

Research on the Construction of Digital Inheritance System of Intangible Cultural Heritage from the Perspective of Media

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Keywords: Media vision; Internet +; intangible cultural heritage; digital

Abstract: The perspective of media refers to the new perspective and new trend of the development of the media field in the Internet + era. Article with intangible cultural heritage digital inheritance as the object, based on Internet + technology, reveals the problems facing the digital inheritance, with the experience of successful cases, trying to in the media perspective from the data acquisition system, evaluation index system, dynamic design system, personnel training system construct four aspects of intangible cultural heritage digital inheritance system.

The convergence media vision refers to the new perspective and new trend of the development of the media field in the Internet+ era. It not only emphasizes the traditional media form, but is also not limited to the development of the Internet industry. The convergence media vision involves the integration and symbiosis of various media forms, and realizes the integrated transmission of information, interactive experience and personalized services through the support of digital technology. In recent years, China has vigorously promoted the application of digital technology for intangible cultural heritage, and under the background of integrated media, thousands of intangible cultural heritage inheritors have appeared in front of people, recording and promoting the social dissemination rate and exposure of excellent traditional cultural achievements. CCTV's large-scale cultural program "China in Intangible Cultural Heritage"; Zhejiang Satellite TV's hit variety show "Ten Thousand Miles to Ride Alone"; documentary "I Repair Cultural Relics in the Forbidden City", "The Great Craftsman"; There are also the skills of building lamps and ordering tea in "Do You Know If You Should Be Green, Fat, Red and Thin"; the dotted cui skills in "The Legend of Ruyi"; lacquer art skills in "Langya Bang", etc.; All of them have brought intangible cultural heritage into the field of vision of more audiences and attracted a lot of attention. ^[1] According to the "2023 TikTok Hot Data Report" released by TikTok, as of May 2023, there are an average of 19,000 intangible cultural heritage live broadcasts on TikTok every day. With the help of TikTok's "Intangible Cultural Heritage Partner Program" and "Seeing Craftsmanship Program", 65 intangible cultural heritage projects, including Ding porcelain, the noodles of Xinhe, and Li brocade, have opened a new path for development on TikTok. ^[2]

Looking back at the research history, although there are many practical practices of digitization, the case study of digital inheritance of intangible cultural heritage is in the initial stage, and the research on the construction of digital inheritance system has only put forward the concept. Search

for data related to the protection of intangible Cultural heritage from the perspective of integrated media. Among the six papers presented at the same time, strictly speaking, only Yang Lingli and Li Xiang's "Research on the Transmission and Development of Intangible Cultural Heritage in the Yellow River Basin from the perspective of integrated Media" published in *Tiannan* belongs to the perspective of integrated media. According to the relevant research data of media integration, there are a total of 925 relevant papers, but only 11 papers of fine art, calligraphy, sculpture and photography account for 0.92%, which is a very small number. Mainly related to ideological and political education, colleges and universities, communication paths, etc., and only three related to intangible cultural heritage. Xiao Zhiwei published "Analysis of the Development Status and Communication Strategy of Intangible Summer Cloth from the Perspective of Integrating Media" in *Tiangong* in 2022; Chen Wang and Guo Jing published "the live Communication Strategy of IP of Intangible Cultural Heritage handicrafts Brand from the perspective of Media integration -- Taking Liling Under-glaze Colorful as an Example "in the *Comparative Study of Cultural Innovation in 2022*; Wang Yao, Wu Weiquan, Chen Yixiang published "Living Inheritance and Development of Celadon Culture from the Perspective of Melting Media: A Case Study of Shaoxing Shangyu" in the *Journal of Culture* in 2021. From the perspective of media convergence, the progress of digital inheritance will only continue to accelerate, and the construction of the system is imminent.

1. Overview of the digital inheritance of intangible cultural heritage under the perspective of media

The digital inheritance of intangible cultural heritage has been a hot topic in recent years. Due to its fragility and perishability, the digital inheritance of intangible cultural heritage has become crucial.

1.1. Technical support for the digital inheritance of intangible cultural heritage from the perspective of media

Under the vision of media convergence, the digital inheritance of intangible cultural heritage has various technical support, including digital technology, multimedia platform, artificial intelligence technology and digital blockchain technology. The application of these technologies provides the basic guarantee for the digital inheritance of intangible cultural heritage, and promotes the diversified development of intangible cultural heritage in the digital age.

Digital technology is mainly a technology to process, transmit and express information through servers, satellites and other equipment. To put it simply, it is to use big data, cloud computing and other digital technologies to collect a large number of accumulated data and react on the current workflow to achieve business innovation. The digitization of intangible cultural heritage originates from the conversion of the production process of intangible cultural heritage into pictures and videos. The platform records the viewing and liking records of consumer groups, processes them into reference data and transmits them to the cloud background, and analyzes users' preferences by counting the page stay time and the number of likes. Through the powerful cloud computing technology, the intangible cultural heritage can be stored and managed by digital data, providing users with more convenient and quick research materials. At present, the more common digital application of intangible cultural heritage is mostly seen in the form of digital products and digital business models. For example, a large number of cultural institutions, including libraries and museums, have built online cloud platforms and pushed online exhibitions and online academic lectures with the help of digital and multimedia applications. Or a little-known endangered national intangible with trillion short video platform, such as propaganda across time and space cross-regional, enlargement popularity at the same time, the revenue.

The joint operation of multimedia platforms provides a convenient way for the dissemination of

intangible cultural heritage. Through the combination of a large number of social media and traditional media, the inheritance activities and achievements of intangible cultural heritage can be effectively promoted. With the help of cloud computing, it can push videos, images and texts accurately according to user preferences. For example, all kinds of cultural variety shows and documentaries issued by CCTV release digital resources of traditional skills. Users who are interested in traditional skills will edit and create the materials twice, and publish them on other social platforms according to the aesthetic and reception methods of young people in the new era, so as to expand the communication scope. Users can communicate and learn in time through social media platforms, and create a community of digital inheritance of intangible cultural heritage.

Since the advent of artificial intelligence technology has attracted much attention, it also plays an important role in the digital inheritance of intangible heritage. In recent years, artificial intelligence technology has been applied to the restoration and protection of many material cultural heritage, and the changes of cultural heritage are detected through image recognition technology to ensure that they are properly protected in time. Natural language processing in artificial intelligence technology can simulate human language by retrieving relevant data in intangible cultural heritage databases and transfer knowledge in the form of natural dialogue with humans. In addition, in the process of many academic studies, artificial intelligence is used to analyze documents, and hidden information is revealed through automatic analysis of texts, so as to realize automatic learning and inheritance of intangible cultural heritage.

The essence of blockchain technology is decentralization. In simple words, it is to break the middle way, which can ensure the credibility and transparency of digital inheritance activities of intangible cultural heritage. The unequal development speed of blockchain technology, as well as the state's control of blockchain technology, can ensure the security and integrity of digital data of intangible cultural heritage, and provide a reliable cooperation environment for inheritance activities.

1.2. Problems faced by the digital inheritance of intangible cultural heritage from the perspective of media

Since the "use to promote protection, cultural relics activation" was proposed in 2016, digitalization has become a necessary means for the important development of cultural heritage. China has successively introduced a number of policies to promote the digital protection of cultural heritage, and long-term research work has exposed many problems of digital inheritance, which also provides a lesson for the digital inheritance of intangible cultural heritage.

First of all, China's use of digital technology for inheritance and protection is in the exploration stage, resource investment is unbalanced, based on flat images and text data electronic, three-dimensional exhibition, including AR, VR digital media interaction as a supplement. According to statistics, nearly 80% of cultural institutions have opened digital online exhibitions and online academic lectures, but they are mainly concentrated in economically developed areas. Especially large-scale interactive exhibitions are mainly concentrated in the head areas such as Beijing and Shanghai, but the western regions or small and medium-sized cultural institutions have insufficient digital resources and low investment level. The consumer base of cultural institutions is mainly young groups, and more than half of them have a digital consensus, but this is far from enough for enterprises investing in cultural institutions.

Second, the gap in talent and technology application is unbalanced with the high demand and high development of digital inheritance. The current digital inheritance mainly includes three stages: data collection and integration, creative technology collection, digital experience and transaction. Although the state has introduced many policies to support the digital inheritance, the efforts in personnel training and discipline construction are not large enough, the quantity and quality of

interdisciplinary and digital personnel training are seriously insufficient, and the digital content is too shallow. Investment enterprises generally view the digital inheritance from the perspective of commercialization, judge the investment value by the breadth of development prospects and the amount of economic benefits, and believe that there are obvious problems in technical support. Technical personnel do not understand the cultural significance, lose the connotation of inheritance; Professionals do not understand science and technology and lose their digital foundation. From the perspective of consumers, occasional interactive exhibitions can still generate interest, and the mass presentation after the explosion makes people feel that the form is too single, and most of them are not immersed enough, and even some institutions have a lack of equipment or damage after ignoring the situation. The sense of reality has become a key issue for consumer groups.

Finally, the problems in the publishing process of the book "Theory and Method of Compiling Intangible Cultural Heritage Resource Atlas" clearly reveal the reasons for the slow progress of digital inheritance of intangible cultural heritage. The variety of intangible cultural heritage is complicated, the region is large, the regional distribution is extremely unbalanced, the inheritance method is handed down orally, and the government support is insufficient, all of which have become obstacles to digitalization. If the digitization of cultural heritage is in the exploratory stage, then the digital inheritance of intangible cultural heritage is still in the initial stage, and there are few researches and designs on the combination of intangible cultural heritage and digital technology. Analyzing past research results, it is found that current digital research focuses on the digital communication and marketing of intangible cultural heritage and intangible cultural heritage products, and digital inheritance and research are unbalanced. The intangible cultural heritage protection in developed regions has adopted digital research technology, but many intangible cultural heritage projects in remote areas have been ignored, resulting in a vicious circle of difficult development.

2. Explore the construction of the digital inheritance system of intangible cultural heritage from the perspective of media

According to the problems in the development process and the experience of successful cases described above, the paper preliminarily explores the construction of the digital inheritance system of intangible cultural heritage from the perspective of financial media.

2.1. The Construction of the data collection system

Data collection is the basic link of the entire inheritance system, so its design needs to take into account the diversity and complexity of intangible cultural heritage, and we need to formulate corresponding data collection schemes according to different forms and characteristics of intangible cultural heritage. At the same time, considering the real-time data acquisition, we need to design a flexible data acquisition system to dynamically adapt to modern and contemporary development.

In the data acquisition system, we need to use a variety of data acquisition tools and technical means. For example, web crawler technology is used to automatically capture relevant data on the Internet, and image recognition technology is used to identify image information of intangible cultural heritage. Guilin City has gradually collected a group of opera resources, mainly Wenchang opera in Guangxi dialect, Yugu opera, Caidiao opera, and Guilin opera, and used the collected resources to establish a digital mass art museum, including digital album, virtual exhibition hall, virtual theater and so on. These collected and edited resources can be used and disseminated directly or indirectly to achieve the dissemination effect of "the sound of the song is transmitted to the four corners, the nostalgia is difficult to change and unforgettable, and the Chinese culture is spread forever".^[3]The high-definition photography of the digital mass art Museum is used to record the performance and performance skills of traditional opera in an all-round way, and users can watch it online at any time.

In this way, not only can relatively complete opera materials be retained, but also relevant information can be sorted out with the help of the Internet to facilitate subsequent research.

However, the current non-genetic inheritance mode often separates the intangible cultural heritage from its original space, which threatens the authenticity of intangible cultural heritage.^[4] We also need to supplement and correct some data that are difficult to collect automatically by combining manual collection. The principle of authenticity must be practiced in the collection process. The collected data must be true and accurate, and there must be no false information or misleading data in any form. In this regard, the data collection process needs to follow the standard specifications of the response, to ensure that the classification, format and integrity of the data meet the requirements of the specification. It also needs to cover all aspects, including the form of expression, inheritor, traditional inheritance way, historical background, cultural value, etc., to facilitate later data processing and analysis.

The above are the situations that need to be paid attention to in the process of data collection. After the completion of data collection, it is necessary to establish the corresponding resource base to sort out and classify the data. Considering the categories and user needs of the resource database, we need to make overall planning when establishing the resource database, select the data that meet the requirements and review the content, evaluate and verify the quality of the data, ensure the accuracy and credibility of the data, and complete the content construction of the resource database. According to the original data collected, list the primary and secondary catalogues and descriptions of resources in the form of graphs or tables, and build professional resource websites. Upload the resource library to the Internet, test and verify the overall performance of the resource library, and modify the problems found in time. Hold expert consultation seminars, widely listen to the advice of experts, modify and improve the resource base according to the feedback.^[5] Finally, we need to carry out visual display and in-depth analysis of data to provide scientific basis for the digital inheritance of intangible cultural heritage.

The construction of data collection system should follow the characteristics of intangible cultural heritage, respect cultural connotation, adopt rigorous scientific methodology, and ensure the authenticity and integrity of data. Only in this way can we provide strong support for the digital inheritance of intangible cultural heritage and promote its protection and development.

2.2. Construction of the evaluation index system

If the most basic component is the data collection system, then the most essential is the evaluation index system. The success of the construction of the digital inheritance system must depend on its inheritance effect, so there must be an evaluation index to ensure the substantiality and reliability. First, take into account the nature and characteristics of intangible cultural heritage. The evaluation index should include the evaluation of the authenticity of intangible cultural heritage digital inheritance, including whether the digital inheritance can truly restore the content and form of intangible cultural heritage; Whether the cultural connotation of the intangible cultural heritage is still preserved; Whether there are false circumstances in the process of inheritance. The construction of evaluation index also needs to consider the sustainability of the digital transmission. This is a long-term assessment of the inheritance effect, whether the intangible cultural heritage can be preserved for a long time under the digital inheritance, and whether it can stimulate more people's interest and participation in combination with the development of The Times. Therefore, we can judge the ability of digital inheritance to spread and promote intangible cultural heritage, as well as the scope and degree of influence on social cognition and cultural identity. The final evaluation index also includes the evaluation of the convenience and popularization of the digital inheritance mode, that is, whether the technical means adopted are easy to use, whether they are suitable for the public, and whether the

inheritance results can be accessed at any time.

In terms of evaluation methods, the combination of quantitative and qualitative methods can be used for evaluation. Quantitative methods can obtain specific data indicators through questionnaires, statistical analysis and other means, and carry out quantitative analysis of data. Qualitative methods can obtain more comprehensive and in-depth evaluation results through field research, in-depth interviews and literature analysis.

2.3. Dynamic design system construction

In the new era, museums, libraries, intangible cultural heritage museums and other public cultural institutions face the fact that cultural and tourism resources are not renewable. How to balance the protection and development of resources, and maximize the transformation of collection resources into cultural achievements shared by the public, is a new problem and new challenge for them. Metaverse technology can realize the information of resources, excavate, protect and inherit cultural relics, ancient books, ruins and other kinds of cultural heritage through digital means, so that limited resources can create infinite possibilities in the metaverse.^[6] From the perspective of communication, the integration and reconstruction of media breaks down the barriers and barriers of time and space, and makes one-way cultural output leap to two-way interaction.^[7] For example, the National Library of China, the National Museum and other institutions have established online intangible cultural heritage digital exhibition platforms, through pictures, videos, text and other forms, to show the style of intangible cultural heritage to the public. With the support of Beijing Culture and Art Foundation, "Linjing • Dou -- Peking Opera Media Art Interactive Space" is an immersive interactive experience space with the theme of Chinese traditional Peking Opera and modern audio-visual design. Relying on modern media technology, the exhibition strives to enable visitors to experience the charm of Peking Opera in an all-round and immersive way in terms of viewing, appreciating and playing.^[8] Through the VR devices, users can realize the all-round feeling of traditional skills, improve the inheritance effect of intangible cultural heritage.

In view of the single form of feedback from consumer groups and the phenomenon of younger consumer groups, gamification design is adopted to effectively create a vivid new path of inheritance. We try to combine the essence of traditional culture with modern scientific and technological means to spread the charm of intangible cultural heritage to a wider audience in the form of games. Game design is not just an entertainment tool, it can also serve as an educational means to help people understand and appreciate the unique value of intangible cultural heritage. Through game design, we can present intangible cultural heritage in a vivid, interesting and acceptable way, thus stimulating people's interest and love for traditional culture.

During the design process, we need to consider several factors, including the type of game, the audience, the story, the visual style, and so on. Intangible cultural heritage is no longer simply used as an element extraction to participate in game design. For example, the documentary "Streamer Trail of Relics" invites non-genetic inheritors to create works based on the elements in Genshin Impact^[9], but the game design as an independent. We also need to consider the interaction and linkage between games and the real world. We can invite non-genetic heirs to interact with players through games, share their skills and experiences, and enhance players' sense of identity and belonging to the intangible cultural heritage project. At the same time, we can also use the virtual community in the game to hold intangible cultural exchange activities to promote interaction and sharing between players. In terms of game experience optimization, we can continuously improve and enhance through data analysis and technological innovation, use big data to analyze player behavior and preferences, and optimize game content and gameplay; Artificial intelligence and virtual reality technology can also be leveraged to provide a more immersive gaming experience for players. In the advanced stage

of metaverse development, games can be freed from the bondage of devices, allowing people to feel intangible heritage more truly. Vernor Vinge, an American mathematician, creatively conceived a virtual world where sensory experiences can be accessed through a brain-computer interface. ^[10]

As an innovative approach, game design has great potential and value. Through scientific design methods and rigorous logical basis, we can present the intangible cultural heritage in a vivid and interesting way, stimulate people's interest in and love for traditional culture, and thus promote the inheritance and development of the intangible cultural heritage.

2.4. Construction of talent training system

From the perspective of integrated media, the construction of talent training system for digital inheritance of intangible cultural heritage needs to start from the aspects of goal setting, curriculum system construction, teacher construction, teaching method innovation, etc., to build a scientific, reasonable, systematic training system, and cultivate talents with digital technology application ability, intangible cultural heritage protection awareness and inheritance ability.

First of all, we need to clarify the goal and content of talent training. The talent training of digital inheritance of intangible cultural heritage aims to cultivate talents with professional knowledge of both digital technology application and intangible cultural heritage. It needs to learn computer technology, network technology, connotation of intangible cultural heritage, Chinese excellent traditional culture, etc. It can also experience the cultural connotation, not losing the original purpose of intangible cultural heritage inheritance, and cultivate the cognition, understanding and identification of intangible cultural heritage, as well as the ability to inherit, protect and disseminate it.

In order to achieve these goals, we need to build a scientific, reasonable, systematic and comprehensive curriculum system, including both theory and practice. The establishment of theoretical courses should help students understand the basic theories of intangible cultural heritage, the relevant knowledge of the application of digital technology and the basic principles of network communication, so as to provide theoretical support for practice. Practical courses include digital collection, storage, dissemination and other links, and can take a certain intangible cultural heritage as an example, so that students can master the ability of digital technology application in actual operation.

We need to pay attention to the construction of teachers. Teachers need to have a wealth of intangible cultural heritage knowledge and digital technology application ability, can guide students to practice, and cultivate students' innovation ability and practical ability. Colleges and universities should strengthen the training of teachers, improve their professional quality and ability level, and cooperate with enterprises to establish practice bases, provide practical opportunities for students, so that students can understand the inheritance and protection of intangible cultural heritage in practice, and enhance students' social responsibility and practical ability.

We also need to pay attention to the continuous development of digital technology and the continuous expansion of application fields, and the talent training system needs to be constantly updated and upgraded to meet the needs of the development of The Times and meet the needs of society for talents.

3. Conclusion

The digital inheritance of intangible cultural heritage from the perspective of media integration is a research direction of great significance and practical feasibility, and there have been some successful practices and experiences in this aspect. However, we should also recognize the shortcomings and problems in the current research, such as unbalanced resource input, talent, technology application

gap, high demand and high development imbalance of digital inheritance, imperfect evaluation index system, and limitations of technology level. In order to achieve these goals, we need to build a scientific, reasonable, systematic and comprehensive digital inheritance system. Future studies need to be further discussed and perfect these aspects, for the intangible cultural heritage of the theory and methods of digital transmission to provide better support.

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