# Research on Information Teaching in Higher Vocational Colleges Based on Vr Technology

**Wen Zhong**

Jiangxi Tellhow Animation Vocational College, Nanchang, Jiangxi, 330200, China

**Keywords:** Virtual reality (vr), Informatization, Education

**Abstract:** Virtual reality (VR) technology is a computer simulation system that can create and experience a virtual world. It includes augmented reality (AR), immersive VR, CAVE immersive virtual reality, desktop VR, etc. Educational informatization is the only way to realize educational modernization, and it is also an important symbol to measure the educational level of a higher vocational college. VR application in information-based education is a great progress in the development of educational technology and runs through all stages of education. It creates an “autonomous learning” environment and changes the learning mode into one in which learners themselves actively acquire new skills and knowledge through information interaction. Although the VR industry is still in its infancy, the application of VR is rapidly penetrating into various fields. VR technology into higher vocational colleges can effectively create teaching environment and experimental environment, improve the ability of students to master knowledge and skills. Based on this, this paper analyzes the application of VR technology in higher vocational information education.

## 1. Introduction

With the development of China's higher education and the construction of a learning society for all, the continuing education in China's colleges and universities has ushered in a new development opportunity [1]. VR technology is a computer simulation system that can create and experience a virtual world. It includes AR, immersive VR, CAVE immersive VR, desktop VR, etc. Educational informatization is the only way to realize educational modernization, and it is also an important symbol to measure the educational level of a higher vocational college. Its development is a revolution in the field of teaching and plays a promoting role in improving teaching quality and reforming teaching mode [2]. In the implementation process of higher education informatization, colleges and universities have invested considerable manpower, material resources and financial resources in the construction of campus network software and hardware, multimedia teaching infrastructure and other aspects, and achieved remarkable results [3]. The application of VR in education is a great progress in the development of educational technology and runs through all stages of education. It has created an “autonomous learning” environment and transformed the learning method into a way for learners to actively acquire new skills and knowledge through information interaction. learning method.

The virtual environment is generated and controlled by a computer, so people are in the virtual environment created by VR technology and there is no difference between the real environment. VR has three of the most prominent features: Illusion of Immersion, Imagination, and Interactivity. Although the VR industry is still in its infancy and relevant technical standards have not yet been introduced, the application of VR is rapidly infiltrating into various fields, such as military, aerospace, industrial simulation, cultural relics, and education [4]. The ultimate goal of promoting informatization and modernization of higher education is to use advanced informatization education methods to create high-quality digital teaching resources, improve teaching standards, realize educational innovation, and continuously improve the quality of higher education [5]. The talents cultivated under the traditional education model can no longer meet the needs of modern society. What modern society needs are senior talents with practical skills. At present, there are many problems in colleges and universities in China, such as backward teachers' concepts, low level of

  DOI: 10.25236/ietrc.2020.155

information technology, low grasp and use of new teaching methods, low quality of digital resource construction, weak awareness of resource sharing, and low resource utilization [6]. VR technology can provide students with more effective learning opportunities. As a teaching media resource, VR requires students' active participation to establish the legal status of cognitive experience in the process of cognition and learning from a cognitive perspective, laying a theoretical foundation for VR education [7] .

## 2. Reform Ideas of Information Teaching in Higher Vocational Colleges

### 2.1 Constructing Interactive Resource Environment

Teachers and students are the main users and creators of information teaching resources. Their participation will directly affect the activity of the resource system. Information-based teaching is a key step to cultivate students' professional quality, and is the core part of the promotion of students' post ability, and the cultivation of ability requires schools to provide real working scenes [8]. Teachers should make full use of the remarkable characteristics of virtual reality interaction and intelligence to realize multi-cooperative teaching interaction and timely track and evaluate students' learning achievements when using VR to realize all aspects of teaching. The informatization of teaching resources as a whole will be of great help to the teaching of a college or even to the entire professional curriculum, so it is especially important for the construction of informatization resources in higher vocational colleges [9]. The application of virtual reality technology in higher vocational training teaching improves the training environment, optimizes the process of teaching implementation, and solves some problems that cannot be solved by practical training operation. Information is the development trend of the basic requirements of Higher Vocational Colleges in the information age. In the virtual environment, the incentive mechanism can give appropriate rewards through uploading or evaluating effective resources, specifically reflected in the network level, wealth value and other purposes to enhance the sense of learning achievement.

### 2.2 Strengthen the Management of Resource Platform

If the developed resources cannot be effectively utilized, the energy consumed in the process of resource development cannot be supplemented, and the entire ecosystem will be out of balance. The organic integration of the teaching management information system and the digital construction system of teaching information resources can promote the practical application of teaching information, optimize the teaching management process, and realize the scientization, refinement, visualization and humanization of teaching management. In the process of information-based teaching, students should be the main body and teachers should take the lead. Students should be guided to understand the complete working process and the specific requirements of relevant posts in several links such as obtaining objectives and tasks, making plans, implementing plans, and displaying results. The function analysis and design of educational information system is the key to the success or failure of information technology. Its function must meet the actual needs of continuing education. Due to the guidance documents of education policy, coupled with many traditional teaching concepts and models in a large-scale information technology and constraints, the significance of information technology in many higher vocational colleges has not attracted enough attention. In the information-based teaching resources ecosystem, the decomposer is the manager of teaching resources, which mainly refers to the intermediary organizations and organizations that participate in the formulation of policies, standards, norms and evaluation.

## 3. Application of Virtual Reality Technology in Vocational Education

Vocational education should not only impart cultural knowledge to students, but also, more importantly, let students master professional technology and skills. It is the characteristics and focus of vocational education to emphasize students' productive and practical ability and cultivate students' practical ability. Information-based teaching is a modern teaching method guided by modern teaching concepts, introducing information technology into teaching and supported by

information technology [10]. In the traditional teaching resources system, the student is only a passive user, and is a pure consumer who mainly downloads resources and cannot upload or evaluate resources. The information technology ability of students is the key factor that determines the dominant position of students in the information teaching resources ecosystem. From the perspective of the current information technology ability of vocational college students, although many students can use computers, but the information literacy is not high and they can not get the information they need quickly and easily through computers. VR technology combined with multimedia technology can be used to build a virtual practice environment in which vocational skills such as driving and maintenance can be trained. Constructivism learning theory is developed from the early behaviorism theory and cognitive learning theory. It believes that the world exists objectively, but the understanding and significance of the world are constructed by everyone based on their own experience.

Virtual reality is digital and virtual in form, but it should reflect the real world information. Virtual reality design art is a new comprehensive digital art form, which takes virtual reality technology as the carrier and design means, human senses as the platform, and human rational thinking and artistic inspiration are highly integrated. Abundant geometric and topological information is convenient for program to realize hidden line elimination algorithm and 3D projection calculation. Reduce a lot of work for designers. As shown in Figure 1, the system hierarchy of making 3D virtual scene.

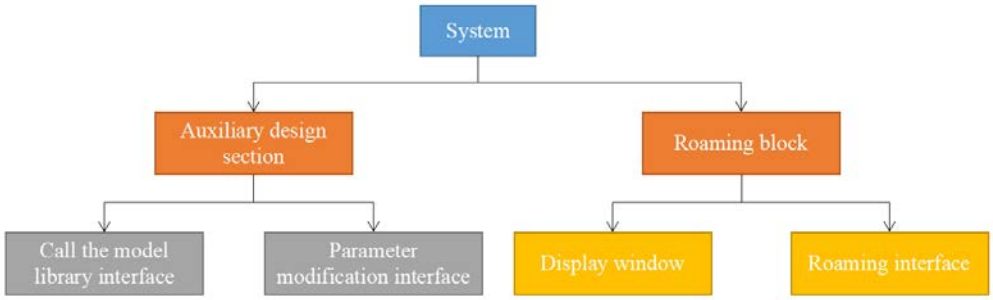


Fig.1 System Hierarchy of 3d Virtual Scene

With the rapid development of global industries, the complexity of technological innovation is getting higher and higher. Isolated professional knowledge and single skills can no longer meet the needs of work. In the traditional learning process, there are situational learning theory, task-driven learning theory, heuristic guided learning, teacher demonstration learning method, hierarchical learning method, etc. After the integration with VR technology, situational learning theory has been better developed. In information-based teaching, we should make full use of information technology to promote students' autonomous learning, build their own learning system and learning methods, and communicate and cooperate through group discussions, teacher-student interaction, etc. Informationization of higher education needs to change teachers' educational concepts, teaching methods and learning methods, and requires education to undergo thorough changes in concepts, purposes, contents, forms, methods, management and organization. Information-based teaching permeates all aspects of the classroom and embodies an efficient way of classroom organization. For school education, the curriculum is the main body, and the teaching content takes resources as the carrier. If the experience is more real, it will be easier to stimulate students' interest in learning, reduce cognitive difficulties and effectively help students understand more abstract principles.

## 4. Conclusion

The information-based teaching design starts from the establishment of the teaching goal of cultivating students' autonomous learning ability, making full use of information technology to organize teaching, creating situations and task-driving, and carrying out multiple evaluations on the teaching effect. Virtual reality technology has begun to play a role in information-based teaching. With the continuous maturity of virtual equipment and the continuous development of technology,

higher vocational teaching will inevitably shift to a teaching mode that combines virtual simulation, in-school practical operation and out-of-school on-the-job practice. VR technology is introduced into vocational education to meet the needs of the development of vocational education in China. The information technology ability of students is the key factor to determine the main position of students in the information-based teaching resource ecosystem. With the combination of multimedia technology, physical simulation technology and VR technology, a virtual modern laboratory is established, which alleviates the problem of insufficient experimental equipment, breaks through the traditional teaching methods, and constructs a new teaching mode. The teaching of higher vocational colleges should meet the requirements of modernization, improve the construction of relevant information teaching resources as soon as possible, improve the information level of teaching management, improve the teaching quality of higher vocational education, and train more qualified high skilled talents for the socialist modernization.

## References


[1] Feng Meixian, Yang Jianming (2014). Study on the ecological balance of Higher Vocational informatization teaching resource system. Education and teaching forum, no. 9, pp. 12-13.

[2] Rong min (2014). current situation and consideration of informatization teaching resources construction in Higher Vocational Education. Electronic production, no. 10, pp. 106-107.

[3] Song Changtong, Wang Hui (2015). Teaching research of virtual reality technology in computer major of Higher Vocational College. Information and computer (theoretical Edition), no. 24, pp. 161-162.

[4] Su Xin (2015). Application of virtual simulation teaching in Higher Vocational Colleges. Industry and information education, no. 2, pp. 56-58.

[5] Xiong da (2017). An analysis of the effectiveness of virtual reality technology applied to mold practice teaching in Higher Vocational Education. Modern manufacturing technology and equipment, no. 11, pp. 189-190.

[6] Zhou Jing, Jiang Xin (2014). Application of Engineering experiential teaching based on virtual reality technology in electrical engineering course. mechanical engineer, no. 8, pp. 191-192.

[7] Zou Nana (2017). A comprehensive analysis of the hot spots in the research of information-based teaching design in Higher Vocational Education. Higher vocational research of Changzhou Engineering Polytechnic, no. 1, pp. 22-25.

[8] Teng Han (2014). The significance and strategy of information teaching ability training of teachers in Higher Vocational Colleges. Journal of Changchun Institute of education, no. 20, pp. 25-26.

[9] Liu Yueme (2015)i. Exploration and practice of information teaching ability training of teachers in Higher Vocational Colleges. Journal of Yan'an vocational and technical college, no. 6, pp. 44-45.

[10] Wang Sheng (2014). Research and practice of informatization teaching reform in higher vocational courses. Heilongjiang science, no. 4, pp. 292-293.