

## Application of Virtual Reality Technology in Environmental Art Design

Luo Weian and Huang Yannan\*

WEN HUA COLLEGE, Hubei, China,430074

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**Abstract:** This paper first describes the characteristics of virtual reality technology and its realization in art design. Secondly, this paper analyzes the practical significance of virtual reality technology in environmental art design, and finally discusses the practical application of virtual reality technology in environmental art design. In a word, the application of virtual reality technology in environmental art design is helpful to the development and improvement of environmental art design.

### 1. Introduction

With the development of computer technology, its application has penetrated into the field of art design, especially the application of virtual reality technology in environmental art design has achieved more remarkable results. With the help of virtual reality technology, people can intuitively feel the effect of environmental art design, which further displays the embodiment of environmental art design on the design concept of people-oriented. Therefore, it is of great practical significance to study the application of virtual reality technology in environmental art design and combine modern environmental art design with virtual reality technology so as to improve the ability of modern environmental art design.

### 2. Overview of virtual reality technology

#### 2.1 Application characteristics of virtual reality technology

Virtual reality technology also plays an important role in environmental art design. The application features of virtual reality technology mainly include efficiency, interactivity, artistry, invasion and multi perception, as shown in Figure 1 below.

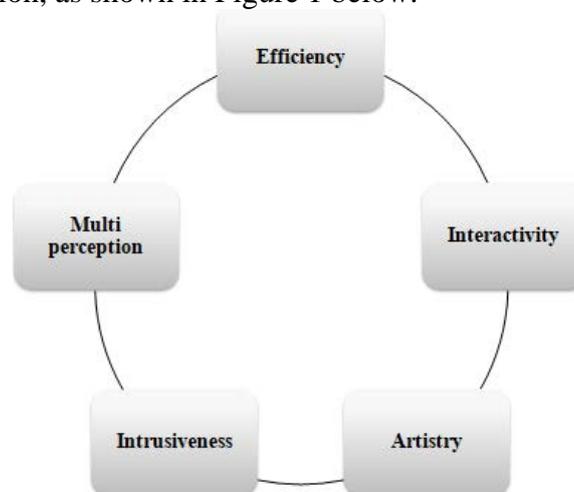


Figure1. Application characteristics of virtual reality technology

## 2.2 The Realization of Virtual Reality Technology in Art Design

Virtual reality technology can be customized according to the needs of customers. Through 3D dynamic modeling technology, different virtual scenes can be built and set up. The main steps and implementation flow of the application of virtual reality technology in environmental art design are shown in Figure 2.

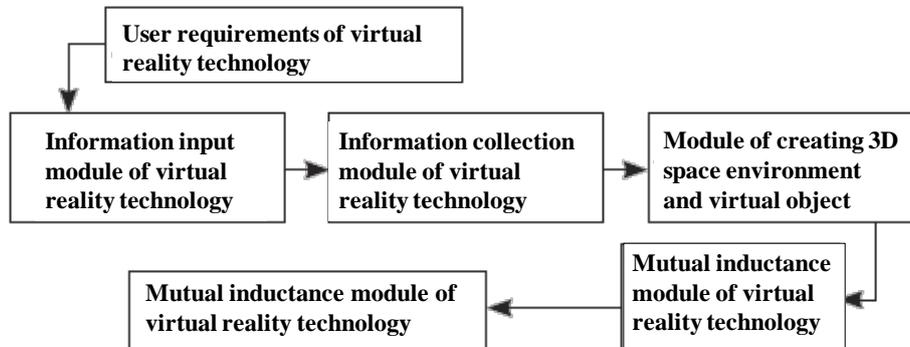


Figure2. Main steps of the application of virtual reality technology

## 3.The Practical Significance of Virtual Reality Technology in Environmental Art Design

### 3.1 Meet the actual needs of environmental art design

The application of virtual reality technology in environmental art design constructs a three-dimensional virtual environment with interactive characteristics, which enables users and products to interact and communicate in the virtual environment, and helps to tap the depth of creation and design. In environmental art design, the design scheme can be improved according to the design requirements and design objectives. Using virtual reality technology, the real object or the original nonexistent model is displayed in the form of virtual. According to the design work scheme, the design model is presented, which is convenient for the designer to modify and adjust, and improves the efficiency and accuracy of the design scheme. This process is simple and low-cost, which can make the construction party or customers feel the feasibility of the scheme through virtual technology.

### 3.2 Visual display of environmental art and design works

Virtual reality technology creates a lifelike and vivid virtual environment by building a software and hardware platform, which enables users to experience the all-round stimulation of touch, hearing and vision, activate the brain activity, enable users to have an insight into the design works in a highly concentrated state, deepen memory, and greatly enhance the screen sense of the virtual environment.

### 3.3 Realize the communication of environmental art design

Virtual reality technology can realize intercommunication, construct virtual environment and space, and realize the communication between man and machine without obstacles. Imitating all kinds of application behaviours in the real world in the computer system is of great benefit to the improvement and optimization of construction works. In addition, users can perceive the practicability and effect of the design works in advance through the virtual world, predict and deal with the possible problems after the completion in advance, so as to make up for the deficiencies in

the design of works and give full play to the forward-looking advantages of environmental art design.

#### 4. Application of Virtual Reality Technology in Environmental Art Design

##### 4.1 Application of virtual reality technology in the construction of environment space model

Compared with the traditional environment art design tools, using virtual reality technology to build environment space model can complete a large number of original models in a short time. The advantages and disadvantages of the two are shown in Figure 3.

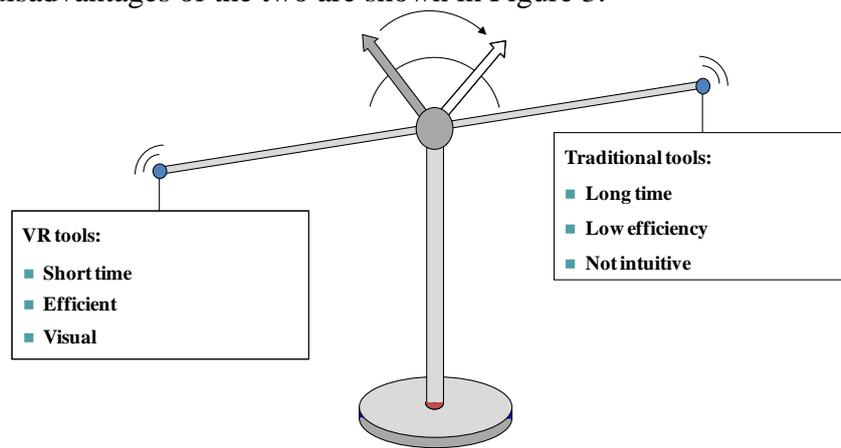


Figure3. Advantages and disadvantages comparison

In the process of building environment space building model based on virtual reality technology, by inputting the corresponding building size data, we can quickly build the required building model. For example, the import of various formats of materials to simulate object files, to improve the efficiency of environmental art design, and effectively save the design cost of environmental art. The main steps of spatial model construction in environmental art design are shown in Figure 4.

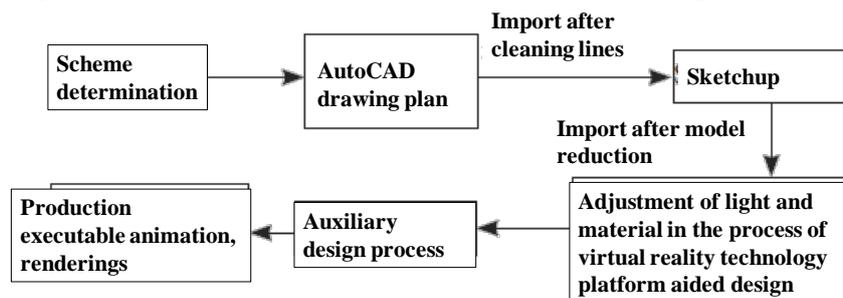


Figure4. Main steps of spatial model construction in environmental art design

##### 4.2 The Application of Virtual Reality Regional Positioning Technology in Environmental Art Design

In environmental art design, it is necessary to solve the problem of regional positioning and modeling of indoor and outdoor landscape design. The first important problem to be solved by virtual reality technology is the positioning and modeling of indoor and landscape projects. Through the virtual reality technology to locate the project, create a two-dimensional plan of a certain area location, then according to the scene planning in the two-dimensional plan, build the three-dimensional spatial structure, and build the model according to the corresponding data standards, and finally render the video frequency or static frame map that meets the needs. Therefore, in the

design of environmental art, using the regional positioning of virtual reality can quickly complete the accurate positioning of three-dimensional scene, and realize the design of scene and object in space.

## **5. Conclusions**

The application of virtual reality technology shows more intuitive content and better effect. Virtual reality technology will bring new impetus to the rapid development of environmental art design, make the design products of environmental art more humanized, and fully show the charm of environmental art design. With the further development of technology, the effective integration of modern environmental art design and virtual reality technology will further realize the visual management of modern environmental art design, improve the overall level of art design, and provide continuous impetus for the development of modern environmental art.

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