

Research on the Inheritance Path of Intangible Cultural Heritage under the Strategy of Cultural Digitalization—Taking a Number of Intangible Cultural Heritage in Shandong Province as an Example

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Abstract: This article takes the cultural digitalization strategy as the entry point, and takes the intangible cultural heritage in Shandong as an example to explore its contemporary inheritance and diversified practice strategies. Studies have shown that intangible cultural heritage is an important carrier of regional culture, and current challenges facing intangible cultural heritage—such as insufficient inheritance space, narrowing transmission areas, and limited communication channels—coincide with the opportunities presented by the digital era. Shandong Province has explored Lu brocade and gourd carving from the technical level, platform construction, collaboration with industries, etc., but issues such as uneven development, redundant efforts, insufficient coordination, and lack of talent remain. This article systematically identifies that intangible cultural heritage must achieve a balance among three aspects: protection, innovation, and communication. At the level of protection, focus on preserving the core content and technical details of intangible cultural heritage through standardized digital recording methods; At the level of innovation, promote the integration of skills with modern media and life scenes to enhance its contemporary vitality; At the communication level, build a hierarchical and classified communication system that connects internal and external to enhance the social cognition and cultural influence of intangible cultural heritage. This paper believes that the inheritance of intangible cultural heritage should always be based on cultural connotation and human inheritance as the core, so as to avoid falling into the misunderstanding of technology supremacy or commercialization. Shandong's practice shows that digital technology can provide important support for the survival and activation of intangible cultural heritage, but it must be combined with the law of inheritance. In the future, we should further improve the mechanism construction, promote multi-party cooperation, and promote the real living inheritance and possibility of intangible cultural heritage in contemporary society.

Keywords: Cultural Digitalization Strategy; Shandong Intangible Cultural Heritage; Intangible Cultural Heritage Protection

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1. Introduction

In the face of the current wave of globalization and digitalization, as a carrier of cultural diversity and national memory, the protection and inheritance of intangible cultural heritage has ushered in more opportunities and challenges. With the

implementation of the national cultural digitalization strategy and the actual needs of intangible cultural heritage protection, the digitalization of intangible cultural heritage is a new path to surpass the “bottleneck” of protection and stimulate the “power” of inheritance to break through the barriers of intangible cultural heritage protection^[1]. The 20th National Congress of the Communist Party of China proposed “implementing the national cultural digitalization strategy” for the protection of intangible cultural heritage, which has programmatic and policy significance for the digitalization of intangible cultural heritage protection, and has changed from “rescue protection” to “preventive protection and creativity” for the protection of intangible cultural heritage. “The systematic transformation is of great significance. Intangible cultural heritage is an important part of the excellent culture of the Chinese nation, with a long history and profound heritage. Shandong Province is a major province of intangible cultural heritage, with a large number of national and provincial intangible cultural heritage, profound historical accumulation, and rich regional culture. However, many intangible cultural heritage are still mainly passed on by word of mouth, and problems such as inheritance, limited transmission areas, and modern inheritance faults are still outstanding. Intangible cultural heritage digital technology has crossed the threshold of inheritance, enabling intangible cultural heritage to release its cultural value and economic value, testing the construction of Qilu’s cultural power. At the same time, intangible cultural heritage is also a “going out” business card of Chinese culture in the era of globalization going to the world. Since the current external communication of intangible cultural heritage is still limited by language, culture, channels, etc., it is necessary to explore the paths and methods of external communication of intangible cultural heritage, create a multi-language and multi-form digital communication ecology of intangible cultural heritage^[2], and increase the influence of Chinese culture. Therefore, sorting out the practical process of digital communication of intangible cultural heritage in Shandong Province, summarizing and problems, and finding possible optimization solutions not only has certain significance at the theoretical level, but also has important practical value for the contemporary inheritance of intangible cultural heritage. Inheritance and new ideas and new ideas in the digital age^[3].

2. The Current Situation of Intangible Cultural Heritage Digital Practice in Shandong Province

Shandong is a province rich in intangible cultural heritage (ICH) resources. Guided by the national cultural digitalization strategy, various forms of ICH in Shandong have carried out extensive digital practices and explorations, gradually forming a “technology-platform-industry” integration model. This model has promoted the digital and intelligent transformation of ICH inheritance and protection in the region. In recent years, digital practices related to ICH in Shandong have penetrated fields such as weaving, carving, food, and folk art, giving rise to a number of representative initiatives that are well-positioned to empower ICH inheritance and innovation^[4].

2.1 Weaving Techniques

The digital application of Lu brocade weaving techniques serves as a typical example in the field of weaving. To support the protection of Lu brocade as a national-level ICH item^[5], Heze Mobile Communications Company leveraged new infrastructure in rural areas to build a comprehensive wired and wireless network. Using 5G technology, it established a live-streaming display platform titled “5G and Live Broadcasting,” through which artisans demonstrate the entire production and manufacturing process of Lu brocade. Online sales are supported via live streaming, and a “5G Smart Workshop” has been customized and transformed to enable real-time production line monitoring and management. This initiative provides a platform to promote the healthy development of Lu brocade’s cultural and creative industry, forming a complete chain of “technological support – display and communication – industrial upgrading” and realizing a closed loop that integrates technology, Lu brocade display, and industry.

2.2 Carving Techniques

Carving techniques are exemplified by Dongchang gourd carving, which has developed a digital model combining online and offline efforts. Dongchangfu District has built the country’s first internet platform for the gourd cultural industry. Offline, it has integrated resources into the Chinese Gourd Cultural Park, establishing gourd IoT planting demonstration parks, digital experience centers, and other experiential projects. Online, centering on four major platforms—the whole-industry-lifecycle platform, industrial resource platform, customized service platform, online sales platform, and cultural tourism digital

platform—it has established a big data center for the gourd industry. These efforts have contributed to the development of standardized, high-quality, and brand-oriented Dongchang gourd carving techniques, creating a strong linkage between ICH and industry ^[6].

2.3 Folk Art

Digital practices in the field of folk art are commonly manifested through new media communication, as exemplified by inheritors of dough figurine art ^[7]. By opening accounts on platforms such as Douyin and Kuaishou, these inheritors upload a variety of images, texts, and video works, including demonstrations of the creation and production process of dough figurines. This approach enables low-cost dissemination of dough figurine art to a broad audience.

2.4 Regional Integrated Advancement

At the regional level, systematic digital promotion has achieved notable results. Qihe County has completed the construction of the “One Book, One Room, One Hall, One Library” digital cultural infrastructure project and has recorded 94 ICH items and 72 inheritor records on the provincial ICH digital management platform. The county also relies on WeChat official accounts, apps, and other platforms to host activities such as cloud exhibitions of ICH skills and “ICH Shopping Cloud Store Exploration,” enabling systematic digital management and extensive dissemination of regional ICH resources.

In addition, the launch of the public welfare digital collection Quancheng Intangible Cultural Heritage Baby represents an innovative form of digital communication for ICH. The collection features six sets of digital images covering Jinan’s ICH items, such as Lu embroidery and Zhangqiu iron pot. This allows the public to access ICH in a more intuitive and convenient way, thereby enhancing its appeal and dissemination.

3. Digital Practice of Intangible Cultural Heritage in Shandong Province

Although the digital application of intangible cultural heritage (ICH) in Shandong Province has achieved certain results, several problems remain in terms of its breadth and depth, which constrain the scope and effectiveness of digital inheritance. These issues include insufficient technical coverage and limited deep application of digital technologies.

Digital resources tend to be concentrated on well-known ICH items with high commercial value, such as Lu brocade and Dongchang gourd carving. In contrast, most small-scale ICH projects on the verge of extinction have not yet undergone digital collection or organization due to factors such as remote locations or insufficient funding, and may gradually be forgotten. At the same time, the digitization of most projects remains at the stage of preserving original records—such as audio and video documentation—with limited engagement with emerging technologies like VR/AR, virtual reality, and digital twins. The focus remains largely on knowledge transmission and manual operation demonstrations, while digital outcomes lack cultural presentation and immersive experiences, failing to reflect the deeper cultural dimensions of ICH.

At the level of content dissemination and transformation, there are issues of homogeneous communication and weak industrial transformation chains. The digital dissemination of folk art ICH items mostly relies on general social media platforms such as Douyin and Kuaishou, with content primarily consisting of simple recordings of creative processes and finished product displays. There is a lack of in-depth interpretation of ICH cultural backgrounds, historical origins, and technical principles. The content is highly homogeneous, making it difficult to establish a differentiated communication advantage, which results in low user engagement and limited dissemination effectiveness.

Although some projects have built online display and sales platforms, they have failed to effectively integrate resources such as creative design, brand operation, and marketing. The transformation chain from digital outputs to commercial and cultural value remains incomplete. Sales are still at the preliminary stage of “live-streaming with goods,” lacking higher-value transformation paths such as personalized customization or cultural and creative IP development, thus failing to fully unlock the industrial potential of ICH.

The issue of coordinating talent and resources is also prominent. On the one hand, ICH digitization requires professionals with expertise in both ICH and digital technology. Currently, Shandong Province faces a shortage of such interdisciplinary talent. ICH inheritors often lack the mindset and habits necessary for digital application and communication, and their understanding of digital culture is insufficient, leading to a lack of coordination and collaboration that hinders innovation in digital applications ^[8].

On the other hand, there is a lack of overall planning for digital resources across regions and ICH categories, resulting in a fragmented approach where “each operates in isolation.” Although regional ICH digital management platforms have been established in areas such as Qihe County, the province as a whole has yet to develop a co-construction and sharing framework for ICH digital resources. The standards for digital outcomes vary across regions, making them incompatible with one another. High-quality resources cannot be shared or reused, undermining the advantages of digitalization. Coupled with difficulties in securing sustained funding, these challenges make it difficult to carry out comprehensive digital initiatives—including scientific research, platform development, and team building—especially for niche ICH projects, where the lack of financial support hinders the smooth implementation of digital efforts.

4. Countermeasures and Suggestions for Digitalization of Intangible Cultural Heritage in Shandong Province

For the first time, the “14th Five-Year Plan” cultural plan deploys the “intangible cultural heritage digital project” and the “national cultural big data system” side by side, which indicates that intangible cultural heritage inheritance is facing unprecedented opportunities and new challenges. As a province with a large number of intangible cultural heritage resources, Shandong Province has carried out rich intangible cultural heritage digital practices in terms of policy support, technology application, and industrial integration, providing valuable Shandong experience. For example, the Shandong Provincial Department of Culture and Tourism has established the “Shandong Intangible Cultural Heritage Digital Center”, universities have set up “technical big data laboratories”, and enterprises have jointly built a “Intangible Cultural Heritage Exploration Store “ live streaming base in collaboration with the provincial ICH protection center, among other cooperative initiatives^[9]. However, in the actual promotion process, many difficulties have been encountered, such as the imbalance between technology application and cultural core connection, the difficulty of intangible cultural heritage inheritors adapting to digitalization, the loss of value and commercialization tendency in cultural communication, and the long-term mechanism Not yet sound, etc. For example, the case of Lu brocade weaving illustrates the imbalance between technology application and cultural core, some digital projects stay in the combination and gimmicks of technology, while ignoring the ingenuity and connotation of “weft and latitude”; The old craftsmen in Lu brocade weaving do not admit that digital projects can be disseminated through various means such as live broadcasts. Young people artificially simplify the complicated weaving process in order to attract traffic, which is a little bit that needs to be improved and optimized urgently. Faced with the above-mentioned complex situation, it is particularly urgent to build a systematic, inclusive, and feasible digital inheritance path for intangible cultural heritage. This path goes beyond simple technical application thinking, based on the inherent laws of cultural inheritance, and seeks coordinated advancement in the three dimensions of protection, innovation, and dissemination. At the level of protection, the main task is the permanent and authentic preservation of cultural heritage. To solve these problems, it is necessary to formulate a complete set of digital collection standards for intangible cultural heritage, and formulate different collection plans for different intangible cultural heritage items. Specific to the technical Zibo glass firing process, donkey-hide gelatin production, etc., various methods such as 3D scanning and inheritor oral records can be used to record tacit knowledge that cannot be fully expressed through verbal; Specific to the Qufu Confucius Festival Ceremony, Guzi Yangko etc, the cultural atmosphere and emotions of these cultural heritages can be recorded by panoramic shooting and video recording^[10]. In addition, there are issues of digital ethics and intellectual property protection. It is necessary to clearly define the ownership and scope of use of intangible cultural heritage digital achievements, effectively safeguard the cultural rights and interests of inheriting groups, and avoid cultural encroachment and improper use that may arise during the digitalization process.

At the level of innovation, enrich the presentation of intangible cultural heritage, combine modern media, use the Internet and artificial intelligence, and combine intangible cultural heritage with innovation^[11]. Technology brings unlimited possibilities: through VR/AR technology, the immersive experience is realized, so that the intangible cultural heritage has more possibilities, and the story behind the exhibits is linked through AR scanning, so that the audience can “substitute” the intangible cultural heritage, experience the immersive atmosphere; Use AI big data to analyze user concerns and push corresponding content. The focus of innovation is to actively integrate across borders without compromising the essence

of intangible cultural heritage, retain the rhythm and keep pace with the times, so as to make culture live and make culture “live” in modern times. Use digital language intangible cultural heritage to resonate with people’s emotions, so that intangible cultural heritage can be integrated into the public in innovation.

At the level of communication, it provides vivid images, creates an atmosphere, and spreads across layers. Internally, use a series of products of the times such as social platforms to produce targeted intangible cultural heritage-themed videos. For young people: use interesting videos to spread intangible cultural heritage such as Lu brocade weaving and dough figurine making ; Provide online intangible cultural heritage teaching, online digital museums and other traceability needs for middle-aged and elderly groups. At the same time, promote the digitalization of intangible cultural heritage into the classroom, and produce digital textbooks for Shandong intangible cultural heritage cases, allowing students to experience intangible cultural heritage crafts in virtual simulation experiments; The foreign publicity language platform translates intangible cultural heritage such as Lu brocade weaving, donkey-hide gelatin production, gourd carving, and dough figurines into English, Japanese, Korean and other languages, and conducts cultural interpretation to spread cultural significance to the outside world. Using international social platforms, by telling “story crafts”, with empathy and story-based expression as the soul, we will promote excellent culture to go abroad and integrate into global dialogue ^[12]. Protection, innovation, and communication are an organic whole that supports each other: protection lays the foundation for innovation, innovation injects vitality into communication, and communication builds consensus for protection. The rich practice of Shandong Province vividly confirms the key path for digitalization to achieve creative transformation and innovation of intangible cultural heritage. Intangible cultural heritage is the memory of history and the wisdom of the nation. Intangible cultural heritage supported by digital technology transcends the time and space constraints of inheritance space, and establishes a cultural bridge with modern times with digital filing, intelligent production, immersive experience, and embedding of the entire industrial chain, to realize the “fusion and innovation” of “memory retention”.

However, the digitalization of intangible cultural heritage is not a product of simply copying technology, but a complex practice with specific cultural nature and the requirements of the times. Issues such as perfection are still urgent problems that need to be solved. It is necessary for the digitalization of intangible cultural heritage to break through the fixed thinking of its instrumental thinking and find the balance of protection, innovation, and dissemination in the inheritance of intangible cultural heritage.

5. Conclusion

The road to digital inheritance of intangible cultural heritage is long and full of room for exploration. With the advancement of digital technology, the digital inheritance of intangible cultural heritage will usher in a broader space, and technological iteration will provide tools and imagination for the digital inheritance of intangible cultural heritage. Digitalization is only a means of intangible cultural heritage inheritance, and its ultimate goal is always “people”-to enhance people’s understanding of cultural heritage, to empower cultural inheritance, and to promote shared appreciation among different civilizations. Therefore, the focus of the digital inheritance of intangible cultural heritage should be on building an inclusive digital inheritance network: let intangible cultural heritage form a multiple inheritance form of “entering colleges and universities, passing on the network, and reaching users” ^[13]. Shandong intangible cultural heritage shows that the cultural digitalization strategy not only “retains memory”, but also “releases creativity” and “rebuilds industries”. Build a more scientific and complete intangible cultural heritage inheritance and communication system, put forward the “three-degree” strategy for the external communication of intangible cultural heritage, adhere to “culture-based, technology-based, and people-oriented”, and let the flowers of intangible cultural heritage in the “hometown of Confucius and Mencius” bloom forever online. Intangible cultural heritage is a national historical and cultural memory and a common spiritual treasure of human civilization. In recent years, the inheritance and protection of intangible cultural heritage has always been the focus of China’s attention, and a series of cultural digitalization strategic policies have been proposed. Under the background of cultural digitalization strategy, the digital era presents a new chapter for ICH inheritance. Only by adhering to the principles of creative transformation and innovation, and keeping cultural inheritance in sync with the times, can intangible cultural heritage truly “come to life “ and “be passed down” in the “big data era”. This is the realistic requirement of cultural inheritance, and it is also the historical

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