Application of Virtual Reality Technology in New Countryside Planning and Design

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Abstract: This article provides a definition and explanation of virtual reality technology, summarizes the characteristics of virtual reality technology, expounds the significance of the application of virtual reality technology in the planning and construction of new rural areas, and then adds the importance of virtual reality technology in the planning and design of new rural areas. The application is analyzed and discussed.

1. Virtual reality technology

1.1 Definition of Virtual Reality Technology

Virtual reality technology, also known as VR (Virtual Reality), is a comprehensive and practical technology that combines computer systems and artificial multimedia technology since the 20th century. With the help of three-dimensional data, a virtual world that can interact with people and capture dynamics is presented. People interact with the simulated environment in the virtual world through vision, hearing, and touch. The virtual world simulated by virtual reality technology brings an immersive experience to the human senses, thereby bringing a real sense of simulation.

1.2 Features of Virtual Reality Technology

There are three characteristics of virtual reality technology. They are immersive, interactive, and imaginative.

1.1.2 Immersive

Immersive is immersive, that is, a sense of presence, usually using computer data and three-dimensional animation interaction to let users immerse themselves in a simulated environment, both physically and psychologically.

1.1.3 Interactive

The communication and interaction between the user and the simulated space is an interactive experience. In the simulation world, users use the combination of professional 3D interactive instruments and virtual reality technology to create a natural and friendly way of interaction through simulation equipment and blessed instruments, and present a perfect simulation environment through computer data and 3D special equipment to satisfy users Physical and mental needs.

1.1.4 Imaginative

Imaginative experience is that participants in the virtual space acquire new and vivid experience and knowledge through the environment and senses, and acquire a perceptual or rational attitude in understanding. Generally, users radiate their own logic and associations through contact and experience with the environment in a virtual reality environment. The first feeling of the user is derived from their own associations.

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2. Application and Significance of Virtual Reality Technology to New Countryside Planning

Virtual reality technology provides a very important reference value for my country's new rural planning application research. The birth and development of new technologies have significantly improved work efficiency. Through the virtual world created by the three-dimensional system, the deficiencies in the planning of the new countryside are summarized and analyzed based on the data of multiple channels, which has a very important reference value for the planning and construction of the new countryside, and improves the efficiency of planning management for managers.

Virtual reality technology has played an important role in the planning and construction of the new countryside. It brings the most intuitive feeling. It uses computer three-dimensional software and media data to design the scenario scene to further calculate the actual situation of the planning and construction program, and to follow up The comparative analysis of the effect of the plan found the shortcomings in the plan, which is helpful for the staff to analyze the shortcomings of the plan during the review process of the planning plan, and plan the plan in combination with the on-site survey and research, so as to solve the problem in the designed three-dimensional model. The formed three-dimensional model scheme can more intuitively present planning effects and solve planning problems. Due to the changeable landforms of our country and the different levels of economic development in different areas, the planning of new rural areas in each area is facing some challenges. The area that you want to survey and plan is represented by a three-dimensional model through virtual reality technology. The application software and different data The comparison highlights and reflects the development trend and recent situation in rural areas, provides data reference for subsequent field investigations, analyzes the overall effect of the model, and facilitates the discovery of existing problems in the data, and also avoids the shortcomings of using traditional statistical data problem.

3. Virtual reality technology issues in the planning and design of new rural areas

3.1 Conditional issues

Since the simulated space presented by virtual reality technology is a virtual fake space, no matter what stage of the development of technology today, it cannot be compared with the real space, and relatively has certain flaws. This means that the senses brought about by the three-dimensional scene created by VR cannot satisfy what people feel in the real environment. Whether it is sight, hearing, smell, and touch, there is more or less a gap with everything in the real environment.

3.2 Physiological problems

Because there are certain differences in vision and hearing, in the simulation planning platform created by using virtual reality technology, many designers often feel dizzy and nauseous in the stomach when they interact with the three-dimensional scene in the new rural planning. These problems will not harm the physical functions of the designers, but they have caused a certain psychological fear for their personnel. They will have an escape mentality when facing virtual planning and design and even reduce their enthusiasm for the virtual reality technology system platform.

3.3 Social issues

People do not live in a vacuum. The development of human beings is related to social activities and social interactions. Therefore, people must communicate and interact in a real environment, which cannot be replaced by the virtual space created by virtual reality technology.

4. Application of virtual reality technology in planning and design of new countryside

4.1 Virtual New Countryside System

Virtual reality technology is conducive to the planning and construction of new countryside. It can make reasonable planning and design for the current situation of new countryside. In terms of route layout and house planning in the new countryside, VR can show the desired effect more intuitively, and even in the natural climate and other aspects, relatively ideal effects can be achieved. Through the mobile operation of the three-dimensional model and computer system, it can not only show the planning and development status of rural areas and regions in recent years, but also show the future construction status and development trend of rural areas, and even predict the restrictions and impacts of natural climate on the region. Through the estimation and analysis of regional conditions in the virtual mode, it can provide reference for on-site planning and construction and can save offline costs.

Through the new countryside platform of VR planning, it is possible to reasonably make valuable plans for the planning and construction of new countryside, timely check for omissions in the plan, promote offline planning and design, and provide high-quality guarantee for the final plan.

4.2 Virtual scene modeling

In the new countryside construction plan, the data survey and statistics of the entire area is a difficult level in the virtual online platform. To achieve the desired effect, the following three requirements are required:

1) Virtual sky modeling technology

In the once-familiar animated scene sky, most designers choose to use two-dimensional sky textures to present the sky effect. Most of these textures are static and have the same color. When simulating the construction of three-dimensional dynamic regions, the dynamic sky is obviouslyIt is necessary, so the spherical or hemispherical model can be drawn into the sky area, which can highlight the natural and ecological nature of the countryside and make the sky more visually wider.

2) Remote sensing technology

When simulating scenes, it is necessary to use the real data in the field survey as the basis of the planning model. Therefore, when planning the layout of rural roads, consider whether it is a plain or a mountainous terrain. This requires the use of remote sensing technology to restore various rural roads, terrain and landforms. The design of rural house planning also needs to use remote sensing technology to show the building height. In building a house and choosing what kind of house planning to build, it is necessary to count the surrounding environment data according to the surrounding conditions of the house. Therefore, it is necessary to combine remote sensing technology and dynamic capture technology to provide reference value for the final virtual environment created.

3) Light and shadow generation technology

In virtual three-dimensional scenes, there are shadow effects and light-shadow relationships between architecture and nature. Animals, plants, human movements and vehicles in many dynamic scenes also show shadow effects based on natural lighting. The blessing of this light and shadow effect will make the virtual world more vivid and real. The specific method can select different actual shadow effect materials according to different models, and use methods such as textures to create light and shadow effects of objects or people.

5. Conclusion

Good at using VR in the planning of new rural construction, contacting the real situation of the area, making reasonable planning and creating three-dimensional models. The blessing of VR can not only avoid some problems in the planning of rural construction, but also solve the shortcomings in a timely and effective manner. Virtual reality Technology has played an important role in the

planning and construction of new countryside, provided reference value for the construction of new countryside, and promoted the development of new countryside construction.

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