Research on the Application of Virtual Reality Technology in Environmental Art Design

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Abstract. With the development of The Times, in the environmental design art industry, the traditional environmental design art has been unable to meet the needs of customers, through the use of virtual reality technology, can improve the quality of design products. This paper firstly explains the concept and characteristics of virtual reality technology, and explores the development status and application advantages of virtual reality technology in combination with the application of VR technology in environmental art design for readers' reference.

Keywords: Virtual Reality Technology, Environmental Art Design, Idea, Vr Technology

1. Introduction
With the continuous development of information technology, it has been widely used in various industries and fields. In the field of environmental art design, virtual reality technology is improved to break the limitation of traditional art design in time and space, better display the characteristics of design works for customers, and enrich the charm of art design [1].

2. Concept and characteristics of virtual reality technology
2.1. Concept of virtual Reality technology
Virtual reality technology, also known as the Technology of the Spirit, mainly uses multimedia technology, computer network technology and graphics technology to build a THREE-DIMENSIONAL virtual environment, and then through interactive devices into the built virtual environment [2]. It can be seen that virtual reality technology is a technology formed by integrating several new information technologies. In addition, it also constructs a multi-dimensional information space, which has a very broad development prospect in China.
2.2. Features of virtual reality technology

2.2.1. Interactivity
The application of virtual reality technology in environmental art design can make use of its interactive characteristics to construct the whole virtual scene. In addition, the environment designer can apply interactive features to set and modify virtual scenes and objects, while the computer monitor displays the changes that have taken place. Although it is impossible to observe the changes of the virtual scene in a certain plane, in the final simulation of the virtual environment, the shock effect can be achieved as if in the scene.

2.2.2. Idea sex
The application of virtual reality technology in environmental art design can make use of its conceptual characteristics to construct and modify various virtual models. In addition, the conceptual feature of this technology is that the designer constructs a simple virtual structure that meets the application requirements by imagining the virtual environment, and then adjusts the environment content based on the virtual structure. Thus, it can be seen that the application of virtual reality technology in environmental art design can independently realize virtual simulation of real scenes, so as to meet the needs of different customers for scene experience.

2.2.3. Efficiency
The application of virtual reality technology in environmental art design can greatly improve the efficiency of environmental design on the basis of ensuring accurate budget in three-dimensional space. In addition, environmental art design puts forward very high requirements for complexity and precision [3]. Therefore, designers in the design of a space in the process, according to the actual needs of customers to all aspects of the factors to be integrated into consideration. In addition, the application of virtual reality technology to build space can also make the environment design more perfect, so that the design scheme can be modified in time.

2.2.4. Multisensory perception
Because the application time of virtual reality technology is not very long, a complete set of design specifications have not been built when the design work is carried out, so the design quality cannot be guaranteed. In addition, as far as environmental art design is concerned, | must pay attention to people's sensory experience. Among them, image display can bring users an image of three-dimensional viewing experience. Sensors can bring users a very real tactile experience; VR system can simulate the virtual environment near users, thus enhancing their real experience in the environment [4].

3. Development status and application advantages of VIRTUAL reality technology

3.1. Development status of virtual reality technology
Virtual reality technology has been applied widely in all fields of society, such as the field of education, military areas, construction areas, art, etc., it is the collection computer technology, microelectronics technology, network technology, multimedia technology, sensor technology, simulation technology, measuring technique and image, voice, voice processing technology and pattern recognition technology and other advanced technology of collection ”. The ideal virtual reality technology can trigger the user's sense of smell, sight, hearing, touch and taste, so that the user can have the feeling like in reality in the virtual environment, as if he were in the scene, and also complete the interaction between reality and virtual reality. At present, the world's virtual reality technology is not fully able to achieve the desired effect, but it has been gradually improved and improved to provide users with certain functional experience (Figure 1 shows the new VR product).
Figure 1. VR shows the new product.

3.2. Application advantages of virtual reality technology in environmental art design

The main path for the application of virtual reality technology in environmental art design is to introduce the design parties into a computer-generated virtual environment, and make the three parties interact through the interaction between users, designers and the virtual environment. Designers can understand users' feelings and ideas of the works in the first time, record feedback information, and quickly adjust and supplement the design works to achieve the best design quality.

4. Application of VR technology in environmental art design

4.1. VR technology improves multisensibility

In traditional environmental design, designers always hope to have a variety of elements in their schemes, so as to enhance the multi-perception of customers and improve the success rate of scheme design. However, due to the limitations of science and technology, traditional design can not perfectly realize this feature. With the rapid development of 3D modeling technology, the traditional single renderings and display mode equipped with music are no longer enough to attract the attention of the audience [5]. VR technology, through virtual reality, brings the audience into a virtual future real world. This technology breaks through the perceptual characteristics brought by traditional design. VR technology can bring to customers by virtual various senses such as vision, hearing, touch, these sensory wills bring different stimulating experience for the customer, the audience in the near future environmental art, through a variety of sensory from move the brain to supplement, make its have long memory and experience of sensory experience) (figure 2 for VR games.

Figure 2. Sensory experience of VR games.

4.2. VR technology improves budget accuracy

VR technology not only realizes the multidirectional perception of customers, but also achieves the
accuracy of budget. Through VR technology, designers can determine the requirements of environmental design indicators and decoration materials, through the design structure and the use of materials simulation and calculation, designers can finally get a precise budget. A precise budget is the most likely way to avoid a client's budget shortfall leading to a significant reduction in later design results.

4.3. VR technology improves interaction
Since its maturity, VR technology has gained more unique charm in environmental art design works. Future environmental solutions can be realized through virtual technology, and customers can interact with each other more conveniently through sense of substitution. At the same time, customers can guide designers to design according to their own unique needs. Through the demonstration and contact of various parts, customers can quickly understand the overall function of the design work, so that customers can truly feel the overall function of the design work. VR technology improves the interactivity of information, and at the same time draws closer to the customer, making the interaction between the two sides more in-depth and specific. This is an effect that traditional background scenes (e.g., cars, plants, people, buildings, etc.) cannot achieve. VR technology not only realizes the main design process of art works, but also shows and marks a humanized environment design display, so that customers can get a true and appropriate feeling (FIG. 3 shows customers traveling through VR).

![Figure 3. Customers travel through VR.](image)

5. Development prospect of virtual reality technology
With the overall development of science and technology in China, virtual reality technology has become increasingly mature. Combining with more advanced technologies, it can realize the innovative development of environmental art design work. Virtual reality technology can accurately express design works, avoid errors in information transmission, improve work efficiency, break through the traditional form of artistic design expression, and conform to the overall development of the society under the background of The Times [6].

Virtual reality technology can provide more excellent works of art in the future by combining various data innovation and development, and continuously improve the technology in practical application to improve the application ability and effect of the technology. In the future, the demand for virtual reality technology will increase gradually, which can stimulate the potential of environmental art designers, enrich the content of their design works, explore more real resources based on real life, and promote the development of art. It is necessary to pay attention to the development of virtual reality technology in today's society, especially in the field of environmental art design, which is facing both opportunities and challenges. In practice, experience should be summarized to provide better services to the society and meet people's demands for environmental art design. Can truly understand customer feelings, and then improve the design work, improve the efficiency of environmental art design and customer satisfaction. In addition, virtual reality technology can facilitate the communication between designers and users, facilitate designers to correctly understand the needs of users, and facilitate the smooth progress of work. It can guarantee that design works are more in line with users' "appetite ", and can quickly solve some project implementation problems. With the application of virtual reality
technology in environmental art design, people see more development space, designers continue to innovate design inspiration, get people's recognition and support, promote designers to improve their confidence in work, complete the design task, improve their design ability. Designer can by using virtual reality technology will work culture, connotation and spirit fully reflected, to express their creative ideas, take the customer as the main body to make the experience more realistic scenario, the effective combination of technology and art culture, constantly promote and perfect the effective application of virtual reality technology in the environmental art design.

6. Conclusion
To sum up, in the process of environmental art design, through the combination of virtual reality technology, designers can more truly understand the feelings of customers through the platform, and meet the needs of customers for environmental art design. In addition, virtual reality technology can stimulate the inspiration of designers and improve the quality of design products, which not only improves the personal level of designers, but also promotes the development of the whole design industry.

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