

The Application of Virtual Reality Technology in Tourism Experience

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Abstract:

This paper discusses the specific application of virtual reality technology in tourism experience and its role in promoting the development of tourism industry. By elaborating the application examples of virtual reality technology in tourism product development, scenic spot preview, historical and cultural reproduction and tourism interactive experience, this paper shows how virtual reality technology can provide tourists with a more real and vivid tourism experience, and analyzes the feedback and evaluation of tourists. The article also takes the Palace Museum, Jiuzhaigou and Notre Dame de Paris as examples to further illustrate how virtual reality technology can improve tourism experience. In general, virtual reality technology, with its unique immersive experience, is bringing revolutionary changes to the tourism industry, greatly enriching the content and form of tourism, and improving the participation and satisfaction of tourists.

Keywords:

Virtual Reality Technology, Tourism Experience, The Reappearance of History and Culture, Tourism Interaction, Immersive Experience, Tourism Transformation

1. Introduction

With the rapid development of science and technology, virtual reality (VR) technology has gradually penetrated into various fields. As an important representative of experience economy, the tourism industry has also begun to actively explore the application of virtual reality technology. With its unique immersive experience, virtual reality technology has brought new possibilities and opportunities for tourism. This paper aims to explore the specific application of virtual reality technology in tourism experience, and analyze its role in promoting the development of tourism industry.

2. Specific Application of Virtual Reality Technology in Tourism Experience

With its unique advantages, virtual reality technology is gradually changing the traditional mode of tourism industry. Through virtual reality technology, tourism enterprises can provide tourists with more real and vivid tourism experience, so as to

enhance the participation and satisfaction of tourists. Next, this paper will elaborate the specific application of virtual reality technology in tourism product development and scenic spot preview.

2.1. Development and implementation of virtual reality tourism products

With the continuous development of virtual reality technology, more and more tourism enterprises begin to try to apply it to the development of tourism products. Virtual reality tourism products can not only provide tourists with more real and vivid tourism experience, but also enhance tourists' participation and immersion.

2.1.1. Design ideas and characteristics of virtual reality tourism products

The design idea of virtual reality tourism products is to build a highly realistic virtual tourism environment based on the three-dimensional data of real scenic spots and virtual reality technology. In this environment, tourists can freely explore the scenic spots and feel the charm and cultural atmosphere of the scenic spots. The characteristics of this product are mainly reflected in the following aspects:

First, it is highly realistic. Virtual reality tourism products are constructed based on the three-dimensional data of real scenic spots, so they can restore the real appearance of scenic spots and bring tourists an immersive feeling. Tourists can walk freely in the virtual environment, watch the scenic spots, and even interact with the scenic spots, such as opening the doors and windows in the scenic spots, touching the exhibits, etc.

Secondly, it is highly interactive. Virtual reality tourism products not only provide visual realism, but also provide rich interactive functions for tourists. Visitors can interact with the virtual environment through handles, helmets and other devices, such as picking up objects, operating mechanisms, etc. This interactivity enhances tourists' sense of participation and immersion, and enables tourists to have a deeper understanding of the history and culture of the scenic spot.

Finally, the information is rich and diverse. Virtual reality tourism products can integrate a variety of information display methods, such as text, audio, video, etc. Through this information, tourists can understand the historical background and cultural connotation of the scenic spot. At the same time, virtual reality tourism products can also provide multiple language choices for tourists from different countries and regions.

2.1.2. Technological realization process of virtual reality tourism products

The technological realization process of virtual reality tourism products mainly includes the following steps:

First, data acquisition and processing. In order to build a highly realistic virtual environment, it is necessary to collect detailed data from real scenic spots. This includes information about the landform, architectural style and vegetation distribution of the scenic spot. The collected data needs to be processed to generate a 3D model suitable for virtual reality environment.

Secondly, build a virtual environment. Based on the processed 3D model, the virtual environment is constructed by using virtual reality technology. This environment needs to include all parts of the scenic spot, as well as natural environmental factors such as sky and light. At the same time, sound, light and shadow effects need to be added to the environment to enhance the realism.

Then, the interaction design is carried out. In order to enhance tourists' sense of participation and immersion, it is necessary to add rich interactive functions to the virtual reality environment. This includes the action of tourists, the change of viewpoint, and the interaction with objects in the scenic spot. Interaction design needs to fully consider the needs and habits of tourists to ensure that tourists can easily interact with the virtual environment.

Finally, product testing and optimization. After product development, virtual reality tourism products need to be tested to ensure their stability and fluency. At the same time, it also needs to be optimized according to the test feedback to improve the user experience of the product. This includes optimizing scene rendering effect and improving interactive response speed.

2.2. Application of virtual reality technology in the preview of tourist attractions

In the tourism industry, scenic spot preview is one of the important means to attract tourists. The traditional way of preview of scenic spots is mainly through pictures, videos and other forms of display, but this way often can not let tourists really feel the charm and atmosphere of the scenic spots. The application of virtual reality technology brings new possibilities for the preview of scenic spots.

2.2.1. virtual reality representation of scenic spot Preview

Through virtual reality technology, the scenic spot preview can be displayed in a new three-dimensional form. Tourists can enter a highly realistic virtual scenic spot environment by wearing virtual reality helmets and other devices. In this environment, tourists can freely explore every corner of the scenic spot and feel the beauty and charm of the scenic spot. This form of expression is not only intuitive and free, but also can stimulate tourists' interest in tourism.

The presentation form of virtual reality scenic spot preview has the following advantages: first, it provides a comprehensive perspective, so that tourists can enjoy the scenic spots from all angles; Secondly, through highly realistic three-dimensional models and exquisite light and shadow effects, virtual reality scenic spot preview can restore the real appearance of scenic spots; Finally, combined with the interactive function, tourists can interact with scenic spots in the virtual environment, such as touching exhibits, opening doors and windows, etc.

2.2.2. Tourists' feedback on virtual reality scenic spot Preview

From the feedback of tourists, the virtual reality scenic spot preview has been widely welcomed and recognized. Tourists believe that this way can make them more intuitively understand the characteristics and charm of the scenic spot, plan the tour route in advance, and improve the tour efficiency. At the same time, virtual reality preview can also stimulate their interest in tourism and increase their sense of expectation for scenic spots.

However, some tourists also reported that although the virtual reality preview has a strong sense of reality, it is still different from the actual tour. Therefore, they suggest adding more actual tour elements in the preview, such as the real feedback of tourists, the real-time weather of scenic spots, etc., to improve the accuracy and practicability of the preview. In addition, some tourists mentioned that the comfort and ease of operation of virtual reality equipment need to be further improved.

According to the feedback from tourists, tourism enterprises can continuously optimize the forms and functions of virtual reality scenic spot preview. For example, more interactive functions can be added to let tourists have a deeper understanding of the history and culture of the scenic spot during the preview process; At the same time, we can also consider combining virtual reality technology with other technologies, such as augmented reality (AR) technology, big data analysis, etc., to provide tourists with a more personalized and intelligent travel experience.

In general, the application of virtual reality technology in the preview of tourist attractions provides a new preview method for tourists, so that tourists can have a comprehensive understanding of the scenic spots before departure. Although there are still some problems and challenges, with the continuous progress of technology and the continuous expansion of application scenarios, it is believed that the application of virtual reality technology in the tourism industry will be more and more extensive and in-depth. At the same time, with the continuous improvement of tourists' requirements for tourism experience, virtual reality technology will also play a more important role in improving the quality of tourism and meeting the personalized needs of tourists.

2.3. Application of virtual reality technology in the reappearance of history and culture

History and culture is an important part of tourism, and virtual reality technology provides new possibilities for the reappearance of history and culture, making tourists more intuitive to feel and understand history.

2.3.1. Case analysis of using virtual reality technology to reproduce history and culture

With the continuous development of virtual reality technology, more and more historical and cultural sites and museums begin to use this technology to reproduce historical and cultural scenes. For example, the Forbidden City Museum has launched a virtual reality version of the Forbidden City Architectural atlas. Visitors can visit the palaces of the Forbidden City through virtual reality helmets, and even "travel" to the Qianlong period of the Qing Dynasty to witness the court life of that era.

There are many similar examples abroad. For example, through virtual reality technology, the ruins of the ancient city of Rome reproduce the urban landscape of ancient Rome, making tourists feel the glory of ancient Rome as if they had traveled thousands of years ago. In addition, some museums use virtual reality technology to digitally reproduce historical events or cultural phenomena, providing tourists with richer and more vivid historical and cultural experience.

The successful application of these examples not only enriches the cultural connotation of tourism, but also improves the tourism experience of tourists. Through virtual reality technology, historical culture is no longer just a description of words and pictures, but becomes vivid and more easily understood and accepted by tourists.

2.3.2. Tourists' acceptance and feeling of historical and cultural reproduction

Tourists showed high acceptance and satisfaction with the application of virtual reality technology in the reappearance of history and culture. Many tourists said that through the virtual reality technology, they can more intuitively understand the history and culture, and feel the heavy sense of history and the charm of culture. This new

way of tourism not only enhances their tourism experience, but also deepens their understanding and understanding of history and culture.

At the same time, tourists also reflect that the application of virtual reality technology makes the visits to historical and cultural sites and museums more interesting and vivid. They can explore freely in the virtual reality environment, interact with historical figures, and even participate in historical events. This immersive experience makes them seem to go through the past and experience the changes of history.

However, some tourists put forward some suggestions on the application of virtual reality technology. They believe that although virtual reality technology can reproduce historical and cultural scenes, sometimes it is too visual and ignores the authenticity of historical and cultural scenes. Therefore, they hope to pay more attention to the accuracy of history and culture in the future and avoid the tendency of over commercialization and entertainment.

2.4. Application of virtual reality technology in tourism interactive experience

With the rapid development of tourism, tourists' demand for tourism experience is also rising. The introduction of virtual reality technology has brought a new breakthrough for the interactive experience of tourism, making tourists more deeply involved in tourism activities.

2.4.1. Ways and effects of virtual reality technology to enhance tourism interactive experience

Virtual reality technology creates an immersive tourism space for tourists by simulating the real environment. In this space, tourists can freely explore and interact to obtain a more authentic tourism experience. For example, in some theme parks or amusement parks, tourists can experience more exciting and realistic amusement projects through virtual reality technology, such as roller coasters, flight simulators, etc. These projects not only enhance the sensory experience of tourists, but also allow them to participate in tourism activities more deeply.

In addition, virtual reality technology can also be combined with other technologies, such as sensors, voice recognition, etc., to achieve a more intelligent interactive experience of tourism. For example, in some museums or exhibition halls, visitors can interact with the exhibits through voice recognition technology to understand the details and historical background of the exhibits. This intelligent interactive way not only improves tourists' visiting experience, but also makes tourism activities more interesting and vivid.

The application effect of virtual reality technology is also remarkable. First, it improves the participation and satisfaction of tourists. Through immersive experience and rich interactive links, tourists can have a deeper understanding of the culture and history of the tourism destination, so as to enhance their sense of identity and belonging to the tourism destination. Secondly, virtual reality technology has also enhanced the attraction of tourist destinations. Through unique interactive experience and realistic environmental simulation, the tourist destination can attract more tourists to visit and experience. Finally, virtual reality technology has also brought new business opportunities to the tourism industry. For example, by developing products such as virtual reality tourism games or interactive movies, more revenue sources can be created for the tourism industry.

2.4.2. Tourists' feedback and evaluation of virtual reality interactive experience

From the feedback of tourists, the virtual reality interactive experience has been widely welcomed and praised. Many tourists said that through virtual reality technology, they can get a more real and vivid tourism experience, as if they felt the beauty and charm of the tourism destination. At the same time, the interactivity and interest of virtual reality technology also enable them to have a deeper understanding of the culture and history of the tourist destination.

However, some tourists have put forward some suggestions for improving the virtual reality interactive experience. They believe that although virtual reality technology provides an immersive experience, sometimes the operation interface is not friendly enough, leading to some difficulties in the interaction process. Therefore, they hope to further optimize the operation interface and improve the fluency and convenience of the user experience in the future.

In addition, some tourists mentioned that the comfort and portability of virtual reality devices need to be improved. They believe that the existing virtual reality equipment is bulky, and it may feel uncomfortable to wear it for a long time. Therefore, they expect to develop more portable and comfortable virtual reality devices in the future, so as to better enjoy the interactive experience of virtual reality.

In general, the application of virtual reality technology in tourism interactive experience has brought tourists a more real and vivid tourism experience. Although there are still some problems and challenges, with the continuous progress of technology and the continuous expansion of application scenarios, it is believed that the application of virtual reality technology in the tourism industry will be more and more extensive and in-depth. At the same time, the feedback and suggestions of tourists will also promote the continuous optimization and development of virtual reality technology, and bring more innovation and opportunities to the tourism industry.

3. Specific Performance of Virtual Reality Technology in Improving Tourism Experience

The introduction of virtual reality technology has greatly enriched the content and form of tourism experience. The following are some specific case studies to illustrate how virtual reality technology has brought revolutionary changes to tourism.

3.1. Virtual reality tour of the Palace Museum

As a treasure of Chinese culture, the Palace Museum attracts a large number of tourists every year. However, due to the need of cultural relics protection and flow control, it is often difficult for tourists to appreciate each precious cultural relic in close distance. The introduction of virtual reality technology has effectively solved this problem. By wearing virtual reality helmets, tourists can visit the palaces of the Forbidden City, and even “deconstruct and recreate” digital high-definition reproduction of the Forbidden City buildings, breaking the traditional static “picture frame” viewing mode, and “deconstruct and recreate” digital high-definition reproduction of paintings, making masterpieces lifelike. This immersive way of visiting not only allows tourists to have a deeper understanding of the history and culture of the Forbidden City, but also greatly improves the tourist experience.

3.2. Virtual reality exploration in Jiuzhaigou

Jiuzhaigou is famous for its unique natural scenery, but due to its remote location and fragile natural environment, on-site tourism is restricted by many factors. The application of virtual reality technology provides tourists with a new way of exploration. Through virtual reality technology, tourists can visit every corner of Jiuzhaigou at home and feel the magnificence and mystery of nature. This way of tourism not only reduces the damage to the natural environment, but also allows more tourists who cannot go to Jiuzhaigou in person to enjoy its unique natural scenery.

3.3. Virtual reality tour of Notre Dame de Paris

Notre Dame de Paris is one of the landmark buildings in France, which attracts a large number of tourists every year. However, due to the complex structure and protection needs inside the building, it is often difficult for tourists to fully understand the history and architectural style of Notre Dame. The introduction of virtual reality technology provides a new way for tourists to visit. By wearing virtual reality helmets, visitors can freely explore every corner of Notre Dame, and even “walk through” the internal structure of the building to experience its unique architectural aesthetics and historical culture.

To sum up, virtual reality technology enables tourists to better understand the history, culture and natural scenery of the tourism destination by providing an immersive tourism experience. This technology not only enriches the content and form of tourism experience, but also improves the participation and satisfaction of tourists.

4. Prospect of Virtual Reality Technology in Tourism Industry

4.1. Market prospect of virtual reality technology in the tourism industry

With the continuous improvement of consumers' requirements for tourism experience, the market prospect of virtual reality technology in the tourism industry is increasingly broad. First of all, from the perspective of consumer demand, modern tourists are more in pursuit of personalized and diversified tourism experience. Virtual reality technology just meets this demand and provides tourists with a more free and flexible way to travel. Therefore, more and more tourists begin to try and like VR tourism, a new type of tourism.

Secondly, from the perspective of industry development, virtual reality technology has brought new business models and profit points to tourism enterprises. By developing VR tourism products, tourism enterprises can attract more potential tourists and improve customer satisfaction and loyalty. At the same time, VR tourism also helps to alleviate the passenger flow pressure in the peak tourism season and balance the contradiction between supply and demand of tourism resources.

Finally, from the perspective of policy support, the government has also given strong support to the application of virtual reality technology in the tourism industry. Governments at all levels have issued relevant policies and measures to encourage tourism enterprises to strengthen scientific and technological innovation and promote the rapid development of VR tourism industry. This will provide a strong guarantee for the wide application of virtual reality technology in the tourism industry.

4.2. Challenges and opportunities of virtual reality technology in the tourism industry

Although virtual reality technology has broad market prospects in the tourism industry, it also faces some challenges in the process of practical application. First of all, technology cost is still a problem that can not be ignored. At present, high-quality VR equipment and content production still need high input costs, which limits the popularization and promotion of VR tourism to a certain extent. In order to reduce the technology cost, we can consider to optimize the cost through technological innovation and scale effect.

Second, user experience is also a key link in the development of VR tourism. Although virtual reality technology can bring immersive tourism experience to tourists, it is easy to make tourists feel uncomfortable and disappointed if the equipment comfort is poor or the content quality is not high. Therefore, improving user experience is one of the key issues in the development of VR tourism. The satisfaction of user experience can be improved by improving device design, content quality and richness.

However, despite the challenges, virtual reality technology has also brought great opportunities in the tourism industry. With the continuous progress of technology and the gradual reduction of cost, VR tourism is expected to achieve a wider popularization and application. At the same time, with the rapid development of 5g, cloud computing and other new generation information technologies and the continuous promotion of application integration and innovation, virtual reality technology will achieve deeper integration and innovative application with the tourism industry. This will bring broader development space and market opportunities for the tourism industry.

5. Conclusions

In the tourism experience, the application of virtual reality technology provides tourists with a new and immersive way of tourism, which greatly enriches the content and form of tourism. Through case analysis, it is found that virtual reality technology can rebuild famous scenic spots, so that tourists can feel the beauty and shock of real scenic spots at home. At the same time, the functions of virtual tour guide and virtual experience also enable tourists to have a deeper understanding of the history, culture and natural scenery of the tourism destination, and improve the participation and satisfaction of tourists.

In addition, virtual reality technology has also brought many conveniences to the tourism industry. It breaks the restrictions of time and space, allowing tourists to experience the fun of tourism anytime, anywhere. Moreover, virtual reality technology can also be used for tourism preview and planning to help tourists understand the actual situation of the tourism destination in advance and select the most appropriate tourism route, so as to improve the tourism experience.

To sum up, the application of virtual reality technology in tourism experience has significant advantages and potential. However, this technology is still in its infancy and needs to be further improved and optimized. In the future, with the continuous progress of technology and the continuous expansion of application scenarios, virtual reality technology is expected to play a more important role in the tourism industry, providing tourists with a more real, vivid and rich tourism experience. Therefore, we

should actively explore more applications of virtual reality technology in tourism experience, and promote the innovation and development of the tourism industry.

Conflicts of Interest

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