Application of Augmented Reality Technology in Immersive Experience of Bo Zhou Intangible Cultural Heritage Wuqinxi

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Abstract: Intangible cultural heritage is a very important form of cultural heritage, Wuqinxi as a national intangible cultural heritage, in the current social background, its development and inheritance are facing a severe test, it is urgent to explore a new path of protection. The development of digital technology, especially the rapid development of augmented reality technology, provides a new idea for the protection and inheritance of intangible cultural heritage. Wuqinxi intangible development present situation and the purpose of this paper is to investigate analysis based on facing the bottleneck, to explore how AR technology combined with the art characteristic of this kind of Wuqinxi intangible, through methods such as interactive and immersive virtual experience, as well as increase the fun, coruscate Wuqinxi new life charm, for Bozhou intangible Wuqinxi better popularity and spread both at home and abroad more beneficial exploration.

Keywords: Augmented reality technology, Wuqinxi, Digital technology, Immersive experience

1. Introduction

As a national intangible cultural heritage, Wuqinxi contains rich connotation of health preservation, has high historical value, cultural value and artistic value, and is an important witness of the development history of Chinese traditional health preservation culture. Bozhou municipal government attaches great importance to the protection and construction of Wuqin Opera and has made a lot of achievements in the protection and construction of Wuqin Opera intangible cultural heritage. However, due to the rapid development of modern society and the impact of foreign culture, the development of Wuqin Opera is not satisfactory. At present, due to the lack of inheritors, the promotion is usually unilaterally implanted into social groups through some books, pictures and video materials, which cannot be fully accepted by the public. Moreover, few people know the origin of Wuqinxi and the cultural genes behind it. Obviously, the traditional way of protection is at a loss for the problems faced by the Intangible cultural heritage of Wuqin Opera in the new era. Therefore, a communication method with interactive, interesting and immersive experience is needed to promote Bozhou Intangible Cultural Heritage Wuqin Opera in the new era.

Augmented Reality technology (hereinafter referred to as AR) can establish the existing intangible heritage data into a database, not limited by time, space and location, can be visualized through AR technology to present the data in front of the public, interact with the audience, so that people have an immersive experience and enjoy it.

This paper investigates the construction of Bozhou Intangible cultural Heritage Wuqinxi, refers to the digital communication methods of intangible cultural heritage, libraries and cultural centers around the country, excavates the development mode suitable for digital protection of Wuqinxi, and analyzes the characteristics of Wuqinxi in terms of health preservation, medical value, artistic value and cultural value. The application of AR technology in digital protection of Bozhou Intangible Cultural Heritage is explored and summarized.

2. The Development Status Of Intangible Cultural Heritage Wuqinxi

2.1. Brief Introduction of Bozhou Intangible Cultural Heritage Wuqinxi

As a national intangible cultural heritage project, "Hua Tuo Wuqin Opera" has a long history. The Bozhou Hua Tuo Wuqin Opera is a set of guiding techniques created by Hua Tuo based on the "Two

Birds Opera" in Zhuangzi and combining the principles of traditional Chinese medicine, imitating the five animals, tiger, deer, bear, ape, bird, and the five animals' movements and expressions. It is recorded in the Book of the Later Han dynasty that "I have an art called the play of five birds: tiger, deer, bear, ape and bird. Also to eliminate disease, and the hoof, as guidance ". From this point of view, the development of Wuqin Opera has a long history, in the long development of Wuqin Opera has gradually evolved into different factions.

2.2. The Development Status and Existing Problems of Wuqin Opera in Bozhou

2.2.1. The Government Attaches Great Importance to the Development of Wuqinxi

China has put forward the development policy of "protection first, salvage first, rational utilization, inheritance and development" for intangible cultural heritage. Bozhou is a famous historical and cultural city at the national level. In recent years, the local government has taken "Hua Tuo Wu Qin Opera" as a living name card to promote the cultural tourism in Bozhou. After the government's active application, in 2005, "Huatuo Wuqin Opera" was listed in the Intangible Cultural Heritage list of Anhui Province, in 2011, "Huatuo Wuqin Opera" was listed in the third batch of national intangible cultural heritage list by The State Council, in 2012, Bozhou was awarded the title of "China Wuqin Opera Hometown". At the same time, the relevant government departments actively take effective measures to give strong support to "Huatuo Wuqin Opera" in terms of human, material and financial resources, and promote the cooperation of all aspects of society to actively expand the development space of "Huatuo Wuqin Opera".

2.2.2. The Combination Degree of Digital Technology such as Augmented Reality Technology and Bozhou Wuqin Opera is not High

In 2017, the outline of the national cultural development and reform Plan for the 13th Five-Year Plan period proposed to "promote the construction of digital libraries, cultural centers and museums" and "use scientific and technological achievements such as cloud computing, artificial intelligence and the Internet of Things to foster new types of cultural businesses. Strengthen the research and development and application of augmented reality technology ", aiming to deepen the combined application of digital technology, especially emerging digital technology and intangible cultural heritage. Using digital technology to protect intangible cultural heritage has become the need of the development of The Times, among which the use of increasingly mature augmented reality technology has become a new trend of international protection and dissemination of intangible cultural heritage.

Although Bozhou municipal government has invested a lot of energy in the protection and inheritance construction of the Intangible cultural heritage, and has carried out a series of online activities. However, in this era of "fast food consumption" emphasizing "service process", it is often crucial for the public to obtain the content in the first few seconds when browsing website pages. Bozhou city government to create a series of Wuqinxi health website page, also only a glance, page attraction is not high, no interaction, experience is not strong. It can be seen that the combination degree of digital technology, especially AR technology in Bozhou intangible Cultural Heritage Wuqin opera is not high. At present, an interactive and immersive experience is still needed to attract the public, so as to promote Wuqinxi. Combined with the current epidemic era, home isolation can also experience the fitness skills of Hua Tuo Wuqin Opera, improve their own immunity, but also through digital technology to play a sense of fun experience. This is a dynamic process that follows the laws of history and involves economic, political, cultural and other aspects.

3. The Concept and Characteristics of AR Technology

3.1. Concept of AR technology

AR is short for augmented Reality, which is also known as MR (Mixed Reality) abroad and augmented Reality in Taiwan. AR is a branch of virtual reality gradually developed, and has become a hot research field of domestic and foreign scholars in recent years. AR technology is a technology that accurately "superimposes" the two-dimensional or three-dimensional virtual digital content information (text, graphics, animation, sound, video, virtual three-dimensional objects, etc.) generated by computer into the real environment that users want to experience with the help of information technology, various sensing technologies, computer vision technology and multimedia technology, Its purpose is to enhance users' perception of the real environment by integrating the computer-generated virtual digital content information with the real environment. The application of AR technology results in "adding" virtual

objects (virtual three-dimensional objects, text, graphics, video, animation, etc.) in the real environment. Such "adding" is a seamless "fusion" between the real environment and virtual objects, rather than a simple superposition. Ronald T. Azuma, an American scholar, concluded that augmented reality has three obvious characteristics: virtual and real fusion, real-time interaction and three-dimensional registration. In the United States, Japan, Germany and other information technology more developed countries, experts and scholars and research institutions have begun the augmented reality in military, medical, education, publishing, and historical restoration and digital culture, industrial maintenance, network video communications, television broadcast, entertainment, tourism, exhibition display, such as planning and design in the field of applied research and industrialization development.

3.2. The Characteristics of AR Technology

3.2.1. Enhance the Real-Time of User Interactive Experience

This kind of experience emphasizes to put the user in the core position and pay attention to the subjective feelings of the user in the process of using the product or enjoying the service. The application of AR technology to intangible cultural heritage accords with the current user-centered market development trend. It can realize intelligent interaction of digital intangible cultural heritage contents in the real world, give users an interactive experience, and experience the cultural connotation while feeling the pleasure brought by consumption.

3.2.2. Virtuality and Reality Combination

The protection of some intangible cultural heritage projects depends on the environment at that time, but with the development and change of The Times, most of the former environment has passed away and no longer exists. The application of AR, the digital technology, can superimpose the disappearing environment on the real environment, achieve the seamless connection between the real and virtual, and then present the user with a new and real feeling.

3.2.3. Multiple Senses Enhance the Effect

At present, AR technology mostly gives people a visual effect of augmented reality, in fact, it can also achieve the effect of augmented reality from taste, hearing, smell and touch. Applying various sensory enhancement effects of AR technology to intangible cultural heritage, such as Wuqin Opera, folk song and dance, and traditional handicraft skills, can not only fully demonstrate their respective characteristics and significant advantages, but also have important practical significance for their protection and inheritance. On the one hand, the historical and cultural origin of intangible cultural heritage can be understood. On the other hand, compared with boring text annotations, the immersive picture is easier to make people get absorbed in it, as if they are in it and enjoy it.

4. Immersive Experience Application of AR Technology in Inheritance of Intangible Cultural Heritage Wuqinxi

4.1. Establish an APP With Wuqinxi as its Content

Firstly, Wuqinxi APP is a mobile application based on innovative design, interactive design and service design with user experience as the core. It combines augmented reality technology with Wuqinxi mobile terminal information platform and is committed to building a seamless new mobile Internet multi-resource integration platform for users. To maximize the content and form of intangible cultural heritage communication depth extension. In "Wuqinxi" APP, users can watch the Wuqinxi animation form by means of scanning the origin of various forms of history and Wuqinxi, 360 ° omni-directional three-dimensional configuration, the initiative of cultural exchange and interaction are improved, make up the entity display the Angle limit, effectively promoted the development of the intangible Wuqinxi culture industry.

Secondly, the whole AR display application function can be roughly divided into content display, AR application, production experience, interactive games and so on. The user can interact with the game through the mobile terminal, and the AR technology can reconstruct the scene. The user can choose the mode of game entry and imitate the action of Wuqinxi. The action standard is pass. AR technology can not only superimpose colorful virtual information of Wuqinxi into the real world where users live, but also allow users to simply interact with virtual objects and enjoy dynamic images of Wuqinxi in an all-round way. When the user enables the AR function in a specific season or city and scans the current street

view, virtual scenes representing the current region and surrounding areas can be obtained on the mobile phone screen. For example, if you go to Sichuan in summer, the avatar in the virtual scene will speak The Sichuan dialect, wear short sleeves, and fully integrate with the scene around you, and experience the local customs. At the same time, users can also use the camera function of the mobile phone to take pictures of the scene and spread it to all kinds of information platforms, share with others the local practice of the Five Birds opera, spread the traditional culture, promote and spread the traditional culture to the maximum extent, and meet people's demand for diversified information.

4.2. Construct Regional AR Immersive Experience Interactive Place

Bozhou city, known as the capital of medicine, is also developing the city when developing the inheritance of the Intangible cultural Heritage of Wuqin Opera, using AR technology to combine with the local tourism industry. During the Lantern Festival, temple fair and festival activities, the IP pet image of Wuqinxi is developed, and each image has a nickname to increase the sense of closeness. Such as: tiger girl, uncle Deer, grandfather bear, grandmother ape, crane brother. To the public subtly conveys a sense of atmosphere of wuqinxi adapting to men, women and children, from the old to the young, at the entrance and exit of scenic spots, festival activities, warm greetings to the tourists. Through the interaction of AR technology, participants can have an immersive experience. Bozhou scenic spots rely on tour guides for oral explanation, which has great limitations and is also a bit of a chicken rib for individual visitors. At present, AR has included the physical scanning technology. We can set up the AR function for scenic spots. Tourists can scan the Qr code of scenic spots at any time, see more rich dynamic effects and understand more relevant cultural and historical connotations. The development of IP image tourism souvenirs of Wuqin Opera will make tourists realize the importance of current intangible cultural heritage and the current predicament. With our thinking, attention and love, more people will devote themselves to this cause, so that our traditional art treasures will continue to be inherited and developed.

4.3. Develop Fun, Immersive Experiences in the Classroom

The protection, inheritance and development of intangible cultural heritage are not only the leading role of national government departments, but also the protection of non-genetic inheritors and the establishment of human resources database, which are inevitable factors related to the inheritance of intangible cultural heritage. The content of intangible cultural heritage shall be incorporated into the education system, and education shall be introduced into the protection and inheritance of intangible cultural heritage. School education is an important force of cultural communication, and the development of school physical education curriculum resources is an important way to develop national traditional physical culture. Actively use the power of school education, through the traditional national sports culture in school education, cultivate the identity and self-esteem of the young generation of traditional national sports culture, and strive to build a group of young traditional sports culture successors. If the youth is strong, the country will be strong. The physical fitness of primary and secondary schools has always been widely concerned. School education should pay attention to the physical fitness education of students. Wuqinxi will be introduced into the curriculum of primary and secondary schools and colleges, and every student is a small inheritor of Wuqinxi.

AR technology is used to set up real scenes in physical education courses, so that students can feel every action in the scene. Students can also interact with the characters in AR, voice communication, and enhance the fun. Let the physical education course of Wuqinxi become the favorite course of students. The AR book of Wuqinxi was compiled. When the book was opened, the real scene appeared, attracting students' attention and completely immersing themselves in the scene in front of them. Not only can students form the habit of reading, but also can increase their understanding of intangible cultural heritage. Students are the subject of education. Each student accepts Wuqinxi from his heart, understands its cultural value and connotation, cultivates his sense of national identity, sense of responsibility and cultural confidence, and can better spread the Intangible cultural heritage to a deeper stage. At the same time also hope that can have the connotation of advertising, the students learn by AR technology Wuqinxi video of the course, with the way of media, website promotion in Bozhou city, the railway station, bus station, and shaking, audio video and other network platform for sharing, let more people understand intangible, to understand Wuqinxi and Bozhou, pay attention to body health.

5. Conclusion

AR technology is used to transform cultural products and industrialize the development of intangible

cultural heritage resources, which is an innovative development mode of digital cultural industry involving multi-fields, multi-disciplines and multi-formats. The digital industrialization development of intangible cultural heritage resources, especially the intangible cultural heritage resources like sports, with the help of AR technology can make up for the defects of the protection and development of intangible cultural heritage resources by traditional means. In the future research work, it is advisable to promote the process of this work quickly, and make use of AR technology and digital technology to strengthen the reasonable protection and industrialization development of intangible cultural heritage resources. This can not only better protect and inherit intangible cultural heritage, but also promote the rapid development of cultural creative industry and cultural tourism industry, and promote the prosperity and harmonious development of economic society.

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Reference

[1] Chen Yimin, Li Qiming, Ma Deyi, Xu Yongshun, Lu Tao, Chen Ming, Yao Zhengwei. Journal of Shanghai university (natural science edition),2011,17(04): 412-428.

[2] Zhang Qingwu. Research on inheritance of Hua Tuo Wuqin Opera. Guide of Sports Culture, 2015, (04):190-193.

[3] Xia Hongwu, Zhang Lei. Research on application value and development path of wuqinxi in the new era. Journal of Dali university,2020, 5(06): 71-74.

[4] Qiao Zhenhua, Huang Zhichao. Application of AR technology in protection and research of intangible cultural heritage: A Case study of Wuyuan Nuo Dance. Computer knowledge and technology, 2019, 15(30): 209-210.

[5] Li Lihui, Jin Guilin. Research on protection and inheritance of intangible cultural heritage based on AR technology. Journal of kunming university of science and technology (social science edition),2020, 20(03): 121-128.

[6] Zhang Minjing. Application of AR technology in Jiangxi Intangible Cultural Heritage art and art protection. Light industry science and technology, 2020, 36(08): 132-133.