



Application of Virtual Reality Technology in Environmental Art Design

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Abstract. Virtual reality technology is becoming more and more mature, and its application in environmental art design is also deepening. Virtual reality technology has the characteristics of interaction, reality and scene. At the same time, it can also use 3DMAX technology to build the model of environmental art design, so as to set up a simulation environment for environmental art design. The application of environmental art design to virtual reality technology can make the structure of environmental design more comprehensive and accurate, strengthen the integrated development of designers and environmental design, make environmental art design break through the traditional design mode under the construction of virtual simulation environment, and make environmental design have modern system characteristics and intelligent characteristics. Provide users with higher quality services, so this paper makes a systematic analysis based on the application strategy of virtual reality technology in environmental art design, so as to provide quality assurance for the development of environmental art design.

Keywords: Virtual Reality Technology · Environment Art Design · Data Analysis

1 Introduction

As a simulation technology with strong sense of reality, virtual reality technology realizes the simulation modeling of the scene by combining 3DMAX, computer technology, multimedia technology, communication technology and other technologies [1]. Virtual reality technology is a collection of computing graphics, intelligent processing, data analysis, modeling and other disciplines for technical innovation, and virtual reality technology can not only show the virtual reality picture, but also bring people a new perspective [2]. Virtual reality technology generates a three-dimensional virtual model through computer environmental art design, so that users have a real sense of experience in the virtual simulation scene. At the same time, the experience and related software development of virtual reality technology in roaming system, architectural design field and engineering construction industry play an important role in promoting environmental art design, so that the advantages of virtual reality technology can be fully displayed in environmental art design [3][4].

2 Application of Virtual Reality Technology

Users can fully experience immersion and realism in the virtual simulation environment, which can fully meet the needs of environmental art design [5]. Using virtual reality technology, environmental art design can help users realize the virtual scene construction of environmental design through computers, and users can also use virtual reality technology to improve and adjust the design scheme during environmental scheme design, so as to make the environmental art design model more intuitive. Traditional environmental art design relies on computer plotter, modeler and other auxiliary tools to design and implement the environment. This way can only carry out model design alone, but can not adjust and improve the model, which has great disadvantages. Virtual reality technology can adjust the environmental design model in the virtual simulation environment by using virtual technology and auxiliary tools, and can show the overall system structure of environmental design in an all-round way [6]. When designing, it is easier to find the problems existing in the system and correct them in time. Virtual reality technology can accurately implement the design scheme. At the same time, virtual reality technology can further strengthen the omni-directional and demonstration effect of environmental design scheme in environmental design and indoor architectural design with high difficulty coefficient. With the continuous in-depth application of virtual reality technology

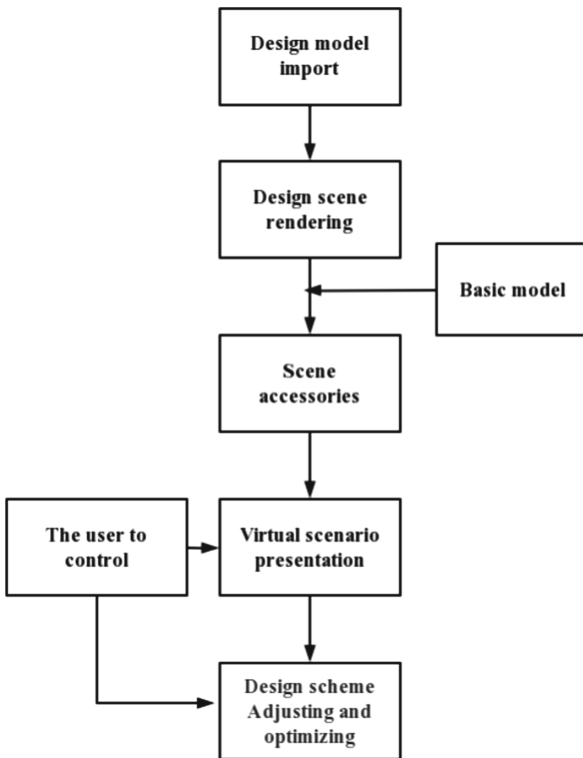


Fig. 1. Specific flow diagram of virtual reality technology in environmental art design.

in environmental art design, it has gradually become an important technical support for environmental art design [7] (Fig. 1).

With the rapid development of modernization, the demand for environmental space design is increasing. Based on this environment, it provides a good social condition for the development of environmental art design. In the scheme design of urban environment, virtual reality technology generally modifies and adjusts the system model by hand drawing. This method not only reduces the design efficiency, but also has low accuracy and long drawing cycle, so it is impossible to quickly obtain the environmental model. Virtual reality technology can replace the traditional manual drawing, so it can be designed with 3DMAX software under virtual reality technology [8]. Users only need to import the measured overall model into the software and set the corresponding numerical parameters and model structure, so as to build virtual simulation in 3DMAX, which has strong accuracy and functionality. The application of 3DMAX innovates the expression of environmental art design. Virtual reality technology constructs a more realistic virtual reality environment by using computers, which makes users have strong authenticity and interaction in the process of experience [9].

3 The Concrete Function of Virtual Reality Technology in Environmental Art Design

3.1 Reduce Design Cost

Virtual reality technology can not only provide a comprehensive simulation model framework for environmental art design, but also reduce the design cost of users. In the general environmental design, we first calculate the funds for the overall design project and purchase materials according to a certain fund [10]. However, in this way, there will often be material cost overrun and insufficient material budget, which will reduce the completion progress of the design work, especially in the complex urban environmental design, it will lead to many capital problems. Therefore, the application of virtual reality technology to the cost of environmental art design can achieve accurate material procurement in the later stage by grasping the overall design structure and using the computer to obtain the material quantity equivalent to the structural model [11]. Virtual reality technology provides users with professional design guidance, enhances users' understanding of the overall system structure, helps users become more accurate in material cost budgeting, and reduces the occurrence of design cost overrun to a certain extent (Fig. 2).

3.2 Enhance User Interaction with Environmental Design

Virtual reality technology itself has strong interactivity, which also makes it widely used in environmental art design [12]. When the overall environmental design work is completed, the customer needs to be invited for project acceptance. However, due to the influence of various external factors, the user cannot reach the on-site inspection and acceptance. At this time, the virtual reality technology can be used to achieve the display effect. When users enter the virtual design environment, they can view various details and overall structure functions of the design scheme, which is convenient for users to

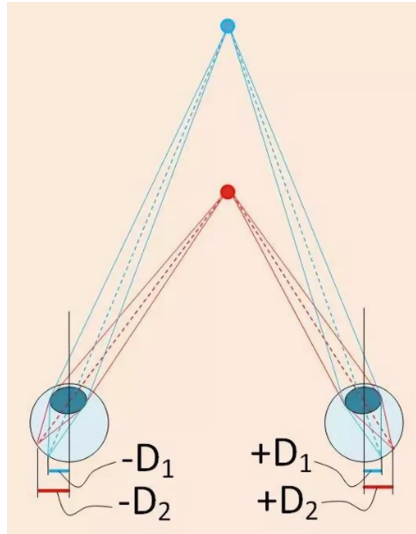


Fig. 2. User virtualization view.

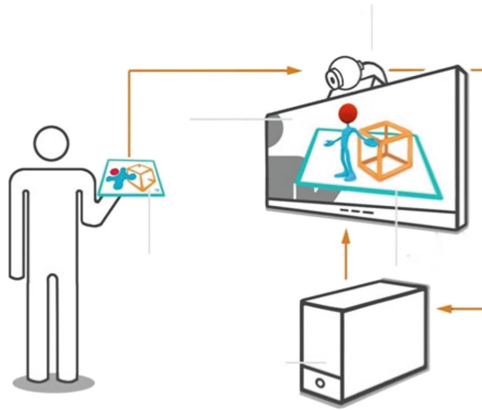


Fig. 3. User experience diagram.

adjust and modify the design scheme. And when users are in the virtual reality scene, they can obviously feel what deficiencies in the model need to be improved and adjusted to enhance the user's sense of participation and reality. Users can put forward problems and communicate with designers in time, which can well realize the sense of interaction between users and environmental design, which is one of the reasons why virtual reality technology is popular in link art design [13] (Fig. 3).

3.3 Improve Environmental Design and Related Scenery

Virtual reality technology has strong applicability in environmental landscape. As a key part of environmental design, the landscape of environmental art design has an important impact on the structure and distribution of the overall design [14]. High quality environmental design is often of high quality. Therefore, when selecting the scenery, it should be systematically built according to the distribution and construction around the environment, so that the environmental design atmosphere can be well set off and rendered. The artistic sense and design sense in environmental art design are expressed more strongly, and combined with virtual scene, the overall environmental design effect is further improved and developed. Virtual reality technology makes the environmental design matching more concrete, makes full use of the matching to strengthen the sense of reality and interaction of the virtual reality scene, enables users to have a good service experience, and goes deep into the application of virtual reality technology in the field of link art design [15].

In addition to the user experience, virtual reality technology also enriches the designer's design elements. Because designers need to use a large number of network materials in the process of designing the environment to adjust and plan the details of the environment. However, the common network materials can not meet the needs of designers, and can not realize diversified material resources. Virtual reality technology shows people environmental design from another angle, which is to bring users into the virtual simulation environment through the vision, hearing and touch in the virtual scene together with music and lights, so as to bring people a good interactive experience. At the same time, it also enables the designer's design scheme to be completely presented in the eyes of users. Improve the work efficiency and design quality of environmental designers [16][17].

4 Conclusion

It is based on the application of virtual reality technology in environmental art design that further promotes the development of environmental art design. At the same time, multimedia technology, 3D modeling technology, Internet technology and key technologies are used to construct the structure of environmental art design system, while virtual simulation technology simulates the overall framework of environmental art design, builds a real virtual construction environment for environmental art design, and breaks through the conventional environmental art design mode. The overall art design system is simulated through the multi angle virtual environment, so that users can have a comprehensive understanding of the whole system, and then get closer to the virtual environment to design high-quality products. Due to the advantages and characteristics of virtual reality technology in environmental art design, it further promotes the quality of environmental art design.

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