virtual simulation technology in driving educational reforms and fostering innovation within IPE theory curricula.

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