

Problems and Strategies in Applying VR Technology to Ideological and Political Education

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Abstract. VR technology has been increasingly applied in the field of education, and ideological education cannot lag behind. Using VR technology to carry out ideological education can enhance students' learning interest and effectiveness, enhance the effectiveness and scientificity of ideological education, and is also the development trend in the future. However, there are still a series of problems such as insufficient ideological understanding, imperfect technology, prominent conflicts between cost and benefit, and lack of teaching resources. The response strategy is to improve educational concepts, strengthen personnel training, enrich teaching content, strengthen infrastructure construction, establish evaluation mechanisms, and continuously promote the application of VR technology in ideological education.

1. Introduction

With the advancement of technology, virtual reality (VR) technology has been applied in many fields, including education^[1]. Ideological and political education, as an important part of higher education, its innovation in education model has always received extensive attention. In recent years, more and more researchers have begun to explore how to introduce VR technology into ideological and political education to enhance its practical effectiveness. However, although there are many advantages in using VR technology to carry out ideological and political education, there are also many problems in the implementation process. This article analyzes in detail the main problems faced by applying VR technology to ideological and political education, and proposes corresponding strategies.

2. Advantages and Necessity of Using VR Technology to Carry Out Ideological and Political Education

2.1. Improve students' learning interest and learning effect

VR technology can provide an immersive learning experience that stimulates students' motivation and interest in learning^[2]. For example, by simulating real revolutionary scenes, historical events and social phenomena, students can experience the historical events, character stories, social practices and other contents involved in ideological and political education from a first-person perspective. Compared with the traditional teaching mode, this immersive learning method is more

vivid and interesting, improving students' interest and participation, enhancing students' sense of reality and experience^[3], so as to better understand and master the course content and improve the learning effect.

2.2. Enhance the effectiveness and scientific nature of ideological and political education

Ideological and political education is to improve students' ideological and comprehensive quality. Traditional ideological and political education methods have problems such as low efficiency and lack of obvious effects. VR technology can provide students with more realistic practical experience through virtual simulation experiments, simulated court, leadership training, etc., so as to better cultivate students' critical thinking ability, communication ability and cooperation ability, and enhance the effectiveness of ideological and political education. At the same time, VR technology can also provide real-time monitoring and evaluation of students' learning through intelligent analysis, data statistics, and other methods, providing teachers with more scientific and accurate teaching feedback.

2.3. Adapt to the development trend of future education

With the continuous development and popularization of science and technology, relying solely on traditional education modes and methods cannot meet the needs of modern ideological and political education. The introduction of innovative VR education mode can provide personalized and customized learning experiences, help students to understand and master knowledge more deeply and improve teaching effectiveness^[4]. At the same

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time, it can also promote the popularization of ideological and political education. Through the simulation of virtual teaching environment and the construction of open learning platform, anyone can learn and practice without being limited by time, space and experimental conditions. This can reduce the cost of learning, and the appeal of VR technology can quickly popularize ideological and political education, ultimately benefiting the entire society.

3.Problems faced by using VR technology to carry out ideological and political education

3.1.Ideological understanding needs to be strengthened

In the traditional concept of education, ideological and political education is often regarded as a process of "imparting knowledge" rather than a process of "experiencing knowledge". This educational philosophy has led many educators to be skeptical about the introduction of VR technology, believing that the traditional way of classroom teaching is sufficient and there is no need to use VR technology. However, with the update and development of educational concepts, we should realize that VR technology can provide a more immersive and interactive learning environment, which can allow students to better understand and master the knowledge points of ideological and political education in the experience.

From the perspective of technical cognition, most of the professional ideological and political education personnel are from the liberal arts background, and most of them don't understand VR technology, and even have some misunderstandings. They may think that VR technology is too complicated, or that the use of this technology will cause health problems (such as "VR motion sickness"). In fact, in recent years, with the advancement of technology, the portability, comfort and functionality of VR devices have been significantly improved. The government has also issued a series of policies to support the application of VR technology in the field of education. For example, the Ministry of Education proposed in the "Implementation Plan on Accelerating the Modernization of Education" that it is necessary to "actively promote the in-depth application of emerging technologies such as virtual reality technology and artificial intelligence in education and teaching, explore new teaching models and education service supply modes, and improve the level of education modernization". The development of VR technology and the support of national policies make it feasible to apply VR technology to carry out ideological and political education.

3.2.The technology needs to be improved

Although VR technology has great advantages in theory, in practical applications, due to immature technology and expensive equipment, its popularization in ideological and political education is limited.

There is still room for improvement in user experience comfort. The current VR equipment is mainly a head-mounted display, although the volume and weight have developed to an acceptable level, but there is still a distance from the real lightness, there are still problems such as large weight, oppression, and large heat generation. Students may experience neck and eye fatigue when using these devices for long periods of study, and a small number of sensitive students may even experience dizziness, headaches and other physical discomforts. This not only affects the learning experience of students, but can also have a negative impact on their health.

The interaction is not natural enough. In today's VR environment, most of the way students interact with the virtual environment is based on input devices such as handles or gloves, which operate in a way that doesn't exactly match how people behave in the real world. For example, moving the viewing angle with a joystick may cause students to "stun", and the buttons and joystick operations of the controller often do not match real-world gestures. Glove-based interactions must wear thick gloves that make people feel uncomfortable. These unnatural ways of interacting can be confusing for students when using VR devices.

Lack of optimization in multi-person collaborative learning. VR technology can provide an ideal multi-person collaborative learning environment, but the current VR system is not enough to support this aspect. When students carry out multi-person collaborative ideological and political learning, they may encounter problems such as inconvenient communication, conflicting perspectives, and data synchronization. The existence of these problems has affected the collaborative learning effect of multiple people in ideological and political education.

3.3.There is a contradiction in cost-effectiveness

Cost of technical equipment. VR technology requires specific hardware devices, such as VR headsets, controllers, somatosensory devices, etc. The price of these devices is higher, and a set of high-quality VR equipment may cost thousands or even tens of thousands of yuan. For schools or educational institutions with large deployments, the cost of equipment acquisition can become a significant burden.

Content production costs. High-quality VR ideological and political education content requires a dedicated production team and tools to create. This requires a lot of time and resources, including planning, design, modeling, animation, sound design, etc. Ideological and political education often has a strong timeliness, in order to keep pace with the times, it is necessary to invest long-term human and material resources to update and optimize the educational content. This results in high initial investment and post-maintenance costs, which can be a challenge for some schools or educational institutions with limited budgets.

Technical maintenance and update costs: VR equipment requires specific technical support to operate normally, and once the equipment fails or has technical

problems, it needs to be maintained and repaired. This not only requires the input of technicians, but may also involve additional repair costs. In addition, in order to ensure the smooth progress of the learning process, it is necessary to upgrade the network environment, servers and other infrastructure. As technology continues to advance, VR devices also need to be regularly updated and optimized to provide a better learning experience. This requires continuous investment and effort.

Although VR technology provides a unique learning experience, many studies have also shown that VR technology applied to ideological and political education can effectively improve the learning effect, but due to the lack of widespread popularity, the sample size of the study is limited, some people still hold a wait-and-see attitude, which requires more time and research to verify. At the same time, because it will take some time for students and teachers to adapt to this new way of teaching, it may not see significant gains in the short term.

Despite these contradictions, it does not mean that VR technology has no future in ideological and political education. In fact, with the advancement of technology and the reduction of costs, more and more educational institutions and individuals have begun to accept and use VR technology for ideological and political education. It is important to find the right use cases and ways to maximize the benefits of this technology, while also being mindful of the challenges it may bring.

3.4. Teaching resources are relatively scarce

Although VR technology has brought many new possibilities for ideological and political education, the current resources for VR ideological and political teaching are still relatively poor, which limits the application of VR technology in the field of ideological and political education to a certain extent^[5]. The lack of resources is mainly reflected in two aspects:

On the one hand, there is a lack of a universal teaching platform, which has brought many difficulties to the application of VR technology to carry out ideological and political education. The first is that teachers and students lack the "entrance" for teaching or learning, teachers want to release VR ideological and political teaching content but do not know where to send it, and students want to learn through VR equipment and do not know where to learn; The second is the increased difficulty of teaching. The lack of a software platform makes it difficult for teachers to customize and optimize VR teaching content according to their own course goals and students' learning characteristics. If each teacher needs to develop VR teaching content by themselves, it is not only expensive to develop, but also difficult to ensure the quality of teaching; Then there is the limited learning experience for students. Without a dedicated VR teaching software platform, it is difficult for students to have a rich and comprehensive learning experience. They do not have access to diversified learning resources, and naturally cannot understand and explore the course content more deeply through VR technology; Finally, it is difficult to assess student learning: Without a software platform dedicated to

VR teaching, it will be more difficult for teachers to assess student learning. Because of the immersive learning experience enabled by VR technology, traditional assessment methods may no longer be applicable.

On the other hand, the teaching content is not rich enough, resulting in the application of VR technology to carry out ideological and political education is not attractive to students, and it also restricts the promotion of this emerging ideological and political education method. Ideological and political education covers a wide range of fields, including history, philosophy, politics, economics and other fields. Using VR technology to carry out ideological and political education, VR content is the core. Compared with traditional classroom teaching, VR teaching can provide a more vivid and realistic learning experience, but if there is not enough VR content, students will not be able to experience this advantage, it is difficult to arouse students' interest and enthusiasm, and it is naturally difficult to have a deeper understanding and resonance of the content of ideological and political education, and eventually lose interest in ideological and political education. At present, only a few colleges and universities and organizations have begun to try to use VR technology to carry out ideological and political education, but there are generally problems such as insufficient content, fewer virtual scene choices, and relatively single experience methods, which makes it difficult for this new ideological and political education method to be widely used and promoted.

4. Strategies to promote the application of VR technology to ideological and political education

4.1. Increase the recognition of VR technology

Increasing awareness and recognition of VR technology among schools, educational institutions, and students can be achieved by organizing promotional activities, offering experiential courses, and demonstrating the advantages of VR teaching. Let students and teachers realize that VR technology can bring a more vivid and realistic learning experience to ideological and political education, improve students' learning effect and interest, and enhance teachers' recognition.

4.2. Train teachers and technicians

In order to better promote the application of VR technology in ideological and political education, it is necessary to train teachers and technicians to improve their VR technology level and teaching ability^[6]. Professional VR technology training courses can be organized to allow teachers and technicians to master the relevant knowledge and skills of VR technology, so as to better apply it to ideological and political education.

4.3. Develop rich and diverse VR content

In order to meet the requirements of ideological and political education, it is necessary to develop a variety of VR ideological and political education content^[7], which can be the reconstruction of real scenes, such as the Memorial Hall of Revolutionary Heroes, the Holy Land of the Revolution, the former residence of great people, etc., or the restoration of a great historical event, such as the Long March Road, the victory of the Anti-Japanese War, the founding of New China, and so on. It can cooperate with professional educational institutions, ideological and political teachers, curriculum developers, and enterprises with mature VR technology to produce VR teaching content for ideological and political education. At the same time, capable teachers and students can also be encouraged to independently develop VR content and provide financial support for it, so as to establish diversified VR ideological and political learning resources to meet students' learning needs.

4.4. Strengthen the construction of hardware facilities

The promotion of VR technology requires corresponding hardware support. Therefore, schools and educational institutions need to strengthen the construction of hardware facilities, provide sufficient VR equipment, build high-performance network systems, and ensure the smoothness and stability of the network. At the same time, each classroom, dormitory and laboratory is provided with sufficient network interfaces and wireless coverage for the convenience of students and teachers. At the same time, it is also necessary to establish a technical support and service team to ensure the normal operation and maintenance of VR equipment.

4.5. Establish evaluation and feedback mechanisms

In order to continuously optimize the application of VR technology in ideological and political education, it is necessary to establish an evaluation and feedback mechanism^[8]. Firstly, the indicators for evaluating VR ideological and political education are determined, including indicators such as learning effect, teaching quality, and student satisfaction. Then collect feedback data, you can make full use of the advantages of VR technology to collect students' learning, such as judging the degree of concentration through the frequency of blinking, and also use traditional questionnaires, line tests, discussions and other methods to collect feedback data. This data includes satisfaction with the teaching content, problems and difficulties in use, suggestions for improvement, etc. Next, analyze the feedback data, including statistical average score, analyze the frequency and distribution of problems, and find potential rules, etc., to help find out the problems and bottlenecks in the application of VR technology and provide a basis for further improvement. Finally, develop an improvement plan. This includes improving the performance and

functionality of VR technology, optimizing teaching methods and content, and enhancing teacher training and technical support. These schemes need to be repeatedly verified and adjusted in practice, and constantly improved and perfected.

5. Conclusion

The application of VR technology to ideological and political education has unique advantages, which can break the boundaries of time and space, provide students with richer experience and learning resources, stimulate students' interest in learning, and improve the appeal and effectiveness of teaching, which is also the development trend of future education. However, there are also some problems in the application of VR technology to ideological and political education, such as the current teachers and students do not have a deep understanding of VR technology, or even have a skeptical attitude; VR technology itself also has a lot of room for improvement; The cost of purchasing VR equipment and producing VR teaching content is large, and the benefits are difficult to predict; At present, the available VR resources are still relatively scarce. Therefore, educational institutions should strengthen the publicity of the advantages of VR technology, encourage teachers and students to experience VR technology, and improve awareness; At the same time, teachers and technicians will be trained in VR applications to reduce the threshold for use; We must also spare no effort in hardware construction and VR teaching content construction; Establish an evaluation and feedback mechanism for VR ideological and political teaching to stimulate teachers' enthusiasm. In general, the application of VR technology in ideological and political education has great potential, but it also faces some problems, and the application of new technologies and the solution of problems can go hand in hand, so as to continuously improve and optimize teaching methods.

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