

MVC-based Cross-Cultural Communication Platform to Assist The Construction of VR Environment for Smart Training Of Chinese as a Foreign Language

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Abstract: MVC-based cross-cultural communication platform to assist the construction of VR environment for smart training of Chinese as a foreign language is studied in the paper. The interactive interface and interactive content of virtual elements need a specific carrier to realize. Specifically, the interactive information recognition and reception are realized by the head mounted virtual equipment, and the information interaction between the real environment and the virtual environment and between the user and the system is realized by combining the interactive functions realized by the interactive interface. The synchronous output of feedback information is also realized while the control information input is completed. The virtual scene modeling needs to be based on the real scene, combined with that according to the actual environmental requirements, hence, we then apply to the smart training of Chinese as a foreign language as the testing scenario. Through the experimental analysis, the performance is tested.

Keywords: MVC technology; communication platform; VR environment; smart training

1. INTRODUCTION

The principle of the embedded Internet technology is to integrate Internet technology and embedded technology, and create a networked system on this basis. While relying on computers to complete various collection and connection work, various types of core electronic devices have also gradually established effective connections with Internet technology. These devices can realize mutual information sharing based on the Internet platform, especially the rapid development of the modern smart homes, which further promotes the development of Embedded Internet technology and establishes direct links between different instruments and devices and the Internet [1-5].

At the same time, relying on the Internet to monitor and manage different devices, which has become an important direction of the development of the modern society makes Internet technology show unique significance. Among the ideas, the VR is essential to act as the core technology [6, 7, 8]. To promote the application of virtual reality technology, first of all, a virtual environment must be constructed and modeled with the help of computer technology. One is the modeling of the real scene, and the other is the modeling of the virtual scene. In the construction of the real scene, the real and then complete information in the real environment must be then collected first. The virtual scene modeling needs to be based on the real scene, combined with that according to the actual environmental requirements, corresponding data information is obtained, and the model is established according to the data information, which is the basis for the realization of virtual reality studied from listed aspects [9-12].

(1) Multisensibility, that is, not only the visual perception possessed by the computer technology, but also auditory perception, mechanical perception, tactile perception, motion perception, taste perception and smell perception, etc.

(2) Virtual reality is based on the computer technology, combined with related science and technology, to generate a

digital environment that is highly similar to a certain range of real environments in terms of sight, hearing, touch, etc. Users can use wearable devices to interact with objects in the virtual simulation environment, influence each other, allowing users to feel and experience the corresponding real environment.

For the improvement of the traditional model, the metaverse should be combined. The core element of VR technology is interactive service experience, which can then create the general highly immersive interactive human-machine environment for the users. Based on the Metaverse technology framework, general users can realize immersive experience of the virtual scenes with the help of interactive devices, and build a comprehensive, in-depth interactive and immersive service effect. The "metaverse" is something that will inevitably appear when technology develops to a certain stage. According to the current and predictable technological development trends in the next five years, although it is then temporarily difficult to then build the grand industrial-grade "metaverse" that the public ideals, it is necessary to build a localized low-profile model with certain characteristics of the "virtual reality". In the next parts, we will be based on the core technologies to create the efficient model to then apply to the smart training of Chinese as a foreign language scenario.

2. THE PROPOSED METHODOLOGY

2.1 The MVC Structure Optimization

MVC is a software design pattern invented by the Xerox PARC in the 1980s for the programming language Smalltalk-80, which provides a method for dividing the software into the modules by function with listed aspects [13-15].

(1) M refers to the model. Model stores data and is responsible for further receiving logical processing from the controller, and returning the processed data to the view to display to the user, so that the user can get the required data processing. The entity class definition mainly has a one-to-one relationship with the tables in the database, that is, a table corresponds to

an entity class, and these entity classes are mainly used to store data and transmit data.

(2)V refers to the view. Mainly responsible for displaying relevant data to the user and accepting user input data, but it does not actually process this data, usually creating views from model data. We let the JSP start requesting the controller servlet to update the data. There are only HTML and the other hypertext codes in the JSP page, and the real processing is executed after it is submitted to the controller.

C refers to the controller. This mainly refers to the process control of view and model conversion. The control module mainly completes the direction selection of the core process. For example, under branch conditions, there are two Views for selection.

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2.2 The Construction of VR Environment

Virtual reality technology is widely used in people's daily work and life, such as VR game experience. By wearing game helmets, users can realize the human-computer interaction, complete the actions required by the system, and enter the virtual environment. In this process, helmets and the other instruments can be regarded as information sensors, so as to realize connection between people and the virtual environment. The relationship between digital media technology and virtual reality technology is close and inseparable. From the nature and characteristics of the content of the two, it can be seen that digital media technology is the foundation of information technology, while virtual reality technology is the foundation of information technology. Development, mathematical media technology is the foundation, and it is the absolute guarantee for the rapid and effective development of virtual reality technology. Judging from the time when the two appeared, digital media technology appeared earlier than virtual reality technology, which is a new technology derived from the development of computer technology.

We consider the VR from listed aspects.

(1)In the virtual reality technology, the stereoscopic reality technology is then relatively common. When the user observes things, there is a visual difference, and the two pictures with visual difference they see are first transmitted to the brain, and the real visual experience is obtained after the brain feedback while the same applies to the virtual reality. Stereoscopic reality technology needs to process the presented image first, and then feed it back to the user, and improve the user's actual experience through a series of operations.

(2)Sense of touch can better reflect the immersion of virtual reality environment. For example, in virtual driving, the user can feel the body shaking from side to side by turning the direction, and walking in the desert virtually involves more tactile senses, so the user will feel relatively strenuous, and there will be corresponding physical reactions when touching some objects.

The Web it model structure usually covers three layers, mainly the embedded task execution system layer, the TCP/IP network protocol stack layer and the EWS application layer. Web itX is an operating system that assists related devices to connect to the Web it server. It can provide strong support for device drivers and building Flash small file systems. On the basis of virtual reality, video images are put into virtual scenes, and key frames are extracted through video lens segmentation. Video shot segmentation is a key part of video retrieval and belongs to the foundation of video streaming. The quality of false detection and missed detection determines the boundary performance of the video lens. When segmenting shots, the higher the mutual information of adjacent images, the stronger the correlation between them, and the greater the probability under the same shot. We then consider the metaverse as the sample. The "metaverse" is still largely a futuristic concept, but it's not far from us. The so-called basic technology stage means that the infrastructure construction and related technologies and content production mechanisms involved in the "metaverse" have already begun to take shape. Due to the different operation modes between touch devices and other devices, for example, the mouse pointer and the three-dimensional handle in virtual reality cannot directly adapt to the direction. A virtual touch area control is developed for this purpose by turning the virtual touch area into a 100×100 two-dimensional array. The subscripts represent the changes in the left and right, up and down directions respectively. Each subscript value in the array is 0. When the finger presses the screen, the subscript value of the pressed array area is marked as 1. When the finger slides, We can compare the last pressed subscript value. If the current value is less than the previous y, it means to slide up.

2.3 The Cross-cultural Communication for Smart Training of Chinese as a Foreign Language

Scholars at home and abroad highly agree on importance of cultivating students' cross-cultural communication skills. However, compared with the "prosperous" courses related to cross-cultural communication in domestic colleges and also universities, there are few empirical studies on cross-cultural communication courses.

Therefore, it is a useful attempt to deeply study the current situation of cross-cultural communication courses for English majors in colleges and the universities, and to explore the reformed teaching mode of the cross-cultural communication courses. In order to facilitate communication, we should not only understand and master our own cultural characteristics,

but also understand the relevant cultural and also language communication characteristics of the communicators, that is, the so-called cross-cultural. From the perspective of cultural theory, the definition of cross-cultural refers to other cultures that span our own and the regional cultures. Compared with culture, the scope of cross-cultural is wider.

Under the cultural situation of such a broad and compatible system, Therefore, it can then better express the language and promote the communication between people. Language and culture are closely related. Language is the carrier of culture and the foundation of cultural development. Both language acquisition and language teaching inevitably involve the cultural background and cultural content of the target language. Lu Bisong pointed out that "language is not only a part of culture, but also the carrier of culture, and also the foundation of the cultural development." The inseparable relationship between language and culture can be said to be naturally formed. When describing Chinese language and also Chinese culture, Lin Liguó said: "Culture includes language, Chinese culture includes Chinese language, and 'culture in teaching Chinese as a foreign language' is an element of the Chinese language teaching. One of the language elements that must be mastered in addition to phonetics, grammar and vocabulary. Hence, with the mentioned platform, the goal will achieve.

3. CONCLUSIONS

MVC-based cross-cultural communication platform to assist the construction of VR environment for smart training of Chinese as a foreign language is studied in the paper. With the development of computer application field, information technology has also received extensive attention. It can be applied in various fields and has brought great convenience to human beings. This paper adopts the novel applications related to the VR to design and implement the novel cross-cultural communication platform. The designed system will help to construct the efficient scenarios.

4. REFERENCES

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