

Research on Application of Virtual Reality Technology in Environmental Design

Yan Jun, Shan Xiao Xian

Jingdezhen Ceramic Institute 333000, Jingdezhen, Jiangxi, China

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Abstract: This paper expounds and summarizes the virtual reality technology and the characteristics of virtual reality technology in detail. Then it analyzes the application of virtual reality technology in the field of environmental art design in detail, including four parts: virtual reality technology effectively establishes a reality system, virtual reality technology breaks through the limitation of time and space, virtual reality technology effectively avoids risks in actual operation, and virtual reality technology makes up for design defects. Finally, the development prospect of virtual reality technology is analyzed in order to get the attention of relevant professionals in environmental art design and realize the goal of sustainable development of environmental art design.

1. Introduction

With the continuous development of the globalized economy, more and more exchanges and communication have taken place between our country and other countries in the fields of culture, economy and politics, which have led to the common development of both sides and parties. Virtual reality technology can realize effective interaction between virtual technology and real life through its own virtual world, using special computer technology as a medium, and through the simulation of real objects and natural organisms in the real environment. Therefore, virtual reality technology is widely used in environmental design.

2. Virtual reality technology

2.1 Overview of virtual reality technology

Virtual reality technology can effectively simulate the three-dimensional virtual environment through the application of computer network technology, computer graphics technology and media technology, etc., and then apply interactive equipment in the simulated three-dimensional environment. In a word, virtual reality technology can build a multi-dimensional information space. It is a new and comprehensive information technology of great significance. It is widely used in many fields in our country and has a good development prospect.

2.2 Characteristics of virtual reality technology

One of the characteristics of virtual reality technology is immersion, which is also called existence or presence. It can make the audience have real perception in the virtual simulation environment. The most idealized state of the simulated environment is that it can make the experienter feel indistinguishable from the real as if he were in a real environment. The second characteristic of virtual reality technology is imagination, also known as autonomy. Through the use of virtual reality technology, imaginary space can be established, which can enable users to break through the limitations of actual objects and actual environment and effectively expand the user's vision and understanding range. Of course, virtual reality technology can not only simulate people's real life environment and objects, but also construct designers' imagination space.

The third characteristic of virtual reality technology is interactivity. Experiencers can get effective feedback by making contact with simulated virtual objects. For example, a virtual object can be touched in a virtual environment, and the surface characteristics, weight, volume, etc. of the touched "object" can be sensed. The touch experience of different objects is also different, and the

perception will also change with the change of the action of the experiencer. The last characteristic of virtual reality technology is multi-perception. The so-called multi-perception refers to multiple senses, including mechanical perception, tactile perception, auditory perception, visual perception, etc. In other words, virtual reality technology can realize the synthesis of multi-perception functions simultaneously in a completely ideal state. Of course, this multi-perception of virtual reality technology is limited by science and technology and cannot reach the ideal state. This is also the development direction of virtual reality technology in the future.

3. Application of virtual reality technology in the field of environmental art design

3.1 virtual reality technology effectively establishes a reality system

In our real life, we will be subject to a variety of restrictions, in the environmental technology design related work can no longer be carried out in the real environment to operate and experiment. In environmental design, virtual reality technology can effectively simulate the real scene in real life, and can simulate plants, animals, characters and all kinds of objects existing in the display. Environmental designers can design and work through the simulated virtual environment. For example, the "broken" glass in each scenic spot is to make the perceptor experience the real feeling of toughened glass rupture through virtual reality technology, enrich the experience of the experience, and make the scene become exciting and interesting. In the Skylight Plaza of Xi'an, people can also feel the importance of virtual reality technology. by simulating the sky curtain of the vast starry sky, the experiencers are like being in the vast and beautiful starry sky, which enriches the sense of experience with lessons.

3.2 Virtual reality technology breaks through the limitation of time and space

The emergence of virtual reality technology can break down the limitation of time and space in real life. Virtual reality technology can simulate the real and imaginary people in concrete scenes, including the living environment of creatures in ancient times, the amplification simulation of dust particles, the simulation of the vast universe, the simulation of scenes in fairy tales and so on. In the simulated environment, environmental designers can conduct research and exploration without being limited by time and space. For example, by simulating the living environment of dinosaurs in ancient times through existing historical records and biological debris, people can have in-depth understanding and contact with dinosaurs in a virtual environment and have a deeper understanding of the living environment of dinosaurs. Simulating this scene in the dinosaur era effectively breaks the confinement from space and time, and effectively simulates the scene that people need to study and understand.

3.3 Virtual reality technology effectively avoids risks in actual operation

All kinds of realistic conditions restrict the work of environmental art design, which increases the actual operational risk and error rate of environmental design. In order to effectively ensure the life safety of design researchers, they cannot be allowed to conduct research and design in hazardous working environment. The "dangerous" environment required by the designer is simulated through virtual reality technology, so that the situation that the designer could not participate in originally can be simulated. The design operation in the "virtual" environment can effectively avoid safety risks while having real experience.

3.4 Virtual reality technology makes up for design defects.

Real life conditions will restrict the design of environmental art, and serious cases will make the work of environmental design stagnate and unable to continue, such as the shortage of human, material and financial resources for environmental design and the shortage of design sites. The virtual reality technology is used to simulate the scenes needed by the environment design, which makes various defects of the environment design in the working environment of the real life scenes effectively compensated, and the original defects naturally no longer exist.

4. The development prospect of virtual reality technology

In recent years, virtual reality technology has developed at a relatively fast speed from generation to development. In the related industries of environmental design, compared with the traditional art design work, the addition of virtual reality technology to appropriate environmental design has changed from complex to simple, and the design work gets twice the result with half the effort. With the development of global economy, the competition in the environmental design market is also more intense. The work of environmental art design can obtain rich environmental design resources through virtual reality technology and various advanced technical means. Although virtual reality technology has greatly improved the efficiency of environmental design, it still has many deficiencies. In the field of environmental design, virtual reality technology still has a lot of room for development. In the future environmental design work, designers need to attach importance to sustainable development, adhere to the goal of serving people for environmental design, and attach great importance to all the needs of the community for environmental design. Design more "works" that meet social development and customer needs.

5. Concluding remarks:

In environmental design, virtual reality technology is widely applied, which enhances the experience of customers. The audience's sense of touch, hearing and smell will be well mobilized and real interactive experiences will be generated in a virtual environment. In environmental design, virtual reality technology can effectively improve the pre-selection accuracy and multi-perception of the design, and virtual technology can enhance the interaction of environmental design, effectively display the scenes and intuitively show the real situation of environmental design. The wide application of virtual reality technology in environmental design is also extremely important to environmental designers, which enriches the expression of designers' design ideas and forms and facilitates the audience's understanding of designers' design ideas. The application of virtual reality technology in environmental art design can add humanization to the design and show the charm of environmental art design.

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