The Application of Virtual Reality Technology in the Teaching System of Tourism Training

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Abstract
With the advancement of science and technology, virtual reality technology has gradually entered many fields, and the field of education as a talent training field is also trying to use virtual reality technology to improve the quality and efficiency of teaching. This paper introduces the virtual reality technology in detail, and takes the tour guide simulation system as an example, uses the program development technology of Unity 3D to analyze the development process of the tourism training teaching system, and provides a reference for the tourism training teaching.

Keywords: *Virtual reality technology; tourism; practical training teaching; system*

1. INTRODUCTION

The birth and development of computer technology is to provide a more efficient way for human life and production, and the same is true for virtual reality technology. Nowadays, intelligence and diversification in the field of education has become the main direction of education development. Virtual reality technology can bring intelligence, diversification and visualization to education. The speech recognition and intelligent interaction of virtual reality technology can make students feel immersive in the process of learning and learn knowledge in pleasure. Virtual reality technology can also make up for some of the shortcomings in the education process. Some colleges and universities give up practical training due to lack of training venues, and students can use virtual reality technology to conduct virtual exercises through computers and wearable devices. Virtual reality technology can also avoid dangers in real experiments, and the safety of students can be guaranteed. The virtual tourism training teaching system constructed in this paper mainly uses 3DS MAX modeling technology and Unity 3D technology. These two modeling software can help users to initially establish a simple 3D model through simple operations, which is very important for colleges and universities. practical.

2. VIRTUAL REALITY TECHNOLOGY

Virtual reality technology is one of the important research directions of simulation technology. Virtual reality technology is an important science and technology today, which deeply affects people's life and work. Virtual reality technology includes important disciplines such as human-computer interaction technology, sensor technology, computer network transmission technology, and multimedia technology. It is a very comprehensive discipline. Users can have an immersive experience after wearing a virtual reality wearable device.

The user is immersed in the three-dimensional virtual world, and the visual organs and other sensory organs produce adaptive positive feedback to the virtual world scene, so that the user can feel as if he is in the real world. The immersive effect of VR eyes can be achieved in three ways. The first is to use the principle of convex lens to enlarge the immediate image range perceived by the human eye. At present, most VR glasses produce an image field of view of about 90° to 120°. This method can minimize the possibility of human eyes being disturbed by the field of view, so that the field of view and the visual effect formed by the projection system are similar. The second is to use the gyroscope on the head. When the human body is turning its head, the gyroscope can simultaneously sense the user's movements, and notify the image generation

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engine to update the screen in time. The user can feel that he is in a virtual environment surrounded by three-dimensional space, with a sense of three-dimensional space. The third is that the user's left and right eyes see different pictures in the VR glasses, and the positions of the left and right eyes are different, which will produce a sense of three-dimensional depth.

In the virtual reality environment, the user interacts with things in the virtual environment in real time through gestures, actions, and language. This interaction allows the user to get a sensory experience that is very similar to the real world. In the virtual environment, the virtual system can produce changes that the user can understand. The user thinks that the virtual environment is the most user's action feedback according to these changes. The user's action and the virtual environment's feedback to the user are an interaction.

3. THE STRUCTURE OF TOURISM TRAINING TEACHING SYSTEM BASED ON VIRTUAL REALITY TECHNOLOGY

According to the needs of tourism teachers and students, the functional module of the tourism training teaching system mainly includes three parts: teacher lesson preparation system, real-time teaching system and training learning system.

3.1. Teacher lesson preparation system

The teacher's lesson preparation system is mainly a part of preliminary preparation for virtual reality learning. In this system, teachers can select and import electronic resources according to their own needs. The content construction of this system takes the abstract 3D scene representation as the core, adopts a collaboration-oriented visual manipulation architecture, integrates scene, model, configuration, personnel management and collaboration modules, and needs to support 3D models, materials, textures, and shader programs. , skeletal animation and non-relational data such as video, voice, and documents. The system needs to perform summary processing on non-relational data, convert non-relational data into relational data, filter key information from voice and video, form connection relationships, classify them according to the classification tree, and create VR teaching content ecology according to a unified plan lock up.

3.2. Real-time teaching system

This system achieves teaching goals through human-computer interaction, including a high-performance graphics engine, which can quickly respond to the tracking data of peripheral interactive hardware (without telling head tracking, eye tracker data, etc.). Teachers can use the VR system and VR equipment to conduct real-time teaching and explanation of classroom knowledge points, and students can acquire knowledge and skills through autonomous interaction with the information environment.

3.3. Practical training learning system

There are many electronic resources for training and teaching in the training and learning system, and students can choose the scene independently according to their learning needs. In this module, the real environment can be simulated, and virtual scenic scenes can be created by means of information technology, and the scenes that are difficult to achieve in classroom learning and practical training can be displayed through 3D visualization, so that learners have an immersive experience.

4. REALIZATION OF TOURISM TRAINING TEACHING PLATFORM

4.1. The process of building the platform

In order to realize the simulation display of the tourism training, the system uses the 3D development engine to realize the simulation effect of the teaching platform. This system mainly uses Unity 3D. Unity 3D is a common 3D modeling tool on the market today, allowing developers to easily complete 3D animation, architectural visualization, 3D games, etc. in the system. Unity 3D is currently the best development tool that supports cross-platform development. In addition to satisfying the display system based on the PC platform released by this system, the system has strong scalability and openness, which is suitable for the development and application of small projects.

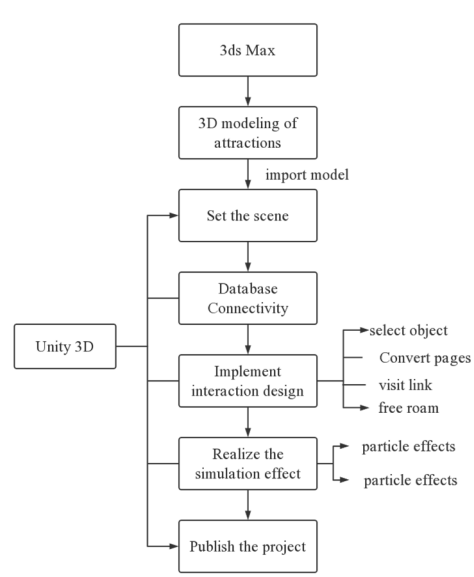

Figure 1: Flowchart of the realization of the tourism training and teaching platform

4.2. Database Design

The database design of the training teaching system is the key to development. The database needs to have classroom tables, administrator information tables, student user information tables, resource classification tables, resource information tables, school information tables, and so on. The E-R diagram (Entity Relationship Diagram) of the database is shown in Figure 3.

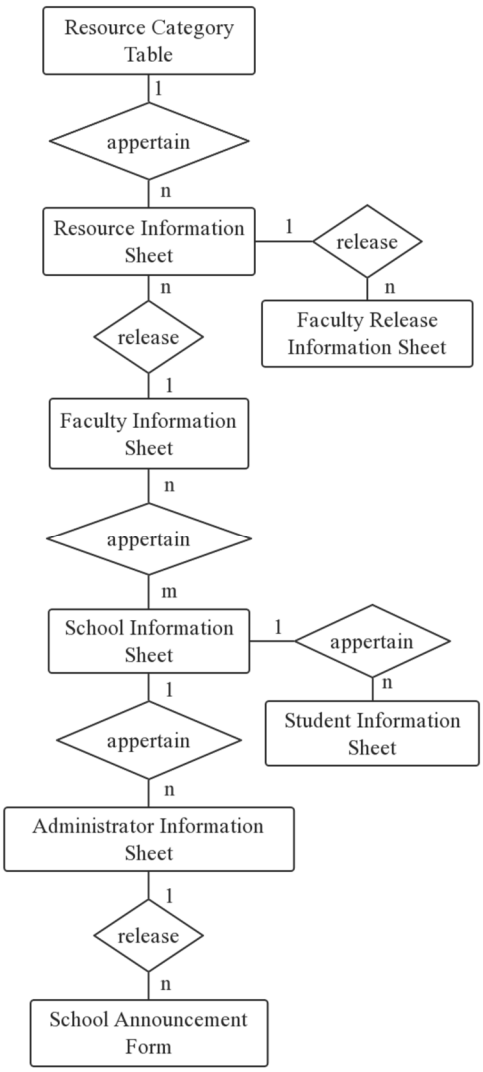

Figure 2: E-R diagram

The student user information table mainly includes detailed information such as student ID, study status, and mobile phone. The specific content of the form is shown in Table 1.

Table 1: Student User Information Form

Field Name	type	length	empty (default)	describe
Zh_ID	Int	4	not allowed	Account number: auto increment, primary key
Zh_mcheng	varchar	25	not allowed	student ID
Zy	Int	4	not allowed	discipline
Zh_mma	varchar	25	not allowed	password
Ks_rqi	datetime	8	not allowed	start date
Jz_rqi	datetime	8	not allowed	deadline
Zh_ztai	tinyint	2	not allowed	Account Status: Normal, Disabled
dyfstshu	smallint	2	not allowed	The number of pieces sent in the current month: the default value is 0
bdsji	varchar	20	not allowed	Bind the phone
CZ	tinyint	1	not allowed	Default is 1
XXID	varchar	50	allow	school number: foreign key

There are many tables of this type in the database, which can support the operation of the system and provide teachers and students with a practical training teaching system that conforms to the actual situation. In addition to the basic various information data, a scene database must be constructed in the database. The scene database contains scene information, semantic information, version information and conceptual structure information, wherein the scene information needs to record scene ID, scene name, scene description, scene creator information and scene type.

When connecting the database to the system, it should be noted that if no special settings are made, the platform will call the corresponding connection function from the dynamic link library file of the Unity 3D software during the development and debugging process. When running in the 3D system environment, the function call cannot be completed due to the lack of dynamic link library. Therefore, the corresponding dynamic link library file needs to be found separately

and introduced into the project. After the project is released, it will be used as the basic configuration of the project for the program to call.

4.3. Interaction Design

System interaction is an essential part of the virtual reality tourism training system. The NGUI plug-in is installed in this project. The NGUI plug-in can replace the underlying message mechanism from the early SendMessage to the efficient EventDelegate, optimize the performance of the system, integrate the functions of the system, and make the operation of the system more stable and mature.

5. CONCLUSION

This paper takes virtual reality technology as the research object, and analyzes how to introduce virtual reality technology into tourism practice. This paper constructs a simple tourism training system, which consists of three parts: teacher preparation, real-time teaching, and practical training. It completes the integrated teaching of tourism management, reduces the cost of practical training, and improves teaching efficiency and efficiency. quality.

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