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Original Research Article

## Research on the innovative paths of intangible cultural heritage cultural transmission from the perspective of digital media

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**Abstract:** This study takes the APP named «Intangible Cultural Heritage Dalian» as an example to explore the innovative paths of intangible cultural heritage dissemination under digital media. Through innovations in technology application, content presentation, and interactive experience, the APP named «Intangible Cultural Heritage Dalian» significantly enhanced its dissemination efficiency, providing a model for regional intangible cultural heritage digital dissemination, and having important theoretical and practical significance for the dynamic inheritance and innovative development of intangible cultural heritage.

**Keywords:** Digital media; Intangible cultural heritage; Cultural dissemination; Innovative path; Mobile application development

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## 1. Introduction

Intangible cultural heritage serves as a living gene bank of human civilization, carrying the historical memories and cultural wisdom of a nation. However, in the context of the accelerated modernization process, many intangible cultural heritage projects are facing the predicaments of lost transmission and weak dissemination. According to the 2022 global report on intangible cultural heritage protection by UNESCO, the proportion of endangered intangible cultural heritage projects worldwide has risen to 47% (UNESCO, 2022). At the same time, the vigorous development of digital media technology has brought revolutionary changes to the field of cultural dissemination. The 52nd statistical report of the China Internet Network Information Center (CNNIC) indicates that as of June 2023, the number of internet users in China reached 1.079 billion, with an internet penetration rate of 76.4%. Among them, the proportion of short-video users exceeded 90%, creating more favorable conditions for the digital dissemination of intangible cultural heritage (CNNIC, 2023).

In this context, the development practice of the «Intangible Cultural Heritage Dalian» APP holds significant exemplary significance. This application integrates the rich intangible cultural heritage resources of Dalian, utilizes cutting-edge digital technologies, and builds a digital dissemination platform that combines display, education, and interaction. This study conducts a systematic analysis of this project, aiming to explore the integration path of digital media and intangible cultural heritage dissemination, and provide theoretical references and practical guidelines for regional intangible cultural heritage protection and inheritance.

## 2. The importance of digital media in the cultural transmission of intangible heritage

### 2.1. Breaking the limitations of time and space, expanding the dissemination scope

The traditional methods of cultural heritage dissemination (such as exhibitions and performances) are restricted by time and space, resulting in a narrow audience range. The emergence of digital media has complete-

ly changed this situation. Through the Internet and mobile terminals, intangible cultural heritage can transcend geographical and temporal boundaries. People can access intangible cultural heritage resources and learn about local intangible cultural projects anytime and anywhere via mobile phones or computers. For example, digital museums and intangible cultural heritage APPs enable users to enjoy intangible cultural skills and folk customs from various places, significantly expanding the dissemination scope of intangible cultural heritage<sup>[1]</sup>.

## **2.2. Enriching the dissemination forms and enhancing the appeal**

Digital media provides diverse forms for the cultural transmission of intangible heritage. By leveraging virtual reality (VR), 3D modeling, and multimedia technology, intangible cultural heritage can be presented in a vivid, intuitive, and immersive way, far superior to traditional textual and pictorial descriptions. For instance, through videos and animations to showcase the production process and performance scenes of intangible cultural heritage projects, audiences can more intuitively experience their charm. Utilizing VR technology, audiences can also experience the creative environment of intangible cultural heritage inheritors as if they were personally involved, this immersive experience helps viewers better understand the connotation of intangible cultural heritage.

## **2.3. Promoting interactive participation and enhancing the dissemination effect**

Interactivity is one of the core advantages of digital media. In the cultural transmission of intangible heritage, digital platforms can set up interactive sections such as online comments, voting, answering questions, and virtual guided tours, encouraging viewers to actively participate. Viewers not only receive information but also express their opinions, share experiences, and communicate with others and inheritors. This interactive participation enhances viewers' sense of identification and belonging to intangible cultural heritage, significantly improving the dissemination effect.

# **3. Background of the development of the 《Intangible Cultural Heritage Dalian》 APP**

## **3.1. Abundant intangible the 《 Cultural Heritage Resources in Dalian》 APP**

As a significant city in northern China, Dalian boasts a rich collection of intangible cultural heritage resources<sup>[2]</sup>. For instance, Fuxiu City Shadow Puppetry has a long history and possesses unique performance styles and artistic value, serving as an important representative of local folk culture in Dalian; Zhuanghe Paper-cutting showcases exquisite craftsmanship and a wide range of themes, reflecting the local folk customs and people's aspirations for a better life; and Dalian Shell Engraving, as a traditional handicraft, combines the beauty of shells with artistic creation, presenting a distinctive feature. These abundant intangible cultural heritage resources provide a solid foundation for the development of the APP named 《Intangible Cultural Heritage Dalian》 .

## **3.2. Limitations of traditional communication methods**

However, the traditional exhibition methods and management models of Dalian's intangible cultural heritage face certain limitations. Traditional museum exhibitions and offline activities are constrained by factors such as venue and time, and thus cannot meet the growing cultural demands of the public. Moreover, the traditional display methods are mainly static, lacking interaction with the audience, making it difficult to attract the attention of young audiences and resulting in poor dissemination of intangible cultural heritage, with many excellent intangible cultural heritage projects remaining unknown.

### 3.3. Policy support and encouragement

In the 《14th Five-Year Plan for Cultural Development》, China has clearly stated the importance of leveraging technology to drive the cultural industry, emphasizing the development of cultural relic museums through digital protection and restoration of relics, as well as the construction of digital museums, in order to enhance the status of the cultural industry. Under such a policy framework, developing the APP named 《Intangible Cultural Heritage Dalian》 and innovating the dissemination methods of intangible cultural heritage through digital media technology is in line with the requirements of the national cultural development strategy and can also receive policy support and encouragement.

## 4. Innovative features of the APP named 《Intangible Cultural Heritage Dalian》

### 4.1. Technological innovation

The latest virtual reality technology and 3D modeling technology<sup>[3]</sup> were adopted to accurately reproduce the intangible cultural heritage projects in Dalian. As shown in Figure 2, For example, when presenting the Fuchou Shadow Puppetry, the performance scene and props of the shadow puppetry were restored through 3D modeling. Utilizing virtual reality technology, users can seemingly be present at the shadow puppetry performance site, watch the performers' performances, and experience the unique charm of shadow puppetry. This technological innovation brings a brand-new visual feast to users, making the display of intangible cultural heritage more vivid and realistic.

### 4.2. Content innovation

Emphasize on uncovering the stories and cultural connotations behind the cultural relics, and present the historical, artistic and scientific values of intangible cultural heritage projects through multimedia formats. Besides textual descriptions, various forms such as audio explanations, video displays, and animation demonstrations have also been added. As shown in Figure 3, When introducing Zhuanghe Paper Cutting<sup>[4]</sup>, not only pictures of the paper cutting works were shown, but also the production process of the paper cutting was demonstrated through videos. The inheritor was invited to explain the historical origin and cultural implications of paper cutting art, enabling users to have a deeper understanding of the artistic value and cultural connotations of Zhuanghe Paper Cutting.

### 4.3. Interactive innovation

A variety of interactive sections have been set up, such as virtual guided tours, online quizzes, and audience comments. Users can explore each section of the APP independently through the virtual guided tour function, and learn about different intangible cultural heritage projects. The online quiz section can help users test their understanding of intangible cultural heritage knowledge and increase the fun of learning. The audience comment function enables users to share their feelings and experiences, facilitating communication and interaction among users and achieving the integration of online and offline interactions.

## 5. “Analysis of the communication effect of 《Intangible Cultural Heritage Dalian》 APP”

### 5.1. Enhancement of user engagement

Through a variety of interactive activities, the 《Intangible Cultural Heritage Dalian》 APP attracted a large

number of users to participate. During its operation, the number of user comments and the frequency of participation in quizzes continued to increase, indicating that users' attention and participation enthusiasm towards the APP were high. Many users stated that through these interactive activities, they gained a deeper understanding of Dalian's intangible cultural heritage and were willing to actively participate in the dissemination of intangible cultural heritage.

### **5.2. Expansion of communication reach**

By leveraging the communication advantages of digital media, the download and visit volumes of the 《Intangible Cultural Heritage Dalian》 APP have been continuously increasing. It is not only popular in Dalian but has also attracted users from all over the country and even overseas. Through the APP, the intangible cultural heritage of Dalian has been disseminated to a wider area, enhancing its reputation and influence.

### **5.3. Strengthened cultural transmission and innovation awareness**

The promotion and application of the 《Intangible Cultural Heritage Dalian》 APP have enabled more people to understand the importance of intangible cultural heritage, enhancing their awareness of protecting and inheriting intangible cultural heritage. At the same time, the innovative display forms in the APP have provided new ideas and methods for the inheritance and innovation of intangible cultural heritage, promoting the integration of intangible cultural heritage with modern technology.

## **6. Summary of innovative paths for intangible cultural heritage (ICH) cultural transmission from the perspective of digital media**

### **6.1. Strengthening technological application**

Constantly introduce new digital media technologies, such as artificial intelligence and blockchain, to provide stronger technical support for ICH cultural transmission. Utilize artificial intelligence technology to achieve personalized recommendations, based on users' interests and browsing history, to recommend relevant ICH projects, improving the accuracy of the transmission. Utilize blockchain technology to ensure the security and authenticity of ICH cultural data, protecting the rights and interests of ICH inheritors.

### **6.2. Enhancing interactive experience**

Further optimize the interactive functions of digital media platforms, increasing the diversity and fun of interaction. For example, conduct online ICH creation competitions, live streaming interactions, etc., encouraging users to participate in the creation and dissemination of ICH culture. Through interactive experience, enhance users' sense of identification and belonging to ICH culture, forming a favorable transmission atmosphere.

### **6.3. Integrating resources and cooperation**

Strengthen cooperation with government departments, cultural institutions, schools, enterprises, etc., to integrate resources and jointly promote the transmission of ICH culture<sup>[5]</sup>. Government departments can provide policy support and financial guarantees, cultural institutions can provide professional cultural resources and guidance, schools can carry out ICH cultural education activities to cultivate inheritors, and enterprises can participate in the development and promotion of ICH cultural products, achieving mutual benefit and win-win results.

## 7. Conclusion

The development of the 《Intangible Cultural Heritage Dalian》 APP is a successful practice of innovative cultural dissemination of intangible heritage from the perspective of digital media. Through technological innovation, content innovation, and interactive innovation, this APP effectively enhanced the dissemination effect of Dalian's intangible cultural heritage, expanded the dissemination scope, and increased the participation of users and their awareness of cultural inheritance. Based on the development experience of the 《Intangible Cultural Heritage Dalian》 APP, the innovative paths of cultural dissemination of intangible heritage in the digital media perspective are summarized, including strengthening technological application, emphasizing content exploration and innovation, enhancing interactive experience, and integrating resources and cooperation. These innovative paths have important reference significance for the dissemination of intangible cultural heritage in other regions and are conducive to promoting the protection and inheritance of intangible cultural heritage in China in the digital era to achieve better development. In the future, with the continuous progress of digital media technology, intangible cultural heritage dissemination will face more opportunities and challenges, and it is necessary to constantly explore and innovate to enable intangible cultural heritage to radiate new vitality and vigor in the new era.

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## Funding

The 2024 Class A Project of the University-level College Students' Innovation and Entrepreneurship Training Program in Liaoning Province, titled “ “Intangible Cultural Heritage of Dalian - Virtual Digital Museum APP Interface Design for the Dalian Intangible Cultural Heritage Experience Center”(Project Number: X202413198006)

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