

Study on the Digital Inheritance and Development Strategy of Chinese Intangible Cultural Heritage from the Perspective of AIGC

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Abstract. With the gradual integration and development of artificial intelligence and big data technology, AIGC technology is playing an increasingly important role in the field of digital protection and dissemination of intangible cultural heritage in China. By exploring the application status of AIGC technology in the field of intangible cultural heritage, this paper analyzes the challenges faced by China's intangible cultural heritage, and puts forward digital strategies for intangible cultural heritage, in order to promote the digital protection and inheritance of Chinese intangible cultural heritage.

Keywords: AIGC; Intangible Cultural Heritage; Digital Strategy; Protection and Inheritance Introduction.

1. Introduction

In the trend of globalization and modernization, intangible cultural heritage, as a precious treasure of traditional Chinese culture, its inheritance and development has become very important. With the continuous development of society and the advancement of modernization, in recent years, the development of artificial intelligence and big data technology has brought new opportunities for the digital protection and dissemination of intangible cultural heritage. Through its unique data processing and analysis capabilities, AIGC technology provides strong support for the digital inheritance and development of intangible cultural heritage. Through artificial intelligence generation and creation technology, the inherent value and cultural connotation of intangible cultural heritage can be deeply explored, the generation and transmission methods of intangible cultural heritage content can be innovated, and the application scope and audience of intangible cultural heritage can be expanded.

However, the inheritance of intangible cultural heritage is faced with many problems, including the reduction of inheritors, the loss of skills, and the decline of cultural identity. Therefore, how to make full use of the advantages of AIGC technology and develop effective digital inheritance and development strategies has become a problem that needs to be solved.

The purpose of this paper is to study the digital inheritance and development strategies of China's intangible cultural heritage from the perspective of AIGC. Through careful study of AIGC technology and summarizing application cases, combined with the current situation and challenges of China's intangible cultural heritage, specific digital strategy suggestions are proposed. It is hoped that this study can provide useful reference for the digital protection and inheritance of intangible cultural heritage, and promote the innovation and development of China's intangible cultural heritage in the era of artificial intelligence.

2. Overview of AIGC Technology

2.1. Definition and Characteristics of AIGC Technology

AIGC technology uses the combination of artificial intelligence and big data to automatically create and generate generative content. AIGC technology plays an important role in the protection and inheritance of intangible cultural heritage, mainly reflected in the following aspects:

(1) Using big data technology to mine and clean up intangible cultural heritage data, extracting core information for subsequent analysis and processing and providing data support.



(2) Using artificial intelligence technology to intelligently analyze and identify intangible cultural heritage data, including image, voice and natural language processing, in order to achieve in-depth mining and interpretation of intangible cultural heritage.

(3) Using the generation characteristics of AIGC technology, innovative and interesting intangible cultural heritage content can be produced and disseminated through multimedia platforms, increasing the popularity and influence of intangible cultural heritage.

2.2. The Application of AIGC Technology in the Cultural Field

AIGC technology not only has rich application cases in the cultural field, but also demonstrates its great potential in promoting cultural heritage and innovation. Through the application of AIGC technology, experts conducted accurate scanning and digital processing of Dunhuang Mogao Grottoes murals, and then used algorithms for intelligent analysis and restoration, ultimately successfully restoring the colors and details of the murals. This operation not only plays a role in protecting precious cultural relics, but also enables audiences to enjoy them more vividly and realistically. AIGC technology is applied to the digital display of cultural heritage, such as creating virtual museums and 3D reconstruction of cultural sites, allowing audiences to travel through time and space and more intuitively experience the charm of traditional culture. These examples show that AIGC technology plays an important role in the digital protection, inheritance and innovation of cultural fields, promoting the widespread dissemination and in-depth exchange of culture.

2.3. Feasibility Study of AIGC Technology in the Digitalization of Intangible Cultural Heritage

AIGC technology has shown a very wide range of applicability in the digitalization of intangible cultural heritage. AIGC technology uses data-driven characteristics to deeply explore the connotation of intangible cultural heritage, and provides accurate support for decision-making by using big data analysis. The automated processing ability of AIGC technology can significantly improve the efficiency of intangible cultural heritage data sorting and classification, and reduce labor costs. The intelligent analysis function provides a powerful tool for the in-depth study and innovation of intangible cultural heritage, helping to reveal new laws and new values in traditional skills. AIGC technology not only provides diversified means, such as virtual reality and augmented reality, for the display and promotion of intangible cultural heritage, but also enhances the appeal and dissemination effect of intangible cultural heritage. AIGC technology can effectively promote the digitization of intangible cultural heritage, and promote the inheritance and innovation development of intangible cultural heritage.

3. Current Situation and Challenges of Chinese Intangible Cultural Heritage

3.1. Classification and Characteristics of Chinese Intangible Cultural Heritage

The Chinese nation has a long history and cultural tradition, and the intangible cultural heritage carries this tradition and wisdom, becoming an important part of the Chinese nation's culture. However, in the context of the rapid development of society today, the intangible cultural heritage is facing many difficulties and challenges in terms of inheritance and development. The core reason for the difficult inheritance of intangible cultural heritage is that there is no successor. With the death or withdrawal of the older generation of intangible cultural heritage inheritors, the new generation's interest and enthusiasm for traditional skills gradually fade, resulting in the destruction of the inheritance chain of intangible cultural heritage. The inheritance of intangible cultural heritage skills is limited by the long learning cycle and difficulty, which restricts the cultivation and development of inheritors. Secondly, the development of intangible cultural heritage is challenged by the impact of changes in market demand. With the development of society and the change of consumption concepts, the market demand for traditional handicrafts gradually decreases, and the inheritors are under the challenge of survival and development. How to introduce products and services in an

innovative way to meet the needs of contemporary society while inheriting the core values of intangible cultural heritage is a key issue in the inheritance and development of intangible cultural heritage. In addition, the inheritance and development of intangible cultural heritage is also restricted by policies and regulations, economic support, and social awareness. The inheritance and development of intangible cultural heritage is limited by insufficient policy support, insufficient financial investment, and low social awareness. Therefore, it is urgent for all parties to make concerted efforts to formulate policies and measures in accordance with scientific laws, strengthen the protection and support of intangible cultural heritage, and enhance the public's understanding and attention to intangible cultural heritage.

3.2. The Necessity and Urgency of Digital Protection of Intangible Cultural Heritage

3.2.1. The Necessity of Digital Protection of Intangible Cultural Heritage

As a valuable traditional cultural heritage of the Chinese nation, intangible cultural heritage has rich historical, cultural, and artistic connotations and needs to be effectively protected. The application of digital technology can effectively protect intangible cultural heritage and avoid the permanent loss of these precious cultural traditions due to time and inheritance interruptions.

Digital technology brings the possibility of innovation for the inheritance of intangible cultural heritage. Using digital means, the skills, performances, and rituals of intangible cultural heritage can be recorded and organized, laying a foundation for future learning and research. Digital technology can promote the updating and development of intangible cultural heritage, and create more attractive and contemporary intangible cultural heritage products by combining modern technological means. Digital protection helps intangible cultural heritage to expand its influence in terms of dissemination and communication. Using technologies such as the Internet and virtual reality, intangible cultural heritage can transcend geographical limitations, allowing a wider range of people to have the opportunity to understand, appreciate, and inherit. This not only strengthens people's identity with their own nation, but also promotes cultural exchange and cooperation between countries.

3.2.2. The Urgency of Digital Protection of Intangible Cultural Heritage

Intangible cultural heritage is facing a crisis of inheritance, and with the death of the elderly, the inheritance faces major challenges. Digital protection is imminent, and necessary measures must be taken to ensure the inheritance of intangible cultural heritage.

With the updating of contemporary lifestyles and consumption concepts, the market demand for traditional intangible cultural heritage products is gradually decreasing. Digital protection helps to promote the marketization and industrialization of intangible cultural heritage, innovate the forms of intangible cultural heritage products and services, and meet the needs of modern society.

With the continuous update of digital technology, the digital protection of intangible cultural heritage is facing constantly escalating challenges. The latest technology and methods need to be applied in a timely manner, and the digital protection system needs to be constantly improved to ensure the long-term preservation and inheritance of intangible cultural heritage.

In general, the digital protection of traditional culture is not only necessary, but also urgently needed. Only with the help of modern digital technology can we effectively protect and inherit intangible cultural heritage, to ensure its inheritance and development in today's society.

4. Case Analysis of Intangible Cultural Heritage Digital Inheritance and Development

AIGC technology has achieved many successful experiences in the protection of intangible cultural heritage. Taking traditional Chinese opera as an example, AIGC technology has been applied to the digital recognition and classification of opera masks. By using deep learning algorithms and image recognition technology, the system can automatically identify and classify a large number of Peking opera mask pictures, which not only improves work efficiency, but also realizes the detailed

classification and construction of the mask database, providing convenience for further research on Peking opera art.

Another case is the protection of digital paper-cut art. Using artificial intelligence image processing technology, researchers have conducted accurate scanning and digital processing of paper-cut patterns, and then analyzed and classified them through intelligent algorithms. Through virtual display and other means, it can not only permanently save paper-cut art works, but also let more people understand and learn this traditional skill.

AIGC technology plays an important role in the field of cultural relics, such as the digital restoration and display of cultural relics in the Palace Museum, which allows audiences to more intuitively understand the history and cultural value of cultural relics.

The application results of these cases are remarkable. The application of AIGC technology not only improves the efficiency of intangible cultural heritage protection, but also enables the rapid and accurate processing of a large amount of intangible cultural heritage data. Through intelligent analysis and content generation, AIGC technology brings new ways for the inheritance of intangible cultural heritage, such as virtual exhibition and interactive experience, further enhancing the attraction and influence of intangible cultural heritage.

5. Suggestions for the Strategy and Development

5.1. Strengthening Policy Support and Guidance to Promote the Digital Development of Intangible Cultural Heritage

The government should take the digital development of intangible cultural heritage as an important strategy in cultural policies, clearly point out that the digitalization of intangible cultural heritage is the key direction of cultural development, and provide precise support in supporting policies. In order to promote the development of intangible cultural heritage digitalization, a series of special policies should be formulated, such as intangible cultural heritage digital protection regulations, intangible cultural heritage digital industry development plan, etc., so as to provide a full range of policy guarantee for intangible cultural heritage digitalization.

5.2. Building an Intangible Cultural Heritage Digital Platform to Promote Resource Sharing and Exchange

The government should actively support the use of AIGC, AR/VR and other related technologies in the process of intangible cultural heritage digitization, and promote the research and development of these technologies. Building an intangible cultural heritage digital technology service platform to provide technical support and services for the digitalization of traditional culture, and promote the application and transformation of technological achievements.

5.3. Cultivating Professional Talents to Improve the Level of Intangible Cultural Heritage

Support universities and research institutions to carry out intangible cultural heritage digital education and training, set up intangible cultural heritage digital talent pool, and cultivate and reserve professionals with interdisciplinary background and innovative ability. Through organizing relevant training and academic exchange activities, improve the professional ability and practical level of talents, and provide sufficient talent support for the inheritance and development of intangible cultural heritage digitalization.

5.4. Strengthening Cross-border Cooperation and Exchange to Broaden the Application Field of Intangible Cultural Heritage

Establish a cross-border cooperation platform for digital intangible cultural heritage to attract partners from all walks of life, including technology companies, designers, educational institutions, and

cultural institutions. This platform can serve as a bridge for coordinating in-depth interaction and cooperation between all parties. At the same time, research the application of intangible cultural heritage in various fields such as game design, film production, product design, and space design. Through cooperation with different fields, traditional cultural elements can be integrated into modern society, and further improve the popularity and influence of traditional culture.

Promote international cooperation and exchange of intangible cultural heritage digital projects, actively encourage cooperation and interaction between intangible cultural heritage projects in different countries and regions, and share experiences and achievements. This is conducive to broadening horizons, learning from international advanced experience, and promoting the digital inheritance and global development of intangible cultural heritage.

With the help of emerging technologies such as new media and social media, we can innovate the transmission methods of intangible cultural heritage digital content. In short videos, live broadcasts, interactions, and other forms, we can attract more young people to participate and increase the digital transmission effect of intangible cultural heritage.

In summary, by formulating relevant policies, strengthening talent training and international exchanges, promoting cooperation and exchanges between different fields, and expanding the application scope of intangible cultural heritage. The development of digital intangible cultural heritage can provide convenient conditions, promote cultural heritage and innovation, and promote the diversity of human civilization.

6. Conclusion

AIGC technology has important significance and far-reaching value in the process of protecting and inheriting intangible cultural heritage. Using deep learning, natural language processing, augmented reality/virtual reality and other technologies, intangible cultural heritage can be intelligently analyzed, interpreted, and innovative content generated, injecting new vitality into the heritage and development of intangible cultural heritage. These technologies provide strong support for the heritage and promotion of intangible cultural heritage, enabling it to be disseminated on different platforms. However, the digital heritage and development of intangible cultural heritage still faces a series of difficulties. For example, the speed of technological update, lack of funds, lack of talents and other challenges. In order to promote the development of digital technology for intangible cultural heritage, the government and various circles should increase support and guidance, formulate relevant policies, provide financial assistance, strengthen personnel training, and promote the research and application of digital technology for intangible cultural heritage. In general, with the support of AIGC, the digital inheritance and development strategy of intangible cultural heritage has important significance and value for practice. At present, it is still necessary to continuously explore and practice the digital development of intangible cultural heritage, helping intangible cultural heritage to shine with new vitality and vitality in the digital age.

References

- [1] Hu Y. Research on the Design Method of Traditional Decorative Patterns of Ethnic Minorities under the Trend of AIGC [J]. *Journal of Electronics and Information Science*, 2023, 8 (5).
- [2] Gao R. AIGC Technology: Reshaping the Future of the Animation Industry[C] // Wuhan Zhicheng Times Cultural Development Co., Ltd. *Proceedings of 2nd International Conference on Artificial Intelligence and Communication Technology (AICT 2023)*. North University of China, 2023: 5. DOI: 10.26914/ c. cnkihy.2023.058429.
- [3] Long Minfei. Exploration of the Application of AIGC in Digital Culture Construction[N]. *Yunnan Daily*, 2024-02-20 (005).
- [4] Feng Yuquan. Application and Reflection of AIGC in Industrial Design[J/OL]. *Packaging Engineering*,1-11[2024-03-07]. <http://42.194.184.28:8085/kcms/detail/50.1094.TB.20240126.1756.002.html>.
- [5] Wu Hongyi. Research on the Current Situation and Protection of Chinese Intangible Cultural Heritage[J]. *Popular Literature*, 2023, (12):1-3. DOI: 10.20112/j.cnki.ISSN1007-5828.2023.12.001.