Research on Digital Protection and Inheritance of Liaoning Intangible Cultural Heritage in the New Era

Shen Zhuang

Liaoning Communication University, Shenyang, 110036, Liaoning, China

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Abstract: In the rapid development of globalization and technological progress, the protection of intangible cultural heritage has encountered several obstacles, including the decline in the understanding and appreciation of traditional customs in contemporary society. This exploration delves into Liaoning Province's intangible cultural heritage and the digital means to safeguard and pass it down. Initially, we establish the essence of intangible cultural heritage, then assess the current state and challenges Liaoning's heritage encounters given its distinct backdrop. Subsequently, the paper delves into the potential of digital tools like 3D scanning, virtual and augmented reality, and cloud computing for heritage preservation and propagation. Leveraging these tools, one can precisely document, exhibit, and disseminate intangible cultural heritage. Furthermore, the research touches upon enhancing heritage continuity via community education and involvement, coupled with the significant influence of policy endorsements and financial frameworks. In culmination, the paper offers targeted tactics and insights for the digital perpetuation of intangible cultural heritage.

1. Introduction

Under the background of globalization in the 21st century, with the rapid development of technology and the continuous change of society, people's traditional culture has encountered unprecedented challenges. Especially intangible cultural heritage, because of its intangible characteristics, is more vulnerable to neglect and loss. As a famous historical and cultural province in China, Liaoning has numerous intangible cultural heritages, and their protection and inheritance have become crucial. In this context, how to apply contemporary digital technology to ensure the effective preservation and inheritance of intangible cultural heritage has become a core research topic[1]. Intangible cultural heritage, also known as intangible cultural heritage, covers traditional culture, stage art, community customs, celebrations, cognition of nature and craftsmanship. They are not only the carriers of a region or a nation's history, culture and identity, but also the precious wealth shared by all mankind[2]. For Liaoning, whether it is Manchu shadow play, Korean dance, local traditional medical knowledge, folk songs, etc., it is an important part that profoundly reflects its regional culture and historical evolution[3]. With the acceleration of modernization, many intangible cultural heritages have gradually lost their functions and status in contemporary society, facing the risk of marginalization or even disappearance. At the same time, with the passing of the older generation, many valuable traditional skills and knowledge are also facing the crisis of loss[4]. Fortunately, modern digital technology provides us with new possibilities. Three-dimensional scanning, virtual reality, augmented reality, cloud computing and other technologies have provided powerful tools for the preservation, display and dissemination of intangible cultural heritage[5]. Utilizing three-dimensional scanning, the intricate steps of traditional craftsmanship can be captured with exceptional precision. Moreover, with virtual reality, one can be engrossed in age-old ceremonies, feeling as though they're part of them. Given the distinct nature of intangible cultural heritage, a notable segment of this research accentuates the importance of public education and involvement. Digital perpetuation of this heritage isn't merely about preserving cultural expressions; it's pivotal for the tapestry of human civilization, cultural resonance, and economic progression. In the backdrop of an ever-globalizing world, grasping and conserving intangible cultural heritage, especially in heritage-rich regions like Liaoning, becomes paramount. By organizing open days,

workshops, and pedagogical collaborations, we aim to nurture societal cultural reverence, which in turn, fans the flames of their passion for preserving tradition[6]. For the long haul, factors such as policy endorsements, fiscal commitments, and inter-party collaborations will be instrumental for the digital conservation of this heritage. The goal is to magnify public cognizance and zeal for this heritage using digital avenues, and rally their proactive involvement in preserving and transmitting traditional values[7]. Conclusively, the linchpins for successful digital perpetuation are robust policies and financial backing. Thus, our research will dissect existing regulatory and financial infrastructures, offering nuanced insights and recommendations. In essence, the digital preservation of intangible heritage is a symbiosis of time-honored values and cutting-edge tech. With this research, the aspiration is to furnish both theoretical scaffolding and actionable insights for the stewardship of intangible cultural treasures in Liaoning and globally.

2. The Definition and Importance of Intangible Cultural Heritage

2.1. The Basic Definition and Composition of Intangible Cultural Heritage

According to the definition of UNESCO, intangible cultural heritage includes oral traditions, social practices, ceremonies, festival activities, performing arts, knowledge and practices related to nature and the universe, as well as traditional handicraft skills. They are not only a form of knowledge, skills, or expression, but also a means of providing identification and continuity for human communities, groups, and individuals. The composition of intangible cultural heritage is extensive and diverse, mainly including oral traditions such as myths, legends, proverbs, folk stories, etc; Social practices and ceremonies such as weddings, funeral ceremonies, festival customs, etc; Performing arts such as traditional songs, dance, drama, etc; Knowledge related to nature and the universe, such as agriculture, fishing and hunting, traditional Chinese medicine and herbal medicine[8]. Traditional handicraft skills: such as pottery making, embroidery, weaving, etc.

2.2. The importance of intangible cultural heritage

Intangible cultural heritage, as a comprehensive cultural concept, is related to the inheritance, diversity and characteristic maintenance of human civilization. In order to explore its application and value in Liaoning, we must first understand the basic definition of intangible cultural heritage and its importance in culture, economy, society and other dimensions, as shown in Figure 1.
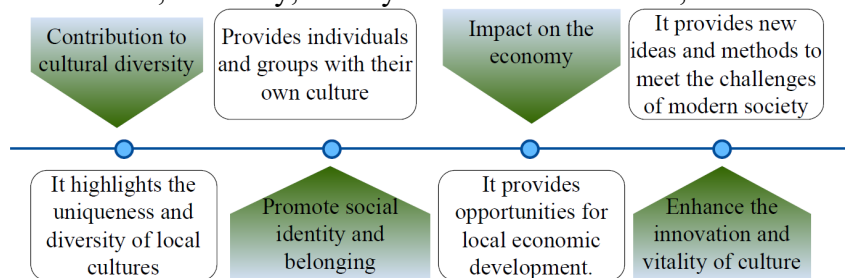

Figure 1 The Importance of Multiple Dimensions of Intangible Cultural Heritage

Intangible cultural heritage is the carrier of various cultural traditions, which highlights the uniqueness and diversity of local cultures. In the context of globalization, intangible cultural heritage provides important support for maintaining cultural diversity and avoiding cultural assimilation. Intangible cultural heritage provides individuals and groups with ways to connect with their own culture, history and traditions, and enhances people's sense of social identity and belonging[9]. Intangible cultural heritage also provides opportunities for local economic development. For example, the production and sale of traditional handicrafts and tourism activities featuring intangible cultural heritage have created employment opportunities and economic benefits for the local area. Intangible cultural heritage embodies age-old wisdom and knowledge, like natural resource stewardship or health practices, offering invaluable insights for humanity. Unlike static traditions, intangible heritage evolves and flourishes with each generation. Such dynamism not only rejuvenates cultural essence but also equips us with fresh perspectives to address

contemporary societal challenges. Intangible cultural heritage isn't merely a reflection of cultural practices; it's intertwined with the tapestry of human progress, cultural nuance, and economic advancement[10]. In today's era of globalization, recognizing and preserving this heritage becomes crucial, more so in regions abundant in such traditions, like Liaoning.

3. Strategies and Suggestions for Digital Technology in the Inheritance of Liaoning's Intangible Cultural Heritage

3.1. Strategies for integrating modern technology

Despite the rapid development of digital technology, there are still some limitations. For example, the essence of certain intangible cultural heritage is difficult to fully present through digital means, or specific equipment and environment are required to achieve the best display effect. Therefore, high-precision 3D scanning technology is used to digitize and model the relevant physical objects of intangible cultural heritage, preserving their physical details. Combining VR and AR technology to provide users with an immersive experience, such as participating in a traditional ceremony through VR or seeing the application of traditional craftsmanship in modern backgrounds through AR, enhances the interaction with cultural heritage. By utilizing cloud technology, a large amount of data on intangible cultural heritage can be centrally stored, analyzed, and shared. At the same time, through big data analysis, predict and analyze the public's interest and attitude towards certain intangible cultural heritage, and carry out targeted promotion, we can better engage and educate the audience about these valuable cultural elements. In addition to simple displays, digital technology is also used for interactive education and training. Through AR and VR technologies, visitors can more intuitively learn the content of intangible cultural heritage, such as handicraft skills, dance, music, etc.

3.2. Ensure authenticity and integrity

Before digitization, we should conduct in-depth research on literature and historical materials to ensure that the content presented is true and accurate. Relevant practitioners need to work closely with the inheritors of intangible cultural heritage in various places to ensure the authenticity and integrity of digital content, so as to promote a collaborative method of heritage protection that respects and involves local communities. They are the direct carriers of these cultures, and their experience and knowledge are irreplaceable. Intangible cultural heritage is alive, and it is constantly changing in its inheritance. Therefore, it is necessary to update the digitized content regularly to ensure that it conforms to the actual situation.

3.3. Strengthen public education and participation.

Cultural protection institutions regularly organize intangible cultural heritage open days and seminars to provide opportunities for the public to get close to, understand and experience these cultures. At the same time, cultural heritage workers should cooperate with educational institutions at all levels to bring intangible cultural heritage into the education system and cultivate students' interest and respect for traditional culture. In addition, practitioners should encourage the public to actively participate in creative competitions and activities related to intangible cultural heritage, including the design of products and applications related to these cultural treasures, and further promote the participation and appreciation of these valuable cultural assets. In order to let more people know and get in touch with these intangible cultural heritages, digital technology can be used to carry out online exhibitions and experience activities.

3.4. Long term funding and policy support

The digitization of intangible cultural heritage not only requires technological means, but also requires respect and understanding of culture. Only by fully ensuring its authenticity and integrity, combined with modern technology, can the effective inheritance of intangible cultural heritage be truly achieved. At the same time, policy support, financial security, and broad public participation are also crucial. This article adopts the following strategies to obtain long-term funding and policy
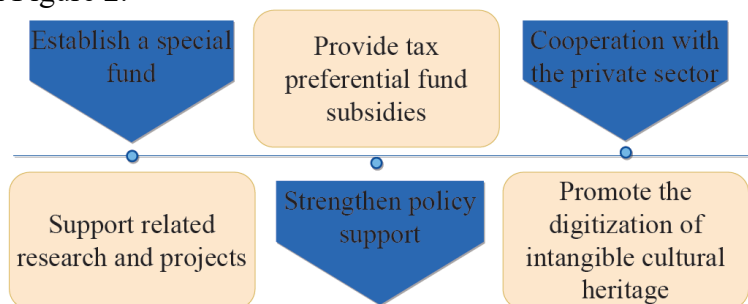
support, as shown in Figure 2.

Figure 2 Implementation of Financial Guarantee

Although the digital inheritance of intangible cultural heritage faces challenges, it also provides us with countless opportunities. With advanced technology and methods, we can not only more efficiently protect and inherit these precious cultural resources, but also engage more people to contribute to the cultural heritage of humanity. In order to effectively support related research and projects, relevant departments may consider setting up a long-term special fund dedicated to the digitization of intangible cultural heritage. At the policy level, tax incentives and financial subsidies provided by departments should be included in efforts to strengthen support for the digitization of intangible cultural heritage. In addition, we should also encourage cooperation with the private sector, because their technical, financial and market advantages can be used to jointly promote the digitization of this heritage. This approach fosters a collaborative and sustainable approach to heritage preservation, ensuring its continued safeguarding for future generations.

4. Conclusions

As the digital and informational age advances swiftly, the preservation and continuation of intangible cultural heritage face both unique opportunities and hurdles. After thorough investigation into Liaoning's intangible cultural heritage and its digital preservation, several central insights emerge. Primarily, digital innovation stands as the backbone for sustaining intangible cultural heritage. Utilizing cutting-edge tools like 3D scanning, virtual and augmented reality, not only allows for meticulous documentation of these traditions, but also crafts a deeply immersive experience for audiences. However, technology is only a means, and its core purpose is to truly and completely inherit cultural heritage. Therefore, we must always respect the original documents and historical materials, cooperate closely with the real cultural inheritors, and ensure that the digital content of Liaoning is consistent with the real situation. Furthermore, public education and participation is an important part of digital intangible cultural heritage inheritance. Through open days, workshops and educational cooperation, we can cultivate the public's cultural interest and respect, and then stimulate their love and inheritance of traditional culture. In a word, the digital inheritance of Liaoning intangible cultural heritage is a comprehensive project with interdisciplinary and multi-party cooperation. Only on the basis of taking into account many dimensions such as technology, culture, education and policy, can we truly realize the long-term protection and effective inheritance of these precious heritages.

Acknowledgements

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