VR Course Design Based on New Media Education Technology

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Abstract
Nowadays, new media technology and virtual reality technology have become important educational methods in colleges and universities. Courses based on new media technology and virtual reality technology can fully understand students' learning needs, and provide students with targeted teaching according to students' psychological cognitive technology and learning laws. This modern teaching method is fully open, natural and interactive. This paper starts from the technical foundation of virtual reality technology and multimedia technology, and proposes the principles and procedures of curriculum design under the environment of multimedia technology and virtual reality technology, which can provide some reference for college teaching.

Keywords: *New media technology; virtual reality technology; curriculum design*

1 INTRODUCTION

Online open courses have brought a revolution to traditional education on a global scale, and there have been unprecedented changes in traditional teaching methods, teaching content and teaching design. Online open courses can display intuitive pictures, videos and texts to students. Online Today's online open courses integrate multimedia technology, virtual reality technology and computer technology with powerful functions. Inspired by the powerful functions of Internet applications, online open courses highlight the characteristics that traditional courses do not have, such as interconnectivity, repeatability, modularity, openness, personalization, and wide audience. In 2001, the Massachusetts Institute of Technology launched OCW (Open CourseWar). Since the project, online open courses have developed rapidly in countries around the world. Beginning in 2003, the Chinese Ministry of Education issued a series of relevant opinions on the construction of online courses, which greatly promoted the construction of online open courses in China, effectively promoted the diversified development of education, and enabled the audience to receive education more quickly and conveniently. At present, online open-room courses based on virtual reality technology and multimedia technology have become a new trend in China's education development. Virtual reality technology and multimedia technology have been applied in curriculum design, construction and management, problem research, credit certification and business operation model research. Online courses have promoted the construction and research of online open courses to a certain extent, and have achieved gratifying results.

2 VIRTUAL REALITY TECHNOLOGY AND MULTIMEDIA TECHNOLOGY

2.1 Virtual reality technology

VR is a higher level of multimedia and three-dimensional technology development, an immersive interactive environment based on computable information, and a new human-computer interaction interface. Virtual reality is that after a specific environment is truly reproduced, the user interacts with the virtual people and things by accepting and responding to various sensory stimuli of the simulated environment, so that the user has an immersive feeling. Simply put, virtual reality is "three-dimensional + interaction" [3].

The basic components of the virtual reality system mainly include: observer, sensor, effect generator, and reality simulator. In order to ensure the user's immersion in the virtual world, the key technologies in the virtual reality system are divided into three parts, including

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virtual reality, virtual reality and high-performance processing technology. Virtualization refers to building models, spatial tracking, sound localization, visual tracking, viewpoint sensing, etc. Realization of virtual objects is to display and transmit the signals generated by the virtual environment to people through tactile feedback. The realization of tactile feedback is mainly through vision, air pressure, vibration touch, electronic touch, nerve, muscle simulation and so on. High-performance processing technology includes basic model building technology, space tracking technology, sound tracking technology, visual tracking and viewpoint sensing technology, and computer processing technology [13].

At present, many teachers are trying to change the traditional teaching methods, using multimedia courseware and animation video teaching in the classroom [2]. Teachers use the teaching methods of explaining and demonstrating in the classroom, students listening to lectures in class, and practice after class. To a certain extent, this teaching method provides colorful teaching and can improve students' interest in learning, but this model ignores the main role of students in teaching activities, and does not reflect the comprehensive and practical teaching characteristics of the curriculum [12]. The application of virtual technology in teaching practice can provide students with vivid and realistic on-site work and learning resources, so that students can acquire knowledge from them more vividly, stimulate students' interest in learning, and cultivate students' ability to think independently and learn independently.

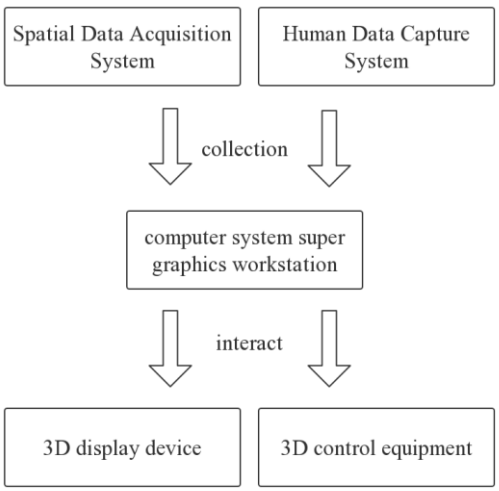

Figure 1: Virtual reality technology

2.2 Multimedia Technology

Multimedia technology refers to a system technology that collects, processes, stores and transmits various media information based on digitization, and establishes a logical connection between various media information, so that various media have good interactivity [5]. Multimedia technology has the characteristics of integration, interactivity, intelligence and easy expansion. Multimedia technology uses digital signals, which can comprehensively process various information such as text, sound, graphics, animation, image, and video, and combine these different types of information [4]. The information in multimedia technology is organized by hypermedia structure, which can easily realize human-computer interaction. Users can choose and accept information according to their own thinking habits and subjective wishes, and draw up a path to watch content. The intelligence of multimedia technology provides users with an easy-to-operate and very friendly interface, which enables users to understand information more intuitively and conveniently [6]. The easy expandability of multimedia technology enables multimedia technology to be easily connected with various external devices to realize multiple functions such as data exchange, monitoring and control. The digital information used by multimedia technology can effectively solve the problem of distortion in the process of data processing and transmission. The application of multimedia technology in teaching can bring students a more vivid and vivid form of knowledge, making it easier for students to understand and receive knowledge [8].

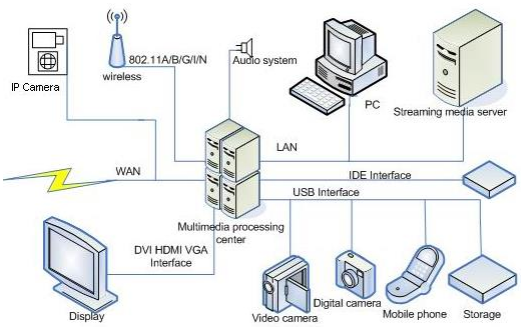

Figure 2: Multimedia Technology

3 CHALLENGES BROUGHT BY THE NEW MEDIA ERA

With the advancement of technology, changes in social conditions, and the advent of the new media era, the information environment has an increasingly powerful influence on cultural outreach. Today's online media and mobile media integrate text reading, audio-visual and behavioral experience, providing necessary conditions for people to more effectively use advanced information technology, innovate in communication means, and enhance the implementation ability of information communication [7]. The application of new media has changed the traditional media environment, prompting changes in traditional one-way communication channels and one-way communication process. New media shows the two-way and interactive nature of information dissemination, which makes

information disseminators lose their traditional central position., Information disseminators have to re-examine their own communication awareness, communication behavior, communication process, communication effect and responsibility [15]. In the new media environment, not only the status of information publishers has changed, but also the status and roles of information receivers, which are mainly reflected in: the receiver's right to choose information, because new media is a collection of data, text, and voice. As well as a digital medium that integrates various images, users can independently choose the content and form of information, and effectively and actively establish information that conforms to their own values [1].

The application and popularization of new media has changed the traditional media environment, helped to shape a wider and wider communication space, and formed a more complex and free communication environment. Online open courses need to fully respect the characteristics of the online communication environment and realize the bidirectionality and effectiveness of information communication [10].

4 CURRICULUM DESIGN IN THE ENVIRONMENT OF MULTIMEDIA TECHNOLOGY AND VIRTUAL REALITY TECHNOLOGY

4.1 Determine learning goals

In the teaching under the multimedia and virtual environment, the learning objective is to master the methods and approaches of indoor sound quality improvement. The teacher uses multimedia technology and virtual reality technology to demonstrate, allowing students to find out the law of knowledge in the demonstration and demonstration, so as to learn the knowledge. Students can also conduct independent learning through the Internet. Students can find ways to solve problems through network resources, and achieve the teaching results of student-led teaching and teachers' guidance and guidance.

4.2 Select the teaching delivery channel and determine the teaching process

In order to stimulate students' enthusiasm for learning and promote students' autonomous learning, teachers should provide students with a variety of learning plans, so that students can choose different learning plans for learning [9].

In order to continuously deepen the students' impression of the teaching content, teachers should formulate multiple rounds of teaching plans for the students, so that students can learn from the knowledge content, become familiar with the knowledge content, and finally keep the knowledge content in mind [16]

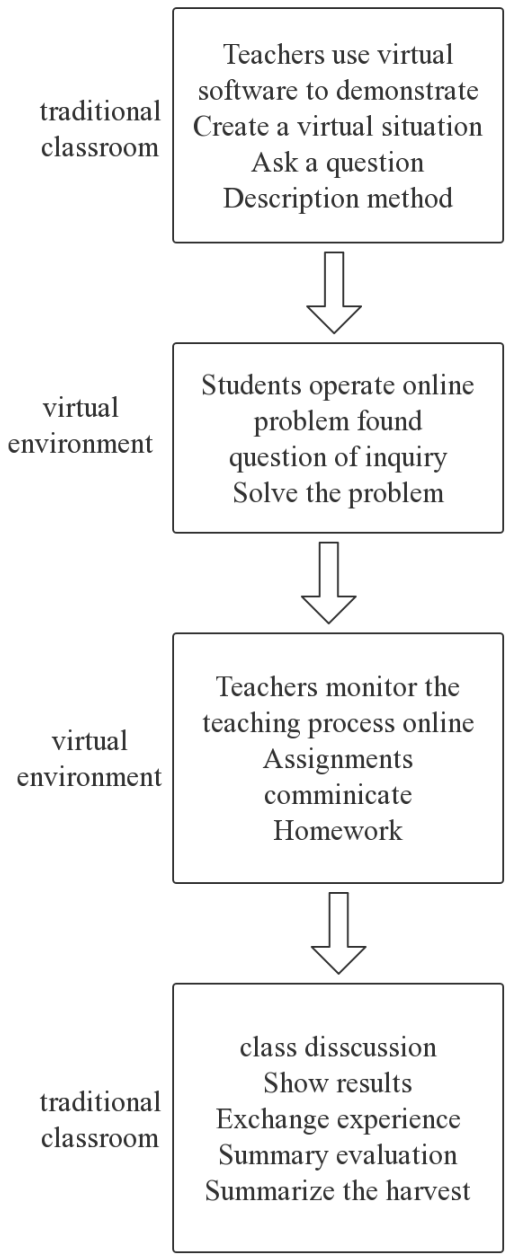

Figure 3: Teaching under virtual reality technology and multimedia technology

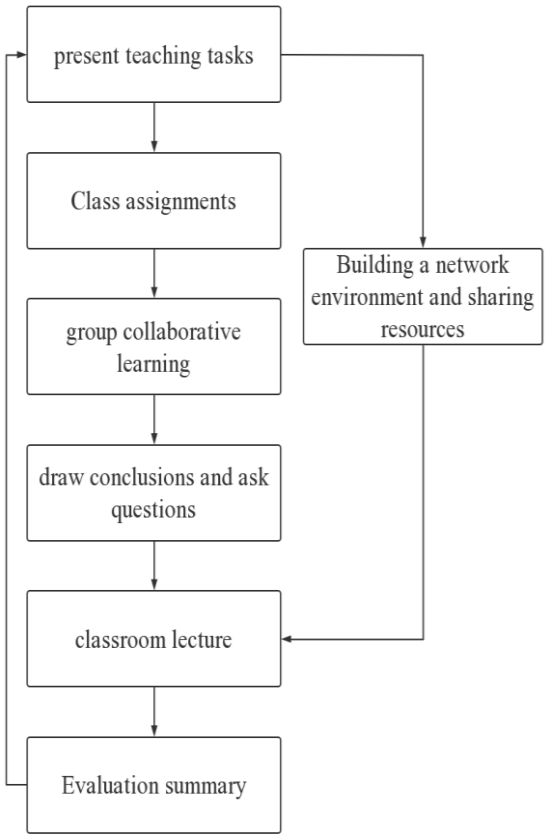

Figure 4: Teaching process model

5 BUILD THE VIRTUAL SCENE

In order to conduct an in-depth exploration of the teaching platform using vr technology, this paper conducts an in-depth analysis of the use of vr technology [11]. The virtual teaching scene needs various props with a sense of reality. For example, in the virtual language teaching scene, it is necessary to conform to the connotation of the text, and construct virtual environments such as grasslands, rivers, and valleys. If it is in the virtual teaching scene of physics or chemistry, it is necessary to construct a real experiment and experimental equipment. In this, the virtual equipment should be in the same shape as the real equipment, and the experimental effect should be consistent with the reality. In order to improve the realism of the equipment in the virtual teaching scene, it is necessary to make detailed settings in the virtual scene modeling. The modeling process is shown in the figure below.

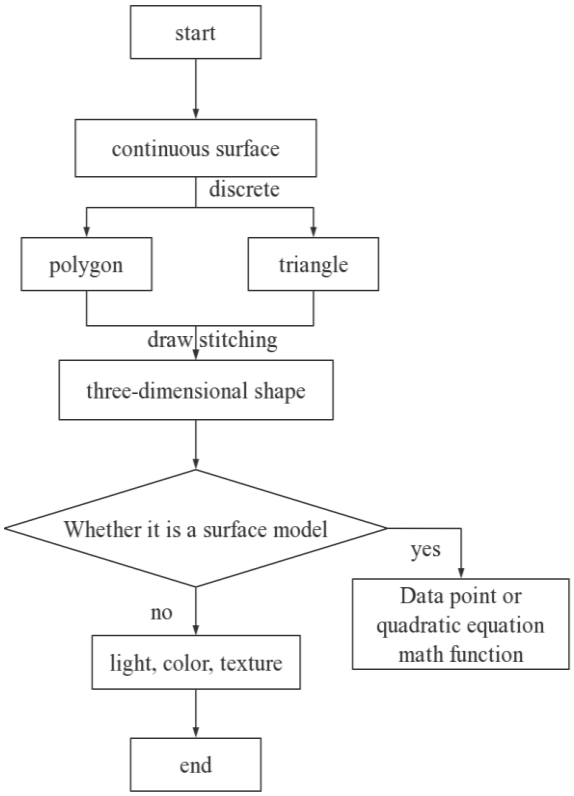

Figure 5: Virtual scene modeling process

It is very important to set up the interactive functions in the virtual scene. The user's actions in the virtual scene can get feedback to realize the virtual simulation. The system needs to simulate the experiments in the virtual scene and output the results as feedback. The result feedback will be passed to the driving function by the system, the driving function can render the scene, and finally display the feedback result in front of the user. Only such a virtual scene is complete, and students can learn how to operate experimentally in the virtual scene. The workflow of the system interaction module is as follows [14].

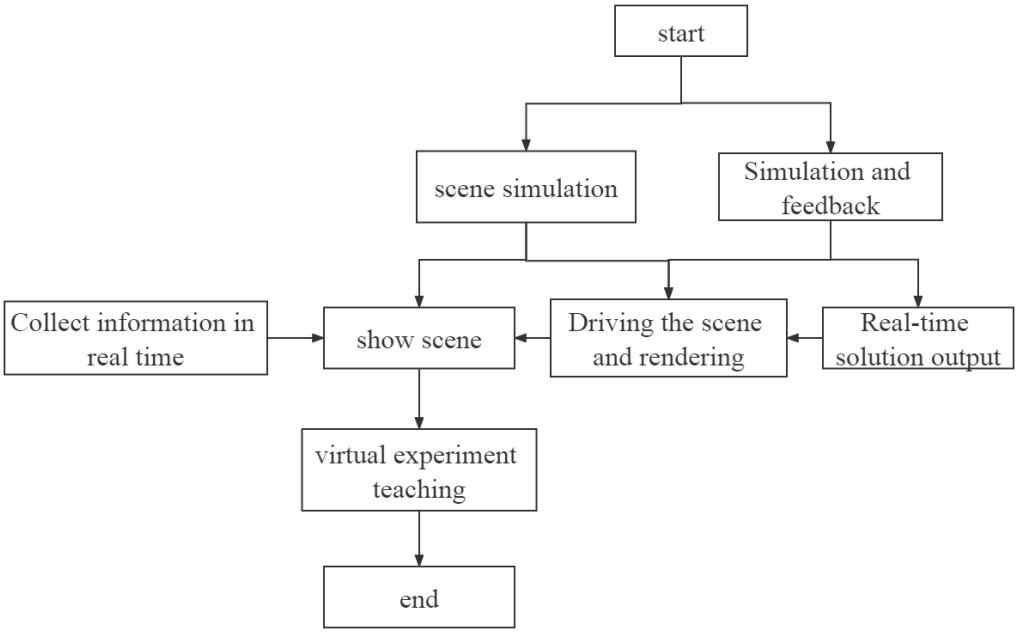

Figure 6: System interaction module workflow

6 CONCLUSION

As an emerging science and technology, virtual reality technology is introduced into higher vocational teaching as a new form of media. It can virtualize teaching scenarios, teaching experiment training, skill training, etc. The advantages of immersion, multi-sensitivity and operability are used to express the teaching content, and it cooperates with students' autonomous learning in a more vivid teaching method. Compared with traditional teaching methods, it can arouse students' interest and guide students to enter the learning status. Multimedia technology can bring more abundant teaching resources to students to meet the individual needs of students. Improve teaching efficiency.

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