Research on the Protection and Application of Tujia Brocade Cultural Resources from the Perspective of Digital Humanities

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Abstract: Tujia brocade "Silankapu" is one of the five major brocades of Chinese ethnic minorities. The unique geographical environment has created a colorful national culture and unique customs. As the first batch of national intangible cultural heritage in Wuling Mountain in western Hunan, it has precious cultural value and aesthetic value. With the rapid development of science and technology and the strong impact of foreign culture, traditional crafts are facing unprecedented difficulties and challenges. Aiming at the problems of outdated protection methods of Tujia brocades in western Hunan, insufficient display spaces, and insufficient industrial development, this article uses the theoretical guidance and technical support of digital humanities to digitally process, store, and analyze Tujia brocades, and to carry out innovative development on this basis. Better promote the in-depth integration of culture and technology and industrial upgrading, and realize the long-term preservation and inheritance of cultural heritage.

1. Introduction

Tujia Brocade, also known as "Silankapu", is a kind of handmade brocade of Tujia folk in western Hunan. It is considered as an important cultural symbol and national treasure of Tujia people, which combines the artistic characteristics of Tujia people, such as living habits, religious beliefs, folk culture and aesthetic concepts. Because of its mysterious and exquisite patterns and simple and gorgeous colors, it has become one of the first intangible cultural heritages in China and one of the most distinctive weaving techniques in the south. With the continuous expansion of intangible cultural heritage digitalization and informatization construction, China is vigorously promoting the use of new technologies, new products, new models and new services to promote the better and faster development of cultural undertakings and cultural industries. At the same time, with the help of digital technology, information technology and resource database, this paper explores the innovative design of Tujia Brocade, breaks through the simple protection and development of ethnic minority cultures in the past, and opens up its market channels, thus realizing resource regeneration and providing intellectual support for the cultural and economic development of ethnic minority areas.

2. Overview of Digital Humanities Development

Originated from Humanities Computing, Digital Humanity is a new paradigm that integrates computer methods and technologies into humanities research, and then puts forward and answers humanities questions. The practical significance of digitalization is to improve efficiency, provide better service experience for users from the perspective of users' whole life cycle, provide new research methods and research patterns for the study of new human issues, and creatively discover problems that are difficult to be found by traditional research methods.

Early Digital Humanities mainly focused on literature and linguistics research, but with the advent of the Internet and the rapid development of computers, the objects of Humanities Computing gradually expanded from electronic text to geographic information systems (GIS), virtual technology (VR/AR), and Photo, Video, 3D and other multimedia technologies. Digital humanity is leading the digital transformation of cultural production system, so there are new

interdisciplinary fields. For example, the integration of traditional humanities such as linguistics, literature, history, philosophy, archaeology and art with information science such as library and information science, artificial intelligence and computer science.

This article is the staged achievement information technology of Hunan Province Social Science Fund project "Research on Cultural Inheritance and Innovation of Xiangxi Tujia Brocade under Maker Education Mode" (17YBQ073) is undoubtedly one of the most striking phenomena in the current "digital era" and constitutes A "fundamental situation" of human beings has changed people's way of life and behavior to a certain extent [1]. Its rapid development has promoted the popularization of information technology in various disciplines. Academically, American scholar Negroponte also said in "Digital Survival" that "computing is no longer just about computers, it determines our survival." Digital protection of intangible cultural heritage is to use data collection, storage, processing, display and dissemination technologies to transform, reproduce and restore intangible cultural heritage into data forms that can be shared and recreated [2]. From the traditional protection mode to the combination of modern science and technology and market economy, the cultural value and commercial value of intangible cultural heritage are brought into full play by using digital technology, which provides new ideas and methods for the deep development of traditional culture.

At present, various organizations and institutions with Digital Humanity as the core have been established one after another. Abroad, such as HyperStudio of MIT, Digital Humanity of King's College London, UK, and Kyoto Literature and Art Digital Humanity Research Center of Ritsumeikan University, Japan, etc. In China, there are Digital Humanities Research Center of Taiwan University, Digital Humanity Workshop of Peking University and Digital Humanity Research Center of Wuhan University. The new digital technology is accelerating the construction process of the digital world, and the new cultural form and knowledge production system based on digital media and artificial intelligence are forming. Digital humanity science is leading the digital transformation of cultural time and space, and providing new development prospects and opportunities for large-scale protection and development.

3. Digital Construction and Development Significance of Tujia Brocade

In the practice of "non-legacy" protection, China has successively established rescue protection, holistic protection, legislative protection and productive protection. Since Tujia Brocade was included in the first batch of national intangible cultural heritage protection list in June 2006, it has attracted great attention from Chinese academic circles, and the government has also strengthened certain publicity efforts. For example, Xiangxi Intangible Cultural Heritage Museum, Tujia brocade physical Exhibition Center, etc. were established. Among them, "Tujia ancient style" of Xiangxi Intangible Cultural Heritage Museum has carried out classified collection, cluster display and scene exhibition on the collected Tujia brocade objects, and has used VR interaction and body feeling interaction technology to carry out interactive communication, fully combining Tujia traditional weaving technology with modern science and technology. Finally, it is presented in multiple dimensions, so that the audience can feel the charm of Xiangxi in an all-round way through interactive experience.

Digitalization, as a protection means of cultural regeneration, has realized the direct cultural protection of Tujia Brocade on the one hand. On the other hand, it also provides rich digital materials for the development and utilization of Tujia Brocade's digital resources, and injects a powerful impetus to comprehensively promote the application of big data.

From the basic task of Tujia Brocade digitalization, digital conversion and storage can provide data guarantee of technical resources for the development and utilization of Tujia Brocade, but the degree is far from enough. At this stage, this technology is only applied to digital storage or digital collection of text, sound and video materials. Including the simple digital display of Tujia Brocade's intangible cultural heritage, it has not participated in digital research and Digital Humanities research, and there is still a certain distance to establish a digital system science intangible cultural heritage museum.

For Tujia Brocade, if we really want to protect and inherit, we must first strengthen the protection of inheritors and the construction of inheritance mechanism to prevent the aggravation of the fault phenomenon of inheritors, so as to ensure that the skills can be passed down from generation to generation. Secondly, digital protection, combining traditional culture with modern science and technology, promotes the transformation of cultural capital to economic capital, social capital and symbol capital, and makes cultural inheritance and development towards a kind of institutionalized and standardized cultural practice [3].

4. Digital Technology Promotes Deep Development and Innovative Application of Tujia Brocade Digital Resources

Intangible digital technology permeates traditional culture collection, information storage, digital management, product design, production, consumption, technology upgrading and other aspects, stimulating the innovation and development of traditional culture in all directions. The intangible cultural heritage content at the technical level realizes the wider and deeper dissemination of cultural content with the help of digital media, meanwhile, it also creates a huge cultural data dividend, forms the global shared cultural data resources, and realizes the global dissemination of intangible cultural heritage information with different geographical and time backgrounds [4].

4.1 Assist to Improve the Construction of National Cultural Information Based on Related Data and Digital Museum

At present, information technology, big data, digital economy and other high-frequency words are sketching the grand picture of the construction of Digital China. The information technology with Internet as the core has deeply penetrated into all aspects of economy and society, affecting the original social structure. Traditional Tujia brocade adopts the way of "oral and heart-to-heart" inheritance. There is no specific text and pattern information. Facing the dilemma of cultural loss due to the fault of inheritors, it is not conducive to the protection and inheritance of Tujia brocade. With the development of digitalization, the existing pattern of Tujia brocade can be digitized by computer-aided design, and the information base of vector diagram of Tujia brocade can be established. On the one hand, realize the convenient acquisition and accumulation of data resources, on the other hand, promote the circulation and aggregation of data resources, and improve the application of Tujia brocade elements in modern design.

In the digital technology environment, the exhibition mode of non-legacy museums has changed. Digital product research and development acts as the carrier of content service, and through virtual technology products such as AR, VR and 3D, users can watch rare exhibits and get dynamic experience without leaving home. So as to obtain information and knowledge more quickly, promote cultural communication and digital consumption, and lay a good foundation for building digital China.

4.2 Regeneration Design of Tujia Brocade Based on Digital Technology

Collecting and arranging regional traditional folk handicraft cultural resources, exploring its protection and inheritance, design innovation and sustainable development in the context of globalization are the research hotspots of global intangible cultural heritage [5]. In order to explore the relationship between Tujia brocade and modern society, we must not only extract cultural elements from traditional handicraft to promote the sustainable development of Tujia brocade, but also get rid of the limitations of traditional crafts.

One of the distinguishing features of Tujia Brocade comes from its pattern, which is a large family of traditional patterns. Patterns can be divided into seven categories: animals, plants, production and living utensils, astronomical phenomena, geometric characters, geometric tick marks and auspicious wishes. Its color culture and exquisite pattern organization are particularly unique, with strong decorative meaning and strong sense of form. The development of traditional Tujia Brocade is limited by the loss of patterns and innovative development. In the process of modern industry, it is necessary to use computer-aided technology to re-represent traditional

graphics digitally. On the invariance of basic graphics, the patterns are extracted digitally, and the constituent elements of Tujia Brocade are deconstructed and split, and then the individual patterns are combined and arranged, so as to improve the fashion sense while retaining the original visual intuition of Tujia Brocade.

In terms of technology and path, the traditional Tujia Brocade adopts the weaving technology of "warp-breaking and weft-breaking", with the weft picking up and the reverse picking weaving, which is tedious, time-consuming and costly. In order to meet the needs of modernization and the popularization of Tujia Brocade, it can be divided into two production methods. First, implement the combination of mechanization, virtual technology and printing technology, extract core elements, carry out batch production, simplify working procedures, reduce labor and labor time, save costs, improve production efficiency and realize mass consumption. Second, we still choose hand-made, focusing on the high-end collection route, creating the custom art of high-end collections, emphasizing quality and detail, highlighting its uniqueness and uniqueness, and meeting the material and spiritual needs of consumers.

4.3 Strengthening the Deep Development of Digital Tourism in Xiangxi Autonomous Prefecture Based on Digital Platform

Culture is the soul of tourism, and tourism is the carrier of culture. Compared with natural tourism, cultural tourism has more room for fusion and fermentation with digitalization because of its own artistic and cultural value. The informationization of tourism is the necessity of the development of modern economy and technology, and it is also the demand of the current tourism development. Digital tourism is a platform based on Internet, which combines database technology, multimedia technology, 3R technology and virtual technology organically, so that users can know all the treasures and beautiful scenery in the world without leaving home.

From the perspective of industry policy, in order to thoroughly implement General Secretary Xi Jinping's important speech on "Let the culture collected in the museum, the heritage displayed on the vast land, and the words written in ancient books live", relevant departments have made great efforts to build digital museums with modern information technology as an important support and through the continuous implementation of the digital policy of benefiting the people. At present, there are the National Museum of China, the Forbidden City Museum, the Digital Exhibition Hall of the Dunhuang Research Institute, etc., and the "Virtual Museum Project" launched by Google Art & Culture platform abroad, which uses street view technology, 3D scanning and other technical means to integrate the exhibits and The exhibition hall is presented in front of people's eyes, providing everyone with access to art and culture.

"Digitalization" has long been a key word for the transformation and upgrading of industries and enterprises. At present, there are actual exhibition halls for the digital construction of Tujia brocade in China, but the construction of online digital museum has not yet been established. Developing a digital museum of Tujia Brocade in the future will help transform the traditional cultural resources and cultural elements of Xiangxi into tourism products, and give full play to the advantages of culture and tourism. The experience of "online+offline" makes it easier for users to form the conception and immersion of the relevant culture of exhibits, which provides more possibilities for spreading Xiangxi traditional culture to the whole world.

5. Conclusion

The unique Tujia brocade in Xiangxi Autonomous Prefecture is not only a symbol of the development of Tujia material civilization, but also a concentrated expression of Tujia people's aesthetic consciousness. It has witnessed the development track of Tujia craftsmanship and is the carrier of Tujia history and culture. With the continuous innovation of digital humanitarianism and science and technology, the academic research based on Tujia Brocade should be based on the background of the times and its own characteristics. Reasonable selection of research methods and technical means of Digital Humanities can create innovative products with their own style and characteristics, realize the deep development and innovative utilization of digital Tujia Brocade, and

promote the popularization of academic research and cultural knowledge.

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