Application and Prospect of New Media in Environmental Design and Living Space Renovation

Chenxi Liao
College of Fine Arts, China West Normal University, Chengdu 637001, Sichuan, China
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Abstract: In recent years, driven by the development of science and technology, new media art has rapidly penetrated into all corners of people's lives, greatly changing people's experience in various environments and living spaces. This paper analyzes the application and prospect of new media in environmental design and living space transformation, in order to promote the recognition of new media art by relevant industries, and to promote the wide application of new media in the field of environmental design and living space transformation to a certain extent, so as to create a connected and interactive physical environment and even the spiritual world.
***Keywords*:** new media, living space transformation, environmental design, digital interactive installation

1. Introduction

The application value of new media art in environmental design and living space transformation is mainly embodied in its ability to integrate science, technology and art and create unique comprehensive effect. On the one hand, by using advanced technology, new media art can achieve three-dimensional and dynamic environmental design, enhance spatial awareness and experience, make living space more flexible and interesting. On the other hand, new media art can provide rich forms of expression and practice for environmental design, greatly enhance the artistic expression of space, and create rich and diverse visual effects. Therefore, it is important to study the application of new media in environmental design and living space reconstruction and to look forward to the future.

2. Application of new media in environmental design

2.1 Interaction Design of Being Present

The application of new media art in environmental design, especially in creating immersive interaction art design, is mainly embodied in practice participation, multi-sensory touch and interaction design.

2.1.1 Audience time participation in design

New media art endows modern environmental design with strong interaction. Using new media tools such as touch screens, dynamic projection devices, and sensor devices, designers can construct a dynamic, participatory scene during the design of the environment into which the audience can interact directly with various new media devices, participate in the environment and influence the actual changes in the artistic environment, enabling everyone to become the creator of the environment.

2.1.2 Multi-sensory touch design

In the environmental design stage, the designer can control the light, color, sound, temperature and even the smell in the environment, so that the audience can not only feel the environment through the visual characteristics, but also through hearing, touch, smell and other senses to achieve their own rich artistic experience. Figure 1 is the environmental design of Suzhou Planning Exhibition Hall. The environment is controlled by light, color and sound, providing visitors with a multi-dimensional and technological environmental experience.

2.1.3 Interaction between mind and spirit

In the environmental design stage, designers can use the new media art to touch the emotion and thinking of the people in the environment. In the exhibition, designers can use new media art such as data visualization technology, interactive video technology to trigger the audience's deep reflection on environmental issues and social phenomena, and then cause people to think critically about the relationship between environment and people, and realize the communication and collision between soul and spirit.

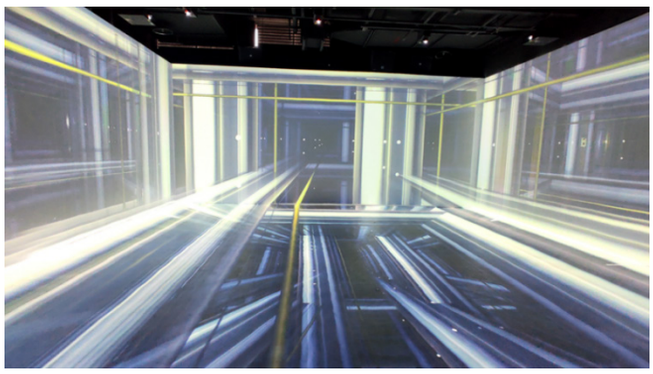

Figure 1. Environmental design of Suzhou Planning Exhibition Hall

2.2 Creating environmental virtual space

Based on the new media art, we can create a flexible virtual space in the environmental design to experience the unprecedented artistic experience for the audience.

First, we can use projection mapping technology to create virtual 3D effect in real environment. Based on this technology, we can make dynamic image on the plane and complex structure. Secondly, designers can create virtual and lifelike environment by using LED screen with holographic effect, such as contrasting the image on the screen with the real environment around it. Third, the use of optical fiber devices, in the environmental design can create a star-like virtual space effect, will be more tiny fiber bundles arranged in the environment high, when the fiber-optic luminescence, will allow the audience to experience the bright Milky Way in the virtual experience [1].

3. Application of New Media in Living Space Renovation

3.1 New media digital interactive smart home

In the transformation of living space, digital interactive smart homes based on new media art have become a hot field in the application of new media art. Designers can increase the sense of art and interaction in living space by new media based on digital interactive devices, changeable environmental structures and artistic control means, and form living places with artistic characteristics and culture while enriching the life experience of the audience.

3.1.1 Digital interactive devices

Digital interactive devices, such as touch screens, projection devices and intelligent devices, shall be arranged inside the home. Based on the interaction with the digital interactive devices within the home, the audience can complete corresponding intensified control and interaction, and promote the intelligentization and interaction of the home. For example, the audience on the touchscreen operation, home 4K high-definition TV, LED wall will appear corresponding images. Through hand gestures to control the home, to achieve different areas of light on and off, automatic temperature control of air conditioning, so as to achieve full of artistic sense of intelligent home design.

3.1.2 Variable environmental structure

Variable environmental structure, that is, during the transformation of living space, designed for lighting, sound, air quality and other factors to adjust the atmosphere, shape, temperature and other effects of the environment, to create a different atmosphere for the space occupants, to enhance occupants' perception and experience of home. For example, during the design period, movable playback devices can be placed on the walls of the living room to display the virtual space through slides, create virtual and physical communication between the residents and realize the interaction between the audience and the home.

3.1.3 Artistic control

The so-called art control, that is, based on the new media art to achieve home control, including pictures, music, etc., for residents to create a more artistic home environment. During the design period, a more unique and artistic way of expression will be created by incorporating smart home technology into the display of works of art. For example, the indoor lighting will be automatically adjusted during the playing of music, and the lighting lightness will be set according to the music type. This form of integration of smart home and new media art will greatly enhance the quality of modern home and enhance the residents' experience.

3.2 Interaction between wearable technologies and living space

With the development of science and technology, wearable technology is not only used in the field of health and sports, but also in the new media art, also outlined a new landscape of living space transformation. With the new media technology, designers can make wearable devices and living space for close interaction, to achieve personalized, intelligent living environment.

3.2.1 Device identification and personalization

Through wearable device detection, can record the occupant's space location, personal habits, these data, applied to the design of personalized space. For example, when the user enters the bedroom, the room lights will automatically adjust according to user habits to comfortable colors, lightness and color temperature[2].

3.2.2 Environmental feedback and interaction

Wearable devices can be fed back to users in real time by collecting data on environmental factors such as temperature, humidity and noise. On the basis of allowing users to understand environmental parameters, new media technology can adjust the living space environment based on these information, and realize the space adjustment while realizing the interaction between people and living space. For example, a wearable device automatically adjusts the air conditioning temperature to provide a more comfortable environment when it detects changes in indoor temperature or when the occupant feels a change in body temperature.

3.2.3 Social interaction

During the renovation of living space based on new media, residents' social activities can be supported based on wearing devices. A number of wearable devices can be shared with each other in their own space environment, and even presents a unique space artistic effect. Through Augmented Reality (AR) technology, for example, the occupants of the space can allow friends to see their space on screen, display the environmental parameters of the space, and share landscapes, scrolls or exhibits within the space to achieve new media social activities[3].

4. Application Prospect of New Media in the Field of Environmental Design and Living Space Renovation

New media art is changing the life of the public at an unprecedented speed. It has a very broad prospect in the field of environmental design and living space transformation.

On the one hand, new media art will continue to change the way the environment is designed. The existing design methods mainly rely on aesthetic theory and designers' own rich experience. The interactive technology and data analysis under the new media art will help designers understand the audience's needs for the environment more accurately and realize more humanized design[4].

On the other hand, new media can push the interaction between space and human to a new height. First, the new media art of living space design, will provide people with a more interactive experience of the environment, the real realization of digital information, physical environment close integration. Second, with the continuous development of big data and artificial intelligence technology, new media art will be able to change the mode of environmental management from passive response to active prediction, enabling living spaces to respond more humanely to and provide feedback on the behaviour and psychological state of their occupants [5].

5. Conclusion

To sum up, this paper discusses the application of new media art in the field of environmental design and living space transformation, and looks forward to the future development of new media art in two areas. Based on the contributions of new media to environmental design and living space transformation, we can look forward to the development of artificial intelligence, big data, virtual reality and other new media technologies, and it is reasonable to expect that more profound changes will take place in environmental design and living space transformation. New media, with its unique interaction mode and information expression, will continuously expand new areas in the field of design, and provide people with a more diversified, humane and sustainable environment and living space.

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