

The Application and Research of Digital Media Technology in the Protection and Inheritance of Intangible Cultural Heritage

Qu Shuxun, Yang Hongmin

Shandong Agriculture and Engineering University, Shandong Jinan, China, 250000

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Abstract: China's traditional culture is rich and colorful, among which the intangible cultural heritages in China is the most selected in UNESCO list. Although China is rich in non-legacy resources, such as traditional skills, arts and traditional medicine, however, the living environment is not optimistic for folk traditional culture protection and inheritance in many aspects. The digital technology protecting the intangible cultural heritages is based on the respect for its true form to construct a digital teaching platform for intangible cultural heritages' production, learning and research in colleges and universities, to strengthen the digital protection project for the national intangible cultural heritage, and to provide a new way of thinking for the protection of intangible cultural heritage by relying on the modern digital media technology and scientific and technological means. This dissertation is focused on the application and research of digital media technology in the protection and inheritance of intangible cultural heritage.

1. Introduction

The intangible cultural heritage is the most precious cultural resource and national wealth of the Chinese; is the most important cultural essence of the Chinese civilization that has been precipitating for five thousand years; is the cultural embodiment of differing from other nations; and is the spiritual source of national cultural confidence, vitality and innovation.

2. Constructing different ways to promote the protection and inheritance of Intangible Cultural Heritage

2.1. Current developing situation and research background

Nowadays, the world is in the high-speed era of economic globalization and digital information sharing. Influenced by the transition period of social and economic development, the living environment of folk traditional culture is gradually showing a trend of deterioration, the traditional culture and skills are unprecedentedly impacted and destroyed. Intangible cultural heritage taught by the traditional way of speech and act is gradually disappearing, facing the problems of talent scarcity and talent gap, which makes the protection and inheritance of intangible cultural heritage

facing a severe challenge.

In recent years, the Ministry of Culture has attached great importance to the protection and inheritance of intangible cultural heritage, and has successively issued a variety of effective protection programs and supportive policies. Educational departments at all levels have also issued relevant studies to provide a relatively perfect developing platform for the revival and re-emergence of intangible culture. In 2011, the Law of People's Republic of China on Intangible Cultural Heritage was put into effect, which puts forward a clear request and strong support for the digital protection of intangible cultural heritage in the legal level. Under these circumstances, the digital protection project of intangible cultural heritage is becoming more and more mature, which transforms a large number of intangible cultural heritage into digital cultural products, providing advanced science and technology support, solid and effective way for the protection and inheritance of intangible culture in our country.

It is urgent to improve the visibility, interaction and innovation of intangible cultural elements, increase people's participation and desire to purchase intangible cultural heritage, and expand the consumption market of intangible cultural heritage, especially the ones on the verge of disappearing in our country, such as folk paper-cut, clay sculpture, traditional willow knitting, facade making, nuclear carving technology, knitting, weaving, dyeing, embroidery, shadow play and other related industries.

2.2. Constructing a digital teaching platform for intangible cultural heritages' production, learning and research in colleges and universities

Qiao Xiaoguang, the former chairman of Chinese folk paper-cut board and director of Intangible Cultural Heritage Research Center of the Central Academy of Fine Arts, believes that culture should develop continuously. The creativity of national culture is based on the genetic development of national culture by depending on the joint participation of the youth. It is necessary and important to introduce cultural heritage and promote it to the disciplines, scientific researches and curriculum constructions of the university.

Therefore, regional colleges and universities will become an important place to protect traditional culture and the first strategic defence for the protection and inheritance of intangible cultural heritage. Regional local universities, in particular, are extremely rich in national cultural resources. National intangible cultural heritage ecosystem can be built by the cooperation of students, teachers and local inheritors, by the study of basic theory and the investigation and demonstration of scientific research, and by the laboratory construction of interactive virtual experience and digital platform in the university campus.

And regional universities can jointly build an ecosystem for the protection, inheritance and innovation of intangible cultural heritage by the combination of classroom teaching and on-the-spot investigation, the construction of campus culture atmosphere and new media communication platform, and the cooperation of production, education and research.

2.3. Constructing the digital protection project of National Intangible Cultural Heritage

Up to now, the digital protection project of national intangible cultural heritage has already obtained certain achievements, such as the consistent digital protection of Dunhuang art in the State key Laboratory of Zhejiang University for more than ten years; the digital project of Peking University to Forbidden City and Nanjing University to Three Gorges. All of these projects have provided effective methods and valuable experience to our country to use digital media technology to protect and inherit intangible cultural heritage. Although the digital protection project of intangible cultural heritage in our country developed relatively late, thanks to the strong support of

the governments at all levels, the substantial achievements have also taken on a good development trend. In 2003, Tsinghua University, Beijing physical Education University and Beihang University have made deep research for the Virtual Olympic Museum in 2008, which provides a virtual space for young people in China and the world to learn Chinese traditional sports culture. The School of Journalism and Communication of Tsinghua University has established the digital project of the intangible heritage of the wooden New year Pictures of Zhu Xianzhen in the laboratory of the Media Research Center with impressive effect. The National Laboratory of Zhejiang University has started the project of digital development and protection of folk performing art, and the digital design of Yunnan copper handicraft has also made remarkable achievements. In addition, the digital protection project of clock music and dance in Chu culture implemented by the Institute of Modern Industry of Zhejiang University has also made some progress. Furthermore, Shandong Academy of Arts and Crafts, taking part in the program of intangible cultural heritage research and training in the Ministry of Culture, is one of the 54 influential institutions of higher education in the country at present. Participating in the program, the construction and application of national digital platform has provided a communicating place for the protection, inheritance and innovation of the Qilu intangible cultural heritage.

2.4. Strengthening the digital protection of intangible cultural heritage by various technical means

2.4.1. Optimizing the database of intangible cultural heritage

Databases built by various provinces, regions and municipalities are the core part of digital protection of intangible cultural heritage. All levels of databases provide technical support for digital storage, management, access, information release and sharing of intangible cultural heritage. Therefore, national and local levels should always regard the construction of databases as the focus of digital protection of intangible cultural heritage. All kinds of databases can provide powerful information platforms for digital protection of intangible cultural heritage, such as census databases built by the country, ICH special resources database, ICH projects database, the scientific research and public databases.

ICH publicity measures can be optimized by the classification of ICH in terms of digital form, displaying and spreading of ICH through multiple platforms. Digital technology can not only protect, but also display and exhibit the vivid image of the intangible cultural heritage. The vivid digital culture enables more people to grasp the connotation of intangible cultural heritage and to give people more visual communication effect in order to make more people master and spread intangible cultural heritage.

It is a new form of preserving intangible cultural heritage by the combination of digital technology of promoting the intangible cultural heritage inheritance and industrialization. Digitization can not only transform the image of traditional culture, but also have the characteristics of scale and uniqueness. The combination of intangible cultural heritage and new media which can help spread and inherit will be beneficial for the economic development.

Excavating intangible cultural heritage resources is easy to form an industrial chain. Digitizing intangible cultural heritage modern technology and combining with software and animation can be well spread through the media for building communication platform for intangible cultural heritage and creating new arts by combining with modern culture art, which is not only conducive to the inheritance of ICH, but also to promote economic development and social benefits.

2.4.2. Building virtual reality and augmenting the present museums and discovery halls of intangible cultural heritage

From the technical point of view, the digitization of intangible cultural heritage is the use of digital resources' technology of collecting, storing, processing, displaying to transform, reproduce and restore intangible cultural heritage to a shared, renewable digital form. Guided by digital display, utilization and dissemination, the digitization of intangible cultural heritage can be realized by digital exhibition halls, museums, discovery halls, databases, websites, and new media platforms and so on.

The digitization of intangible cultural heritage can also be realized by using the most advanced 3D modelling, holographic imaging, creative games, augmented reality, speech recognition, headset stereoscopic display, body feeling interaction, mobile terminal encapsulation and other technologies, and can also make users deeply experience the interactive fun of new media, with the help of internet technology and high-end hardware as carrier, making them connect seamlessly in knowledge system and business process.

The intangible cultural heritage is digitized and reproduced by digital platform, scene modelling, special effect rendering and other animation technology. The reproduced virtual archives will be stored in the platform's database and can be displayed and spread as digital museum exhibitions on the platform. The development form of digital products of intangible cultural heritage is changing from single media, one-way display to multi-media. This method can break the physical limitation, facilitate public communication, increase the practical significance of intangible cultural heritage and maximize the utilization of cultural resources.

2.4.3. Establishing a platform for publicizing and popularizing Digital Intangible Cultural Heritage

The development of the times has made all kinds of technology appear in our life at an incredible speed. What we can only imagine in the past has become realistic with the rapid development of science and technology now. The virtual reality technology is undoubtedly one of the best among them, which is a relatively new technology at present, and the characteristic of augmented present technology determines whether it can shine brilliantly in the protection of intangible cultural heritage. At present, this technology can be used to protect the intangible cultural heritage in many ways, such as providing more possibilities for the digitalization of intangible cultural heritage by digital collection, restoration, reproduction and exhibition and so on. Intangible cultural heritage projects can be promoted through the following platforms:

Firstly, Digital interactive platform and augmented reality technology can see a variety of different styles of images of intangible cultural heritage by holding the terminal digital interactive platform, wearing headset stereoscopic display, and using the motion capturing device to display the animation image of intangible cultural heritage.

Secondly, ICH projects can also be promoted by immersing themselves in the digital interactive platform of virtual intangible cultural heritage by showing modern virtual devices, interacting with virtual ICH images through holographic images, and using various new media technologies such as touching recognition, and body sense Interaction, etc.

Thirdly, ICH projects can also be promoted by experiencing intuitively the charm of immersing digital interactive platform to facilitate the publicity and promotion, and by expanding the audience of intangible cultural heritage by downloading and playing quality games related ICH

Fourthly, people can intuitively interpret the traditional intangible cultural heritage and enhance their attention to the protection and inheritance of ICH by downloading mobile phone APPs.

Digital technology, represented by information technology and network means, has made great

progress. Digital technology has not only been widely used in various industrial fields, but also opened up a new way for the protection of cultural heritage. Because of various restricting factors, there are still many problems in the digital protection of intangible cultural heritage in our country, which need to be summarized and improved in the future to serve the protection of intangible cultural heritage well.

3. Conclusion

In conclusion, the intangible cultural heritage has the characteristics of flexibility, vividness and nature, which is the best carrier for carrying local culture, and is also one of the effective measures to maintain "our own" cultural competitiveness in the multi-cultural structures of the world. How to protect and develop immaterial culture well through digital technology, how to carry out the cultural exchange activity by advanced digital and Internet technology, and how to realize the cross national communication and spread of "our own" culture, have become an important research direction in the field of digitization of intangible cultural heritage.

It is necessary not only to improve the technical level of the protection of intangible cultural heritage, but also to ensure the full integration with digital technology to maximize the merits of modern technology according to the actual characteristic of intangible cultural heritage. The importance of intangible cultural heritage is not only for protection but also for promoting its inheritance and development, for expanding its development space, and making intangible cultural heritage reappear brilliantly through the support of modern technologies such as digitization.

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