

Study on the practice of environmental art design workshop based on computer virtual reality technology

Linyan Wang

Shandong Institute of Commerce and Technology, Shandong, Jinan 250103

Abstract: Based on the theory of group dynamics, the environmental art design workshop enables the team members to form a new team value standard under the friendly cooperation by giving full play to the dynamic characteristics of the team, and then change and optimize the design concept. In the environment of intelligent design, through timely adjustment and optimization of the design concept, so as to dissolve the traditional rigid thinking, reconstruct a new environmental art design scheme. Through the analysis of the practical value of the environmental art design workshop based on the computer virtual reality technology, the concrete practical scheme is explored.

Keywords: Computer; virtual reality technology; environmental art design; workshop; Practical Research

The innovation and practice of art and design workshops are embodied in how to pay attention to human needs, human dignity and emotion, and global issues. It emphasizes that design serves people, and promotes design to turn from commercial angle to cultural angle, and launches many possibilities of design in the future through cross-culture and cross-discipline. By introducing the technology of computer virtual reality, we can cultivate the designers' consciousness of openness and initiative, cultivate their innovative thinking and social service, and transform the art design to meet the new aesthetic needs of the contemporary era.

1. BASED ON THE COMPUTER VIRTUAL REALITY TECHNOLOGY OF ENVIRONMENTAL ART DESIGN WORKSHOP PRACTICE ADVANTAGES

The application of virtual reality technology to environmental art design has greatly changed the traditional environmental design model, and has broken through various complex problems existing in it, such as the way to abandon sand tables or models, it is beneficial to control the design cost and save the design time. By means of high-tech means, the virtual design projects can be displayed truthfully in multimedia mode and digital mode, and the users can watch the model effect only in the platform of virtual reality technology, this will network resources to effectively play the advantages of the overall, more fully show the effect of the work.

Through the virtual reality technology, the environmental art design works can be more comprehensive, more vividly displayed. In the virtual world, digital technology can be used to transfer some data information of the objects on display, and can receive information, cognitive information, feedback information and other processes. The environment created by the virtual reality technology is developing toward the reality direction. Through the three-dimensional digital model built by the computer, the virtual reality scene is embedded, which can make the user's various senses to be stimulated effectively, create a real interaction. For example, in a virtual space, users can pick up objects in the virtual environment with their hands, feel the weight of the object, and let the object move with them. In the environmental art design, it is necessary to have high-performance image processing technology by using virtual reality technology. For example, 3D virtual modeling, panoramic images and other ways, can be in high-definition form, showing a variety of images, thus making the design more artistic and realistic. After viewing the image, the user can have a full understanding of the overall structure of the project, and understand the materials and processes used, and so on. Therefore, the virtual reality technology has a better artistic effect.

Virtual reality technology is intrusive, it can let the user feel more real environment effect, in some cases, also can let the user feel immersive feeling. The main factor that produces this kind of feeling is that the design of virtual

reality technology is based on the human's sensory feeling and psychological characteristics, at the same time, through the computer technology, the graphics have more three-dimensional effect, that puts the user in the 3D. For intrusion, to some extent, it can be understood as presence and existence, the key is to reflect the user's real feelings in the virtual environment. Users need to wear a special helmet and gloves in advance in order to truly feel the three-dimensional effect in the virtual environment, and at the same time in this virtual environment, will not be affected by external factors, to be able to fully participate in the virtual world. If the user can not tell the true and false effects, that is, like in a real environment, then can be said to be the most ideal intrusive effect.

2 THE PRACTICE CHARACTERISTICS OF ENVIRONMENTAL ART DESIGN WORKSHOP BASED ON COMPUTER VIRTUAL REALITY TECHNOLOGY

In the process of environmental design using virtual reality technology, in order to enhance the artistry of environmental design, the related designers need to further analyze the related images and technologies when developing the design, not only can improve the effect and quality of the design, but also in accordance with the majority of people's artistic cultivation of the environment design. Therefore, in the design can add a lot of artistic elements, so that people have a sense of appreciation of the beautiful scenery. In the process of the design, the designer should analyze a lot of data about the local national custom, so that the artistic quality of the design can be recognized by the client.

Consider that all virtual reality environments are equipped with a full range of sensory devices, including vision, hearing, and touch. Users not only have visual perception, but also can form auditory perception, tactile perception, and force perception, especially in the case of olfactory perception and taste perception. Virtual reality technology has a very good multi-perception, users can feel the feeling of immersive. As far as the current virtual reality technology is concerned, it has not yet realized all the perceptual functions, that is, it can not achieve the ideal state of virtual technology.

Immersive, refers to the use of computer-generated three-dimensional images, so that people placed in a virtual environment, just like in the real world, can give a sense of immersive; For the work of environmental art design, we can analyze the immersion of virtual reality technology, and use the corresponding technology to bring people the visual impact of the enjoyment of beauty. In the process of designing environmental art, we should add some things with bright colors to meet people's psychological needs and increase people's sensory effects. Immersion can help people to deeply experience the design results, according to people's sense of things for the quality of the design results.

Interactivity. In a computer-generated virtual environment, people can use some sensors to interact with each other, just like in the real world, when users use their hands to grasp objects in the virtual environment, the hand has the feeling of holding things, and can feel the weight of the object; related technical personnel in the process of environmental art design, the use of virtual reality technology can enhance the design effect. In the use of virtual reality technology for environmental art design interaction is very important.

3.PRACTICE OF ENVIRONMENTAL ART DESIGN WORKSHOP BASED ON COMPUTER VIRTUAL REALITY TECHNOLOGY

The application of virtual reality technology is to take the computer equipment as the carrier, through the accurate check of the internal data information, and then carry on the logical operation through the established program, it can effectively confirm the cost target, construction target and operation target of the whole space structure. The recognition of the scope of the data information enables the virtual reality technology to have the art design of the large environment space. Through the simulation and enlargement of the virtual scene, the whole design process is no longer limited to the fixed space frame, and it can realize the statistics and confirmation of different time nodes,

and then macroscopically layout the whole environment, improve the accuracy of environment design.

3.1 The core technology of virtual reality in environmental art design

Because there are many core technologies in the virtual reality technology in the environment art, it is necessary to study the core technologies scientifically and effectively during the application of the virtual reality technology, to improve the quality of their own work and efficiency. The core technology of virtual reality is divided into environmental modeling technology, tactile feedback technology and system integration technology. Environmental Modeling Technology is the designer in the establishment of three-dimensional environment, through the acquisition of information data to build a separate environmental model. While the environmental modeling technology improves the accuracy of the model, it also improves the development of the model in the future. During the practical application of environmental modeling technology, there are a lot of reference data, according to the data information can improve the quality of their own work, as well as work efficiency. Haptic feedback is the use of virtual reality technology, set up a separate system to operate. The environment generated by tactile feedback is more realistic and perceptible, and has certain advantages. System integration technology, in the process of virtual reality technology practical application, including the perception mode and information data more, in order to improve the quality of its work, the designer must integrate the system technology, for scientific and rational use.

3.2 System construction of virtual reality in environmental art design

In view of the special technical requirements of environmental art design, it is often necessary to integrate multi-disciplinary knowledge system to complete the content of the design scheme. If there is a technical omission, the whole link design scheme may be overturned. The practice shows that the application of virtual reality technology can effectively avoid the potential problems in the design scheme. From the concrete situation, the three-dimensional modeling technology in the virtual reality system is to express the abstract statistical data or concept through the form, curve, legend and so on. As a whole, virtual reality system can be divided into two main parts: front-end simulation rendering and back-end technology processing. Through the integration of the database system and its related technologies, various information resources, geographic location resources, media reserve resources, etc. are entered into the core system, so that the system can call on all kinds of information resources at any time, which can highlight the application of virtual reality technology in the field of environmental art design effectiveness. The most important function of virtual reality technology applied in the process of environmental art design is mainly reflected in its interaction, which is different from the implementation of a single large-scale fusion display project, in the virtual environment of human-computer interaction, we can interact and communicate with the central system through some simulation function modules of the system, thus it can show the high-tech fusion efficiency of this kind of interactive 3D virtual environment model.

3.3 The application strategy of virtual reality in environmental art design

In the process of environmental art design, designers should take it as a foundation, use virtual reality technology scientifically and rationally, and improve the quality of design work, at the same time, design work should be innovated constantly. First of all, in the process of applying virtual reality technology, designers should change the hand-drawn drawing into computer effect drawing, optimize the urban planning in virtual reality, and establish a set of perfect planning and design scheme, in order to ensure better design effect. Compared with traditional design, virtual reality technology can not only form the real environment, provide the sense of touch and hearing for the customer, but also make the customer have the immersive feeling, so as to attract the attention of the customer, and for environmental art design work quality has also improved. In the application of virtual reality technology, designers should have a scientific and reasonable plan for background display, so as to embody the value of virtual reality technology. Compared with traditional design, virtual reality technology can enhance the effect of interaction

with customers and embody the value of virtual reality technology. During the design, to communicate with customers to provide a better design. When improving the working effect of virtual reality technology in environment technology, it sublimates the work quality and the optimized environment. At the same time, designers can also demonstrate the results for customers, so that designers more fully understand the needs of customers, promote good communication between the two. In the practical application of virtual reality technology, the traditional paper design can be transferred to the computer equipment through the mapping of the data model of the drawing file, through the three-dimensional, four-dimensional display, can effectively ensure the three-dimensional presentation of environmental art in the design process. Interactive art design is mainly embodied in the construction of a virtual platform for designers and users to provide a simulated communication platform, through data links to map all the data information into images, and users and designers can co-exist in the platform. If the user finds that a design in the simulation environment does not meet the expected requirements, the designer can mark the location in the virtual space, and then integrate all the problems, make changes to the information parameters in the system platform.

4 CONCLUSION

The virtual reality technology shows the value of the whole environment art by constructing the virtual environment scene. The dynamic characteristic of the virtual environment provides a way for the integration of multi-scene resources. Therefore, it is necessary to import auxiliary resources to make the environment space and the whole pattern present a natural interactive state. Through the integration of virtual data such as natural landscape and traffic road, it can inject diversified environmental elements into the whole layout, and ensure that the virtual scene can be deeply integrated with the real scene, and then for the user to improve more rich visual resources. In addition, the image of the characters, the layout of the scene can be integrated into the space landscape, such as cultural elements, regional elements, through the exquisite image design, to maximize the value of environmental art.

5. ACKNOWLEDGEMENTS

Exploration and practice of "one line, four links and five transformations" teaching mode based on Design Workshop

REFERENCES:

- [1] Liu Yihan. Analysis of several problems in the application of virtual reality technology to environmental art design [J]. *Modern Decoration (Theory)*, 2013, (08): 90-91.
- [2] Liu Manzhong. The perfect performance of the virtual world - a brief discussion on the application of virtual reality technology in the performance of environmental art design [J]. *Journal of Huangshi Institute of Technology (Humanities and Social Sciences Edition)*, 2010, (05): 38-39 .
- [3] Wang Junli. The application of virtual reality technology in environmental art design [J]. *Comparative Research on Cultural Innovation*, 2019,3(31):61-62.
- [4] Liu Jiajun. Analysis of the application of virtual reality technology in environmental art design [J]. *Art Science and Technology*, 2019, 32(07): 220.
- [5] Meng Xiaojun. Demand and application of virtual reality technology in environmental art design [J]. *Shanxi Architecture*, 2019, 45(05): 24-25.