Research on the Development and Utilization of VR Technology in the Innovation Construction of Ideological and Political Theory Courses in Colleges and Universities

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Abstract

In the new era, how to improve the teaching pragmaticality of ideological and political theory courses to better realize its role as the main position of ideological and political education has become the focus of teaching reform and innovation of ideological and political theory courses in recent years. In particular, how to use new technology and means to break the bottleneck of classroom teaching and broaden the platform of teaching resources has become the top priority of research. This paper takes the organic integration of VR technology and the reform of ideological and political theory courses in colleges and universities as the research object, and tries to explore how to deeply integrate VR technology with the construction of ideological and political theory courses in colleges and universities through the analysis of the dilemma of the development of ideological and political theory courses in the new era, the value of the introduction of VR technology into the teaching reform and innovation of ideological and political theory courses, as well as the existing problems and construction ideas, so as to find a new innovative development path for the curriculum reform.

Subject Areas

Educational Reform, Teaching and Learning Technologies

Keywords

VR Technology, Ideological and Political Theory Course, Development, Utilization

1. Introduction

The ideological and political theory course is a key course to fulfill the basic task of cultivating people with morality and also the main channel and position of ideological and political education in colleges and universities. It's very important to do a good job in the ideological and political theory courses. We must constantly update the teaching concept in combination with the background of the times, optimize the teaching means, mode and resources, and promote the continuous development of the ideological and political theory courses in colleges and universities through innovation, to improve the teaching pragmaticality. In today's information-based high-speed development, how to take full advantage of modern science and technology to enrich the class and extracurricular practice of ideological and political theory courses in colleges and universities and to realize the organic integration of teaching links and modern technology is the topic we need to study fully. The application of VR technology is an important means to improve the teaching ecology of ideological and political theory courses, which expands the teaching field and enhance the teaching pragmaticality.

2. The Development of VR Technology and Its Value in Education

Virtual Reality technology is to create a virtual space simulating the real world by computer technology, or directly create a virtual space to simulate the users' sense of existence into the virtual environment created by VR technology, so that users can carry out multiple interactive experiences in the immersive environment.

Original products based on this technology appeared as early as the 1950s. In 1962, Morton Heilig put forward the concept of "Sensorama", and according to it, he built a "Sensorama" model that can provide the audience with a comprehensive experience of vision, sound, smell and touch. In 1968, Ivan Sutherland worked with his students to create the world's first VR and AR HMD; in 1982, Atari founded the virtual reality lab; and in 1985, Jaron Lanier, the virtual reality pioneer, released several virtual reality products. Before the 1990s, VR technology was not mature and its products were relatively crude, which failed to be widely applied and promoted.

By 1990, virtual reality technology has begun to attract social attention. Dr. Jonathan Waldern invented the "Virtuality" arcade game using VR technology to create an immersive experience. In 1991, SEGA invented the VR helmet and control equipment designed for arcade games, and upgraded them three years later. In 1995, the world-famous Nintendo released the game "Virtual Boy", and the immersive experience effect brought by VR technology was further optimized. However, as can be seen from the specific application of technology, VR technology was mostly developed in the field of games in the 1990s. Although the technical level was greatly improved, its scope of application was limited, its degree of promotion was not high, and it could not be deeply integrated with

other fields such as education.

In the 21st century, VR technology has developed rapidly in the past five years, and has been continuously expanded from the game field to other fields, which has greatly promoted the education reform and innovation, especially higher education. In 2016, Goldman Sachs released *Virtual & Augmented Reality: Understanding the Race for the Next Computing Platform*, which listed the nine areas most likely to implement VR/AR technology applications, including education. In the same year, Google announced that education app Expeditions were free; Mark Zuckerberg announced in October of the same year that he had set up a special fund to develop VR education content. Some colleges and universities in the US also began to use VR technology at the same time, including Savannah College of Art and Design (SCAD) and Cogswell College in the US, especially the latter, officially opening VR major. The major education and training institutions and first-class universities in China have also set up laboratories engaged in the R & D of VR technology, which greatly promotes the development of VR technology in China [1].

In recent years, China's education has developed rapidly, and the country's attention to higher education has also reached an unprecedented height. In 2018, at the first National Education Conference in the new era, it was clearly proposed that the modernization of higher education will be accelerated. In March 2018, there were virtual reality education and simulation teaching in the first batch of New Engineering and Technical Disciplines Construction Projects of General Office of the Ministry of Education (JGTH [2018] No. 17). In September 2018, the Ministry of Education announced the *Response of the Ministry of Education to Proposal No. 6527 of the First Session of the 13th National People's Congress*, proposing requirements for strengthening the construction of virtual simulation training teaching environment in colleges and universities. The Department of Higher Education of the Ministry of Education also announced the *First Batch of National Virtual Simulation Experiment Teaching Project* (JGH [2018] No. 6), marking that experiment teaching has moved from the era of "Pure Offline" education 3.0 to the era of "Pure Online" education 4.0.

China's Education Modernization 2035 plan proposes to speed up the reform of education in the information age, coordinate the construction of an integrated and intelligent teaching, management and service platform, use new technologies to promote profound changes in education mode, education content and learning methods, and boost revolutionary changes in education. In this process, as an early developed and relatively mature technology, VR is bound to play a positive role in enriching and innovating the curriculum form of higher education, expanding teaching channels and improving teaching effect.

3. The Significance of Integrating VR Technology into the Teaching Reform of Ideological and Political Theory Courses

The real value of teaching lies in the process of teaching and learning, the actor

and the recipient can form a benign interaction, especially whether the subjective initiative of the latter is fully mobilized has become a key factor for the success of teaching. As stated earlier, the new information technology has been widely applied in the education and teaching reform process, which has greatly promoted the profound changes in teaching content, teaching mode and teacher-student interaction mode. In recent years, as China attaches more and more importance to ideological and political theory courses in colleges and universities, the need for curriculum teaching reform and innovation is becoming more and more urgent. Ideological and political theory courses must adhere to the principle of "Strengthening in Improvement and Enhancing in Innovation" [2], we must promote a high degree of integration of curriculum and information technology and other high-tech means, enhance the attraction of course teaching and promote the teaching pragmaticality.

1) Necessity and Urgency of the Teaching Reform of Ideological and Political Theory Courses in Colleges and Universities

In December 2016, General Secretary Xi Jinping delivered an important speech at the National Conference on Ideological and Political Work in Colleges and Universities. He stressed that ideological and political work in colleges and universities is crucial. Ideological and political theory courses must "make good use of classroom teaching as the main channel" and "adhere to strengthening in improvement, enhance the affinity and pertinence of ideological and political education, and meet the needs and expectations of students' growth and development" [3]. On March 18, 2019, General Secretary Xi Jinping proposed at the National Symposium on Ideological and Political Theory Courses in Schools that contemporary college students should be carefully guided and cultivated through ideological and political theory courses and the fundamental task of building morality and cultivating people should be implemented. The importance of ideological and political theory courses has once again aroused social concern.

China has entered a new historical stage of rapid development, as the main channel and position of ideological and political education for college students, ideological and political theory courses are under increasing pressure and difficulty in teaching. This not only requires the teachers with profound theoretical foundation and experienced teaching skills, but also requires the teachers to grasp the enhancement of individual cognitive level and practical ability in the new technology field. Teachers need to be fully educated and skilled in the use of the achievements of modern communications and Internet technology changes, enrich the teaching content of ideological and political theory courses, innovate teaching methods, optimize teaching resources, update teaching concepts, improve the teaching level of ideological and political theory courses, improve the pragmaticality of classroom and practical teaching, enhance college students' interest in ideological and political theory course learning, so as to achieve the teaching effect of the course.

Currently, there are many problems in ideological and political theory courses in colleges and universities, such as the aging of teachers, the obsolescence of teaching methods and the lack of effective practical teaching contents. Especially the practice teaching link is affected by the factors including limited teaching funds, inconvenient transportation mode and difficult organization process. It is difficult for colleges and universities to organize regular and large-scale ideological and political theory course practice activities for a long time, and most of them use the way of students' vacation scattered practice to complete this teaching link, the practice effect is not good, and even cause students to resist the practice activities. The existence of the above problems makes the students' cognition of the whole ideological and political theory course system in a low level, even generate rejection mood, which seriously affects the teaching effect of ideological and political theory courses. Therefore, it is necessary to make use of all kinds of resources to carry out innovative reform of ideological and political theory courses, especially to change the course from a one-way teacher-led course to a two-way teacher-student interaction, and give full play to the initiative of college students to participate in and learn independently. In this process, one of the most effective means to achieve these goals is to "apply new media and new technology to make work come alive, promote the high integration of traditional advantages of ideological and political work with information technology, and enhance the sense of the times and attraction" [4].

2) An Analysis of the Advantages of VR Technology in Ideological and Political Theory Courses

The ideological and political theory courses have a high status, heavy tasks and great pressure of innovation and reform, which all determine the importance of curriculum construction and the urgency of the application of new technology. In line with the development of times and the requirements of curriculum reform, VR technology is widely used in ideological and political theory courses in colleges and universities. With its technical characteristics, it creates a more information-based and intelligent multi-dimensional teaching space for ideological and political theory teaching, enhances the classroom immersion experience, forms a sound teacher-student interaction relationship, promotes the close combination of classroom theory teaching and practical teaching activities, and expands the depth and breadth of ideological and political theory courses. The use of VR technology in the innovation and development of ideological and political theory courses in colleges and universities broadens the space of curriculum education, increases educational resources, and better realizes the teaching effect of ideological and political theory courses.

Firstly, the integration of VR technology and ideological and political theory courses in colleges and universities boosts the uniformity of knowledge and value of courses. It is a key course not only imparts theoretical knowledge but also implements the fundamental task of cultivating people with moral standing in colleges and universities. It is necessary to educate college students about their values, world outlook and outlook on life through the teaching of the curriculum

system, that is, to give prominence to systematic knowledge teaching in classroom teaching while shaping a benign value system of college students. To combine the two highly, we must establish an effective connection mechanism and change the static process into a dynamic one. VR technology can visualize and animate the flat and fragmented knowledge transfer process by creating situations in this process. Through virtual technology, we can provide a large number of materials with values education, guide students to sublimate their feelings while learning basic theories, generate value resonance, and thus improve college students' ability to distinguish right from wrong.

Secondly, the integration of VR technology and ideological and political theory courses in colleges and universities boosts the uniformity of course unity and diversity. The virtual environment created by VR technology can be closer to reality, close to students' cognition, and more specific. Using VR technology, ideological and political theory teachers can create different virtual reality scenes in the same chapter and the same topic in the classroom teaching link, so that students can have the feeling of being in their surroundings in the course learning. Students are fully exposed to different situational resources created by virtual technology through various sensory responses, and the teaching process is more interesting and diversified, which can bring college students a new learning experience and improve the teaching effect. Meanwhile, VR technology also promotes the reform and innovation of practical teaching link of ideological and political theory courses. Through VR technology, the practical teaching of ideological and political theory courses can solve the problems such as shortage of funds, high safety risk value and insufficient space in limited practical areas. It can expand new practical teaching space and enrich new practical teaching resources, so that students can complete targeted practical activities in the virtual reality space and put online and offline mixed teaching into practice.

Thirdly, the integration of VR technology and ideological and political theory courses in colleges and universities boosts the uniformity of dominance and subjectivity of the courses. As we all know, effective teaching activities will require students to give full play to the subjective initiative, in the process of active learning, students can improve the ability to analyze and solve problems. The educational appeal of ideological and political theory courses in colleges and universities determines that it needs more interaction between teachers and students to form emotional and value exchange in the process of knowledge transmission.

4. The Problems and Construction Ideas of VR Technology Applied to Ideological and Political Theory Courses

VR technology has become an innovative means adopted by many colleges and universities in the implementation of ideological and political theory course reform. Adopting advanced VR technology can establish holographic education mode, assist the college ideological and political theory teachers to optimize the teaching process, improve the education effect, and solve a series of problems

existing in the traditional teaching process. However, the integration of VR technology and curriculum is still in the exploratory stage, which needs to be explored step by step. There are many practical problems to be solved in many aspects, so we must have a clear understanding of them.

1) Shortcomings of the Integration of VR Technology and Ideological and Political Theory Courses

Although VR technology came into being in the 1950s, it has a short history in China with an immature practical application and the development and utilization of high-end virtual simulation technology is unsatisfactory. Its integration with higher education, especially ideological and political theory courses, is not ideal. At present, there are mainly the following problems:

Firstly, the history of VR technology applied in the field of education in China is not long, and it has not been widely recognized by the society. In fact, the technology is still immature, and there are still many technical bottlenecks need to be overcome (such as low resolution, dizzy feeling of equipment wearing, and unable to fully realize wireless connection), which limits the development of VR education technology to a large extent, and also limits its deep integration with ideological and political theory courses in colleges and universities. From the current situation of academic journals, dissertations and articles of academic conferences, it is easy to find that the research results of the combination of VR technology and ideological and political theory courses are not fruitful, which proves from one side that the current application technology can't provide sufficient data and examples for the teaching and research of ideological and political theory courses, and it has a low utilization and integration rate in the teaching of ideological and political theory courses.

Secondly, currently, the construction of ideological and political theory course resources of VR technology in China mostly stays at the level of low-end products such as the construction of 3D video effect and VR course content design. The R & D, promotion and use of high-end products such as VR teacher control system and comprehensive VR super classroom are insufficient. Even if it can provide all-round platform construction for the course, VR equipment is too expensive, which limits the colleges and universities to construct. In addition, the VR content resources supporting ideological and political theory courses have a big gap with the actual teaching needs, affected by factors such as application scope and development cost. After the software is put into use, there are some problems such as single product content and lack of product design combining with regional culture. Meanwhile, it is difficult to update in time, which leads to the gradual decrease of utilization rate and even idling, resulting in a great waste of resources and unable to achieve the established goals of curriculum reform.

Thirdly, VR technology and ideological and political theory courses are in different disciplines with a large professional knowledge span. The organic combination and full utilization of the two have great challenges and difficulties for both technology developers and teachers. From the current actual R & D and

utilization situation, on the one hand, due to the lack of systematic understanding of the ideological and political theory teaching requirements, teaching objectives, teaching content and so on, VR technicians can't design curriculum resources with distinct themes and both theoretical and value connotation education; on the other hand, ideological and political theory teachers have many cognitive blind areas on the use of VR technology, even if VR technology means are adopted in the teaching process, they are only limited to the short-term rough experience brought by simple operation, and cannot meet the learning needs of students, nor can they achieve the purpose of assisting theoretical learning and promoting value education.

2) Construction Ideas of the Integration of VR Technology and Ideological and Political Theory Courses

For the problems existing in the application of VR technology in the teaching of ideological and political theory courses in colleges and universities, we need to take targeted optimization measures, which can be started from the following aspects:

Firstly, colleges and universities all over the country should actively respond to the call of the state, build various platforms to actively promote the integration of VR and other new technical means with the teaching reform of ideological and political theory courses; front-line teachers must adapt to the teaching atmosphere created by Information Technology, actively accept the reform of teaching mode brought by new technology, actively explore VR technology and fully use information means to assist teaching in combination with teaching practice, improve skills in use, at the same time, put forward reasonable opinions and suggestions for the renewal of VR technology, and in turn promote the development of VR technology.

Secondly, our country should further strengthen the investment in VR and other emerging technologies, especially promote the scale of the integration of production, education and research, use all resources to promote the rapid development of VR and other technologies, gradually break through the bottleneck of scientific research, reduce the cost of products, and expand the product application; it should actively promote the combination of VR technology with the Micro-Course, MOOC and Flipped Classroom models that have been widely used in the teaching reform of ideological and political theory courses, drive the innovation and development of VR technology through mature reform models, gradually expand the use of technology from point to area, and gradually set up a higher level of education platform.

Thirdly, we should combine VR technology, teaching reform of ideological and political theory courses and regional cultural resources advantages to provide high-quality resources support for the combination of VR technology and ideological and political theory courses. The reports of the 19th National Congress of the Communist Party of China pointed out: "Culture is a country and nation's soul. Our country will thrive only if our culture thrives, and our nation will be strong only if our culture is strong. Without full confidence in our cul-

ture, without a rich and prosperous culture, the Chinese nation will not be able to rejuvenate itself." [5] Thus, the unique regional and special, rich and vivid local culture is a high-quality resource, which is well worth exploring and applying in VR technology and ideological and political theory courses. VR technology can simulate the virtual reality scene of regional cultural resources with high-tech means and apply it to the classroom teaching and practice of ideological and political theory courses, which will promote the development of ideological and political theory teaching reform in colleges and universities, promote the transformation and upgrading of practical teaching work, and boost more support to the development, protection and utilization of regional cultural resources.

5. Conclusions

Although there are many problems and challenges, with the rapid development of modern science and technology, it is a general trend to use new technologies such as VR in the teaching process of ideological and political theory courses. It is necessary to make full use of information technology to make the ideological and political theory courses alive, so as to further promote the sense of the times and attraction of the course, and also promote the transformation from the traditional theory-centered class mode to the student-centered class mode. Therefore, the integration of VR and other new technologies with ideological and political theory courses in colleges and universities will become the focus of research on curriculum teaching reform and innovation for a long time.

Through the research to this topic, it is easy to find that, with the ever-changing development of technology in China, the course of Ideological and Political Theory must implement the spirit of combining practice and innovation in education and teaching, and actively explore how to introduce modern technological means such as VR (Virtual Reality) technology to promote the reform of the teaching format of the course and solve some practical problems in teaching, and this is where the value of this research lies. However, due to the different professional backgrounds, the cognition of the path and effect of VR technology used in the research process is not meticulous and in-depth, and the value of the technology itself and the strategy of its integration with the course of Ideological and Political Theory is not grasped very precisely, which will continue to be researched in-depth in the future.

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Conflicts of Interest

The author declares no conflicts of interest.

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