Preserve the Past, Embrace the Future: Exploring the Integration of Virtual Reality Technology and Traditional Chinese Art

Jiadong Sun

Aberdeen Hall Preparatory School, 950 Academy Way, Kelowna, BC Canada

2016150208@jou.edu.cn

Abstract. Integrate smart VR technology with traditional culture to realize the modern dissemination of traditional culture through immersive VR technology, allowing for greater audience immersion in the cultural allure of traditional Chinese culture. The combination of VR technology and traditional culture can give the audience more in-depth contact and understanding of traditional culture, producing more intense interest. This article takes traditional art as the starting point and studies the combination and application of VR technology in Chinese traditional art from the perspective of the combination of VR technology and traditional art to the development of modern virtual display. With a focus on the analysis of VR in the application of the immersive and multi-sensory as well as strong interactivity, this paper discusses the use of virtual reality technology in the dissemination of traditional Chinese culture in the new media era from the perspectives of painting and architecture. It also examines the value of the application of VR in the dissemination of cultural interaction.

Keywords: virtual reality; traditional Chinese art; fusion.

1. Introduction

China is an ancient cultural country with a history and cultural heritage of five thousand years. Chinese traditional culture has been the “root” and “soul” of the survival and development of the Chinese nation over these five thousand years. With the continuous development of science and technology and the continuous changes of the times, many traditional cultures are facing new crises, such as “lost”, “damaged”, “unsalvageable” and a series of irresistible realistic factors [1]. Therefore, how to better inherit and reflect the unique style of our country's traditional culture has become a hot topic at the moment.

Combining traditional culture with virtual reality technology has become a new trend in the development and communication of Chinese culture. It is crucial for the transmission and advancement of traditional culture that traditional paintings and architectural details are accurately recreated using VR technology and the appropriate equipment. significance. Utilize virtual reality technology to modernize the expression of conventional art and culture and add a contemporary feel. It not only supports the transmission and growth of traditional art and culture, giving it new life, but it also supports its dissemination, encouraging people to interact with, comprehend, and appreciate China's outstanding traditional cultural and artistic heritage [2]. This essay focuses on the features of virtual reality technology, how to apply virtual reality technology to the dissemination of traditional Chinese culture in the new media era, and the rationale behind the selection of virtual reality technology for this purpose.

2. Virtual reality technology and its characteristics

With the development of science and technology and the advent of the new media era, AI technology has become more and more mature. VR technology is the first to bear the brunt [3]. It uses virtual means to combine virtual and real technologies and uses computer technology to create a world that can be experienced through the network cloud, which allowing users to be immersed in it, can enable users to gain a real sense of experience, while simulating all people's perceptual functions, such as vision, hearing, smell, touch, etc. So that VR technology can realize human-

computer interaction, allowing users to interact with them during the use process and get timely and honest feedback. The characteristics of virtual reality technology such as immersion, multi-sensory, and interactivity make it receive more and more attention and application.

2.1. Immersion and Multi-sensory Nature of Virtual Reality Technology

Human sensory organs are the receptors through which the brain perceives the external world. The auditory system and the visual system are the most important factors in forming human immersion. When people wear VR-related equipment, in the virtual scene, the auditory system provides auxiliary information to the user, which not only enhances visual perception but also enhances the simulation of the environment, making the audience more immersed [4]. In this way, the audience can observe the layout of the scene in an all-round way, touch the props in the scene, and feel the restoration and reproduction of the event.

2.2. Interactivity of Virtual Reality Technology

In virtual reality, the most typical characteristics of new media artworks are "connectivity" and "interactivity". Interactive art also has these two characteristics. To achieve the preset purpose, the process of information exchange and feedback between interactive objects is called the interactive process [5]. Virtual and real technology can recognize people's expressions, actions, and other information, and provide corresponding feedback to achieve the process of interactive communication. In the process of appreciating traditional skills, the audience can freely shuttle through the virtual scene. They do not have to always follow the viewing route or explanation route. The audience can freely choose or play some interactive games. On the one hand, it can improve the interactivity of the audience, and on the other hand, it can also improve the audience's understanding of traditional culture.

3. The use of virtual reality technology in the new media era to disseminate Chinese traditional culture

As the export of Chinese culture advances with the times, how to inherit it in the new era is an important issue. Although experts in related fields have made every effort to take protective measures, they also face many limitations in terms of dissemination [6]. VR technology, as an emerging technology in today's era, can precisely solve this problem. VR technology can better showcase traditional Chinese culture to the world, allowing more people to experience the unique charm of Chinese traditional culture firsthand, especially in traditional painting and architecture.

3.1. Application of Virtual Reality Technology in Traditional Painting

Through virtual painting tools, artists create traditional landscape paintings and present them in a virtual reality environment. The audience can appreciate the artist's creative process immersive, and even participate in the interaction and personal graffiti landscape paintings [7]. For example, by using interactive VR technology to reconstruct one of China's top ten handed down famous paintings, "Qingming Shanghe Tu"(Fig.1). At the 2016 International Film Industry Development Seminar at the ICIF, through the use of virtual reality technology, the real scenes in " Qingming Shanghe Tu" were presented in a three-dimensional manner in front of everyone (Fig.2). While showcasing the real life of the people at that time, it also accurately restored the color tones of the original painting " Qingming Shanghe Tu". By utilizing full view, the audience can continue to use a "moving perspective" to view and feel the three-dimensional scene of this painting. Let modern people feel the way of life and state of people during the Northern Song Dynasty through every detail in the painting. While promoting traditional culture, the application of VR technology also showcases astonishing charm in traditional painting.

"VR Interpretation of Spring Dawn in Han Palace" is China's first interactive VR reconstruction of a traditional long scroll painting. The work is based on the heavy-color painting of women by the

Ming Dynasty painter Qiu Ying, "Spring Dawn in the Han Palace", and the help of virtual reality technology to show every detail of this painting in a three-dimensional way, which can make the audience feel as if they were in the scene of the "Spring Dawn in the Han Palace". Reinterpret the previous traditional Chinese art and restore the most authentic historical content of the time to the greatest extent. Another illustration is the "Han Xizai Night Banquet" application, which was made available by the Palace Museum and is based on the painting "Han Xizai Night Banquet" by Gu Hongzhong, a Southern Tang master. It uses virtual reality technology to allow users to click with their fingertips and feel as if they are actually there. It blurs the boundaries between paintings and reality, allowing the audience to immerse themselves in the artistic atmosphere created by scroll creation [1].

Different from other experiential VR games, VR works in traditional painting art also have the purpose of "edutainment and entertainment". The main purpose is to stimulate users' interest in traditional Chinese painting art through their own experience, and also help guide users to learn traditional Chinese painting art [1].



Fig. 1 Qingming Shanghe Tu [1]

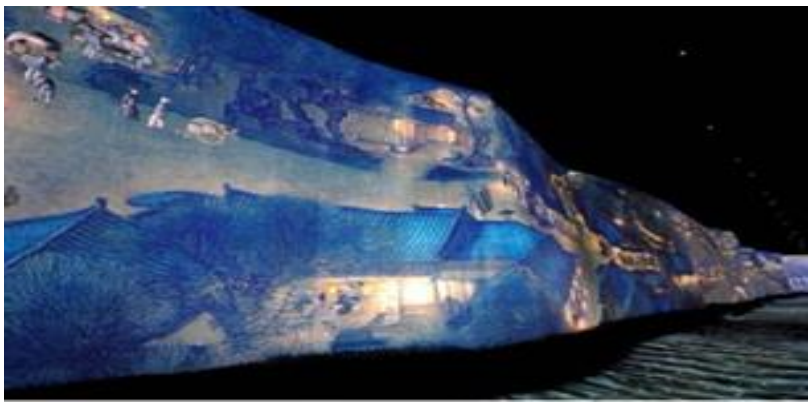


Fig. 2 VR Version of Qingming Shanghe Tu [1]

3.2. Application of Virtual Reality Technology in Traditional Architecture

China has had a sizable territory, a wealth of resources, and a long history of architectural art. Relying on traditional architectural art with modern virtual reality technology, we can reproduce the historical and cultural features of traditional architectural art and let the public appreciate the infinite charm of Chinese art [8].

In 2008, the Palace Museum cooperated with IBM to build the “Forbidden City that transcends time and space”. " (Fig. 3), this is the first online virtual world in China to feature significant historical and cultural works. The six visitor tour routes created for "The Forbidden City Beyond Time and Space" allow visitors to experience the historical and cultural charm of the Forbidden City immersivity while also using virtual reality technology to virtually recreate palace structures, furnishings, and figures. This allows visitors to better understand the largest and best-preserved palace in the world from various perspectives. In 2017, the Palace Museum launched the "Zhu Di built the Forbidden City" VR4D immersive experience museum project. Visitors can experience the

architectural history of the Forbidden City in Beijing by following the Ming Dynasty Emperor Zhu Di as he sketches out the Forbidden City's architectural blueprint while wearing VR4D helmets. In short, using virtual technology high-tech methods can expand the public's understanding of traditional architectural art and enable people to appreciate the history and cultural features of traditional Chinese architectural art [9].



Fig. 3 Forbidden City that Transcends Time and Space [1]

4. The application value of virtual reality technology in the communication of traditional art and culture in the new media era

4.1. Utilize Virtual Reality Technology to Advance Traditional Culture

As a result of recent advances in science and technology, virtual reality technology is now being used extensively in a number of fields. Among them, virtual reality technology has a relatively large development potential for communicating traditional Chinese art and has emerged as the field's primary growth direction. Through the use of virtual reality technology for communication, viewers from all over the world can learn about traditional Chinese culture. In order to effectively produce cultural output, virtual reality technology promotes Chinese traditional culture by simulating the "real" environment, immersing the audience, and heightening their sense of experience and interest [6]. On the other hand, the fusion of Chinese traditional art and virtual reality technology can also successfully compensate for the inheritance's obvious flaws.

4.2. Enhance Interactivity Between Audiences and Traditional Art and Culture

There is little "interaction" between the audience and art culture in the traditional one-way, indoctrinating communication methods of art and culture. Virtual reality technology demonstrates "interactivity" characteristics. With the help of virtual reality technology, the audience is able to fully express their consciousness and initiative, mobilize their thinking, and engage in a "dialogue" with traditional art and culture, deepening their understanding of traditional culture and artistic expression. The audience can move around the scene and engage with the content and stories of the poems and songs, for instance, by using audience interaction techniques to build and simulate the content or stories described in traditional ancient poems [10]. The "communication" and "dialogue" between the audience and traditional art and culture are realized through this method of experience, which significantly improves the communication effect of traditional art and culture.

5. Conclusion

The article draws the conclusion that virtual reality technology can be used to preserve and transmit traditional Chinese culture by showcasing the strengths of VR technology and the transmission and inheritance of traditional Chinese culture. Virtual reality technology can obtain visual effects from different angles, and viewers can actively change their perspectives and select the corresponding

information when viewing the corresponding virtual images. In addition, virtual reality technology can also provide users with an immersive experience, users can not only interact with the work through environmental interaction but also effectively interact with the work through the virtual reality world without interference from the surrounding environment. On the one hand, image elements are utilized, and on the other hand, light and shadow scenes are dispatched, and the two aspects are combined to build a realistic scene. This is also helpful in spreading and promoting Chinese traditional culture to the world. For the country, the inheritance of Chinese traditional arts is very important, but the protection of cultural heritage also faces different problems. Cultural relics are often damaged and over-exploited, and the application of virtual reality technology can restore the real scenes of the time. It can also be applied to the process of protection and restoration of cultural heritage, which is important for the inheritance of traditional arts and also has certain practicality.

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