

# Research on Digital Intelligence Active Design Strategy of National Folk Museum in Jilin Province Under the Fusion of Culture and Tourism

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## ABSTRACT

In the era of cultural and tourism integration, museums, as an important site for collecting, protecting and inheriting regional culture, have gradually become the forefront of cultural and tourism integration. The construction of museums has become an urgent task for urban renewal and rural revitalization. In the current digital wave, the traditional cultural and museological institutions and formats are no longer satisfied with the traditional collection and display of cultural relics. With the continuous progress of technology and the increasing expansion of application scenarios, the transformation and development of museums are in urgent need of innovation. Digitalization will give the cultural and museological industry a new charm. This study focuses on the problem analysis and local design research of local folklore museums in Jilin Province, aiming to revitalize the display space within these museums. By integrating digital displays that encompass Jilin's natural environment, human history, folk customs, economic development, and social changes, the study seeks to effectively narrate the stories of Jilin's hometowns and reflect the local material civilization and spiritual texts. It actively explores the application of cutting-edge digital technologies to provide audiences with a richer and more profound viewing experience. At the same time, think about how to organically integrate the inheritance and innovation of cultural heritage through digital means. Through digitalization, the cultural heritage displayed on the land of Jilin can be gathered in the museum to provide diversified and personalized visiting and educational experience for the public.

**Keywords:** Cultural and tourism integration, National folk custom museum, Digital intelligent design, Active design strategy.

## 1. INTRODUCTION: BACKGROUND OF MUSEUM RESEARCH IN DIGITAL AGE

### 1.1 Contemporary Issues of Cultural and Tourism Integration

The vigorous development of museum tourism in China benefits from the free and open policy, and is closely related to the era background of the integration of culture and tourism. Since the establishment of the Ministry of Culture and Tourism in 2018, the working idea has been determined to "integrate when appropriate, integrate when possible, promote tourism through

literature, and enhance literature through travel". The 14th Five-Year Plan and the Outline of 2035 Vision Goals adopted at the Fifth Plenary Session of the 19th CPC Central Committee propose to "promote the integrated development of culture and tourism". The Opinions on Promoting the Implementation of the National Cultural Digitization Strategy issued by the Central Office and the State Office in 2022 require: Promote public libraries, cultural centers, museums, art galleries and intangible cultural heritage museums to strengthen the construction of public digital cultural resources, coordinate the construction of the national cultural big data system, the national smart library system and the public cultural cloud, and enhance the supply capacity of public cultural

digital content. Integrated and high-quality development of culture and tourism will contribute to socialist modernization. With the rapid development of The Times, the living environment of local culture has changed. Through cultural tourism activities, people can better understand and experience local culture, history and customs, etc. Museums are treasure-houses that collect the essence of regional culture, history and customs. Museums have unique and rich cultural tourism resources.

It is an important place for the protection and inheritance of regional culture, and has gradually become the forefront of the integrated development of culture and tourism in various regions. Under the guidance of cultural tourism policy and the demand of the public, the digital craze of "museum" has been set off in China. Digital technology is reshaping the narrative mode of museums with unprecedented force and giving new life to ancient cultural heritage. Major museums have updated their digital projects, vividly recreating historical scenes with innovative scientific and technological means, and embarking on an immersive exploration journey that spans time and space.

## ***1.2 Trends and Necessity of Museum Digitization***

Culture is not only the soul of a country or a nation, but also the "soft power" for the economic and social development of a country or region. The museum is an important carrier for displaying, disseminating, collecting and inheriting regional history and culture, characteristic culture, revolutionary culture and rural production and life. In recent years, a variety of museums have emerged like "bamboo shoots after the rain", and spawned many new forms of development, such as "museum + heritage", "museum + cultural innovation", "museum + research" and so on. Although museums vary in content and form, they all contain local cultural genes and historical memories. Museums not only provide the masses with the convenience of enjoying public cultural services and become a colorful cultural landscape, but also let the people have a "15-minute quality cultural life circle", so as to get more and better spiritual nourishment and contribute to the development of cultural tourism.

The construction and development of museums is not only an important means to carry forward the core socialist values, protect and inherit the excellent traditional culture, and strengthen the

construction of public culture, but also an urgent task for urban renewal and rural revitalization. The emergence of digital technology has brought unprecedented changes to the traditional field of culture and museums. From immersive virtual reality to artificial intelligence technology, from innovative digital exhibitions to the delicate protection of cultural heritage, the integration and innovation of technologies are profoundly affecting every aspect of the field of cultural heritage, opening a new era for it.

In the current digital wave, traditional cultural institutions and formats are no longer satisfied with the traditional collection and display of cultural relics, but actively explore how to use cutting-edge digital technology to bring more rich and in-depth viewing experience to the audience. At the same time, they are also thinking about how to organically integrate the inheritance and innovation of cultural heritage through digital means. We are at the forefront of this revolution, witnessing the beautiful integration of cultural inheritance and technological innovation. With the continuous progress of technology and the expansion of application scenarios, digitalization will engender a new charm in the cultural industry.

## ***1.3 Research Status of Museum Digitization***

Museum digitization is to make the environment and exhibits of the museum into 3D models, so that visitors can freely browse in a virtual environment, view the three-dimensional collections and retrieve the information of the collections in the museum, and extend the exhibition space of the museum by displaying various achievements of material and non-material. The digitalization of the museum is constantly updated and iterated at home and abroad, and the dynamic construction has brought a variety of display results and effects.

The digital construction and active design of foreign museums are relatively early, and some museums have begun to use digital technology to display collections and spread culture. For example, the Metropolitan Museum of Art in the United States launched the "Digital Metropolis" project, displaying more than 400,000 pieces of its collection through digital technology; and the British Museum in the UK has also launched Digital Great Britain, which showcases more than 2 million items from its collection through digital technology.

The digital construction of domestic museums is relatively late, with only a decade or two of exploration, but some achievements have been made in recent years. For example, the Palace Museum has launched the "Digital Palace Museum" project, which showcases more than 1.8 million pieces from its collection through digital technology; and the National Museum of China has also launched the "Digital National Museum" project, which showcases more than 400,000 items from its collection through digital technology. Other major museums in the country, such as the Capital Museum, the Grand Canal Museum of China and the Zhejiang Museum, also joined in a fascinating experience of integrating history and modern technology, witnessing how digital exhibitions can activate the context of ancient capitals and reshape the way audiences engage in dialogue with history.

## **2. THE NEEDS AND CHALLENGES OF THE DEVELOPMENT OF NATIONAL FOLKLORE MUSEUMS IN JILIN PROVINCE**

### ***2.1 Development Needs of Jilin Province National Folk Custom Museum as the Times Update***

The most prominent feature of local museums is their localism, discovering local culture and telling local stories. Most of the collections on display in the museums show local natural environment, human history, folk customs, economic development and social changes, reflecting local material civilization and spiritual texts.

Since 2019, the development of cultural tourism in Northeast China, especially in Jilin, has achieved good results and benefits. There have been a large number of "Made in Jilin" cultural tourism Internet celebrities, such as Changchun Lianhua Island Film and Television Leisure Culture Park, This Youshan, Northeast City that Never Sleeps, Chinese Korean Folk Garden, etc. However, most of these are operated by private cultural tourism enterprises. While the national culture and folk culture as the main stream has not reflected the update and development of The Times. At a time when the development of cultural tourism is in full bloom, large-scale and large construction is definitely not an effective way of development, but a small and fine cultural tourism that keeps pace with The Times and makes full use of the existing resources to upgrade, feature and deepen on the basis of the

goal of cultural development and construction as the main feature. There are more than 100 museums of different sizes and categories in Jilin Province, including different theme categories such as history, culture, ethnic folklore, geology, red, and countryside, among which more than 10 are ethnic and folk customs, most of which have been built for more than 5 or 10 years. The content and form of the exhibition are relatively static, a single form of physical and picture display, which is no longer in line with the current AI digital era of people's high pursuit of cultural travel in a variety of sensory experience forms.

This study takes ethnic and folklore museums in Jilin Province as its research subjects, fully integrating their nationality, regionality and culture to conduct studies on their digital design strategies. On the one hand, it aims to promote the protection and dissemination of Jilin's cultural heritage and unique features; on the other hand, it envisions the museums as artistic platforms for creation by university faculty and students, fostering mutual integration and development. This approach not only saves on renovation costs but also provides practical opportunities and platforms for faculty and students. Additionally, through the revitalization of museum display spaces, this study identifies appropriate strategies and methods. By using these as examples, the relevant methodologies can be applied to the renovation and transformation of similar museums, further driving the cultural tourism development in Jilin Province and promoting the multifaceted integration of Jilin's economic strength and cultural influence.

This study takes ethnic and folk museum of Jilin Province as the research object, fully combines its nationality, regionality and culture, and conducts a study on its digital design strategy. On the one hand, it promotes the protection and influence publicity of Jilin Province's culture and characteristics, and at the same time, it takes the museum as an artistic platform for teachers and students in colleges and universities to integrate and promote development. Save the cost of updating, but also create practice opportunities and platforms for teachers and students; At the same time, through the activation and development of museum display space, the appropriate strategies and methods will be sorted out, and relevant methods will be applied to the renewal and transformation of similar museums, which will also drive the development of cultural tourism in Jilin Province and promote the multiple integrated development of economic strength and cultural influence of Jilin Province.

Northeast Folk Custom Museum is a class for the general public to learn and understand Northeast folk customs. It is the largest comprehensive museum in Northeast China, displaying the largest number of ancient and modern ethnic groups in Northeast China and the most abundant ancient and modern folk customs. There are three special exhibition areas in the museum: Northeast Ancient nationalities, folk customs, Northeast modern ethnic folk customs and Northeast representative industry workshops. The pavilion displays the representative industry workshops in the northeast in the form of scene restoration, and comprehensively displays the Northeast ethnic folk customs and its latest research results. The multi-angle display presents the unique and beautiful Northeast culture produced by the integration of Manchu, Korean, Mongolian and other ethnic groups in Northeast China. However, in terms of the forms and means of display, it mainly adopts the traditional static display methods such as objects, charts, characters, sand table and scene restoration, and mainly uses the physical collections for narration and the application of modern technology image synthesis, which still has great room for improvement in its integrity, theme and creativity.

## ***2.2 The Development Problems and Challenges Faced by Jilin National Folk Customs Museum***

### ***2.2.1 The Issues of Museum Development in the Contemporary Era***

The number of museums in Jilin Province has increased, but the quality is not enough. The problems of emphasizing architecture over function, hardware over software, construction over management are prominent, the lack of quality awareness, the neglect of the public will, the lack of development momentum, and the value orientation is greatly reduced. On display, the layout design is not novel enough, and the display form is simple and monotonous. The content is not updated for a long time, the information is not complete, and the structure is mixed and disordered. In particular, most of the links of the museum's new media system have been suspended for a long time Pendulum state. The lack of cooperation and inter-museum communication among various museums, especially after entering the era of comprehensive AI, the digitalization and intelligence of museums need to step into the link of active construction,

which is related to whether the museum can establish a positive interactive relationship with the public, and then affect the rise and fall of the development of the museum.

### ***2.2.2 The Challenges of Museum Transformation***

Considering the construction and development status of Jilin Provincial Museum, more attention should be given to the operation and transformation of the existing museum, so as to meet the challenges of the integrated development of culture and tourism. With the prosperity of society and culture; With the great improvement of education level and the leap of national quality, the audience's thirst for knowledge and aesthetic height have been greatly improved, and the digital development and innovation transformation of museums are imminent. No matter in the software of exhibition design or in the hardware of venue environment design, the service concept of museums needs to be changed. Exhibition design should realize the transformation from "material-oriented" to "people-oriented", it should change from a slogan-style to a life-making existence, and the awareness of quality should be established in exhibition design. The museum should set up the idea of "display by people". For children, it will be more lively and interactive in content and form. For adults, the elderly and other people with mobility difficulties, museum experts and scholars, relevant exhibition content and form will be launched.

How to work together to break the barriers of inter-museum communication, so that more people can enjoy the rich cultural resources in different places, effectively change the situation of limited cultural collections and exhibition resources of a single museum, enrich cultural and educational activities of the museum, attract more visitors to enter the museum, and better meet the diverse needs of the public spirit and culture in the region? How to build museums into cultural and leisure places and bring pleasant experiences to visitors is an important topic for the future development of museums, which requires us to transform and innovate with a professional perspective and effective methods and strategies.

### **3. THE DIGITAL DYNAMIC UPDATE STRATEGY OF THE NORTHEAST FOLK MUSEUM**

With the support of digital technology, the cultural and museum industry has achieved rapid update iteration. From high-definition scanning, 3D printing to virtual reality and augmented reality, various advanced technologies have been widely applied in the field of cultural relics, so that cultural relics can be presented in front of the world with a new look. The traditional exhibition method is gradually replaced by digital exhibition, and the audience can enjoy the cultural relics and monuments around the world anytime and anywhere through the Internet. At the same time, digitalization has also brought more interaction and participation to the cultural and museological industry. Visitors can personally examine historical scenes through virtual reality technology, and even participate in the restoration and protection of cultural relics.

The development of Jilin Provincial Museum is also transforming in the direction of digitalization, but its digitalization process develops slowly due to the constraints and influences of its own resources, manpower and technology. It is necessary for the government and the design team to integrate and explore to help the development of Jilin Provincial Museum achieve a qualitative leap. This study will carry out a pilot study on the digital strategy of Jilin National Folk Museum from the following aspects.

#### ***3.1 Carrying out Digital Cultural Inheritance Activities***

Digital collection and storage is the foundation of digital folk museum. Through digital technology, the cultural relics, pictures, audio, video and other materials of Northeast nationalities and folk customs can be digitally recorded and digitally restored, including photography, sound recording, video, scanning, etc., so that the folk culture of Northeast nationalities can be better protected and passed on. It can realize the sharing of folk museum resources and provide services for more audiences. Led by the Northeast National Folk Museum, it breaks the boundaries of time and space through the construction of museum mini programs, cultural and museum video number, digital cultural creation, cultural and museum digital museum and other directions, and expands the interactive innovation and development and digital communication methods of other small and medium-sized folk

museums in Jilin Province, so as to help the digital construction and improvement of museums.

#### ***3.2 Making Use of Digital Technology to Create Immersive Exhibition Experience***

Utilizing digital technologies such as Virtual Reality (VR) and Augmented Reality (AR), this study aims to create an immersive exhibition experience that allows visitors to personally engage with the historical development of Northeast ethnic groups, as well as their unique folk cultural characteristics and activities. This enhances visitor participation and overall experience, exemplified through digital reconstructions of Manchu historical stories, virtual tours of Manchu courtyards, and visual encounters with Manchu attire.

It is necessary to connect the exhibition lines of the museum into a complete story script, and dynamically display the space content with a narrative approach, so that viewers can participate in it and experience the space comprehensively and dynamically, as well as setting game interactive links and animations, combined with various elements of Northeast China's historical background, cultural connotation and scientific principles to design interactive games with storylines, so that visitors can gradually unlock the truth behind the exhibits in the process of interactive decryption and completion of the characters, and give visitors an immersive exploration experience. The museum can also set up role-playing games to encourage visitors to play the role of historical figures or professionals, and understand the importance of the exhibits through simulation experiments or re-enactment of historical events. Interactive games with prizes, both offline and online, can be set up to encourage visitors to carefully observe the exhibits and answer relevant questions, so as to improve the effect of education and publicity. By combining game elements and interactive design, an interactive ecosystem is created to enhance audience participation, promote information exchange and knowledge sharing, and make the museum an active space for folk culture exchange, knowledge sharing and social interaction.

### ***3.3 Designing Interactive Experience Projects Based on the Local Cultural Characteristics of Jilin***

In combination with the cultural characteristics of Northeast China, design interactive experience projects, such as the Northeast Shaman activity and art Festival, fishing and hunting activities, Manchu paper-cutting art activities, the real experience and interaction of Northeast folk workshop production, Northeast dialect learning, etc., so that tourists can better understand and experience the Northeast folk culture. The exhibition of Manchu folk customs such as shamanic sacrificial ceremony and Manchu paper-cut will be carried out, and the front-end digital technology will be fully used to revitalize the art on the new contemporary stage and form a living fossil. With dynamic experience as the overarching planning concept, this project delves deeply into the cultural figures and the regional cultural spirits of various ethnic groups from three distinct directions: three-dimensional representations of ethnic historical stories, authentic experiences of folk festivals and ceremonial activities, and hands-on participation in folk workshops and handicrafts. These explorations encompass the ancestral worship spirit of the Manchu, the "Mongol Horse Spirit" of the Mongolian people, and the Confucian farming spirit of the Korean ethnic group, among others. By integrating reality with the dreamlike, poetic wonders created through digital technology, visitors are enabled to traverse between different realms, enjoying rich scenic experiences both inside and outside the exhibition halls. Through digitization, the cultural heritage scattered across the land of Jilin is gathered within the museum, offering visitors an enhanced viewing experience.

### ***3.4 Realizing the Digital Education of the Museum, and Innovating the Academic Research of Cultural Relics***

Strengthening collaboration with local universities, communities, and tourism enterprises, this study aims to jointly develop a tourism brand focusing on the folk culture of Northeast ethnic groups, thereby enhancing the reputation and influence of Northeast Ethnic Folklore Museums.

Museums can collaborate with various townships, neighborhoods, communities, and schools by integrating research findings, exhibitions, and traditional intangible cultural heritage projects. Through activities such as

"bringing exhibitions to rural areas," "delivering lectures to schools," and establishing "mobile museums," museum-based social education activities can be extended to various cultural fronts. Tailored to the cognitive characteristics, learning directions, and visiting needs of different groups, these initiatives provide diversified and personalized educational experiences for the public.

**Innovating Museum and Cultural Heritage Research:** By leveraging digital tools and methodologies, we can revolutionize not only the exhibition of cultural artifacts but also the compilation and dissemination of folk cultural knowledge. This encompasses online courses, lectures by esteemed scholars, digital publications, and virtual laboratories, offering viewers a more accessible and efficient educational experience.

In the aspect of academic research, it can create more depth and breadth of influence, which can help improve the efficiency of cultural and museum academic research, change the low efficiency of manual browsing, sorting and analyzing documents and materials in the past, so as to easily obtain, sort out and analyze various materials. Northeast Folk Museum can build a research platform with research institutes specializing in history, ancient books and art in universities. Through digital means, researchers can explore the inner structure and historical background of cultural relics more deeply, and reveal more information hidden behind cultural relics. By using 3D modeling technology, researchers can create digital models of cultural relics and observe and analyze them from multiple angles and in all directions. At the same time, virtual reality and augmented reality also provide researchers with a more realistic experience, making them feel as if they are in the historical scene, and more intuitive to feel the historical and cultural value of cultural relics. Digital technology can also help break down the boundaries between disciplines to achieve interdisciplinary and integration. Using big data, it is possible to explore the relationship between cultural relics and factors such as geography, climate and economy, revealing more complex historical and cultural phenomena.

Museums offer research and study spaces for folk art education activities in primary and secondary schools, enabling children and adolescents to personally experience the rich local characteristics and hometown culture of Northeast China. This fosters a deeper understanding of the historical development and national cultures of the

region, thereby enhancing their cultural self-confidence in their hometown.

The museum provides research space for folk art education activities in primary and secondary schools, allowing children and young people to experience the strong local characteristics and hometown culture of Northeast China and develop Northeast China, making people have a better understanding of history and national culture, and enhance the self-confidence of hometown culture.

### ***3.5 The Cultural and Creative IP Enabling the Integrated Development of Culture And Tourism***

The cultural and creative industry development of ethnic and folk museum in Jilin Province should first consider responding to diversified cultural needs, and make targeted designs and related products for different ages, levels, occupations, industries and different audience groups.

Museum cultural and creative industry constitutes a highly comprehensive industry that integrates culture, science and technology, art design, social aesthetic psychology, practical application value, and marketing. Consequently, the development of the cultural and creative industry within Jilin Provincial Museums, particularly the Northeast Folklore Museum, ought to fully perpetuate and capitalize on its inherent strengths. By harnessing the expertise of design teams from universities to execute digital updates and enhancements, it can facilitate the organic synthesis of production, education, research, and sales in domains such as tourism, education, cultural events, cultural export, and cultural exchange.

The creation of museum mascots, stamps, and other cultural creative products themed around folklore, along with the shaping of the museum's IP image and the launch of its digital image, provides a comprehensive interpretation of artifacts by delving into their excavation history, functional characteristics, casting and decorative techniques, and aesthetic design. This approach transcends conventional exhibition methods by employing a combination of high-definition 3D scanning, high-resolution displays, artificial intelligence, augmented reality, and other digital means to intuitively present high-definition details and related academic achievements. In this way, visitors are transformed from mere spectators into explorers and participants, engaging with the cultural value embodied in artifacts through multiple dimensions

including sight, hearing, touch, and interactive contemplation.

To achieve a qualitative leap, Jilin Provincial Museum must focus on planning thematic, topic-specific, and culturally oriented events. Starting from the perspectives of ethnicity and folklore, it should fully develop content, attract traffic, and pursue integrated and systematic development. Leveraging its own advantages and theories, the museum should collaborate with multiple departments, especially the artistic design forces of universities, adhering to the principle of "integrating where appropriate, integrating as much as possible, promoting cultural tourism through art education, and highlighting the characteristics of cultural tourism through the museum."

## **4. THE SIGNIFICANCE AND VALUE OF THE STUDY OF MUSEUM DIGITALIZATION**

This study aims to explore the digital-intelligent and dynamic design strategies for Northeast ethnic folklore museums under the integration of cultural tourism, in order to enhance the quality of tourist experiences and the effectiveness of cultural transmission. Through research on relevant theories and practices, digital technologies are utilized to create immersive exhibition experiences. Combining local cultural characteristics, interactive experience projects are designed. Digital cultural transmission activities are carried out. Collaboration with local communities and tourism enterprises is strengthened. A digital management and marketing system is established. These efforts aim to better satisfy tourist demands and improve the effectiveness of cultural transmission. Furthermore, this study provides specific strategies and methods for the digital construction and dynamic design of Northeast ethnic folklore museums, enhancing the quality of tourist experiences and the effectiveness of cultural transmission, and promoting the development of cultural tourism in Jilin's hometown.

The purpose of this study is to explore the digital intelligence dynamic design strategy of the Northeast ethnic and folk museum under the integration of culture and tourism, so as to improve the quality of tourists' experience and the effect of cultural inheritance. Through the research of relevant theories and practices, digital technology is used to create an immersive exhibition experience; Design interactive experience projects based on local cultural characteristics; Carry out digital

cultural inheritance activities; Strengthening cooperation with local communities and tourism enterprises; And establishing digital management and marketing systems. To better meet the needs of tourists and improve the effect of their cultural inheritance. And provide specific strategies and methods for the digital construction and living design of the Northeast National Folk Museum. In order to improve the quality of tourist experience and the effect of cultural inheritance, promote the development of Jilin hometown cultural tourism.

#### ***4.1 Giving Full Play to the Value of Cultural Relics, Carrying out Cultural Relics Creation and IP, and Strengthening National Cultural Identity***

Cultural relics collections are the greatest wealth of museums, and state-owned cultural relics cannot be used for trading, but the digital reproduction of cultural relics can allow cultural relics resources to be shared by the whole society and maximize the use of cultural relics value. By determining the ownership level of cultural relics data, marking and assigning codes, linking to the cloud and entering the national cultural big data trading platform, cultural relics data can be authorized for trading and secondary and multiple creation, so that the museum can be IP, expand its influence and obtain the benefits of edition rights. The museums in Jilin Province can give full play to the cooperation with universities and enterprises, use the digital resources of cultural relics to develop cultural and creative products, and create digital collections reflecting the characteristics of the cold region, national culture and art of Jilin Province for the purpose of reflecting its nationality, region and culture, so as to promote the coordinated development of cultural tourism in Jilin Province and increase economic benefits.

#### ***4.2 Protecting and Inheriting Folk Culture, and Promoting the Protection and Restoration of Cultural Relics***

Jilin Provincial Folk Museum has a large collection of folk cultural relics and historical data, which have important historical and cultural value. Through digital technology, the collection, exhibition and visitors are managed digitally to improve management efficiency and protection level. Digital technology can also facilitate data analysis and statistics, providing a scientific basis

for museum management and decision-making. Digital protection should be carried out to prevent them from being damaged and lost and corresponding measures can be taken to repair and protect them. At the same time, it can also be easily copied and disseminated, so that more people can understand and appreciate the folk culture of Jilin Province, provide more convenient and efficient educational services for the audience, meet the needs of museums and society for exhibitions, popular science, research, etc., and promote the inheritance and development of folk culture. It is convenient to cooperate and exchange with other museums and cultural institutions, and expand the influence and dissemination scope of Jilin Folk Culture Museum.

#### ***4.3 Improving the Communication, Interaction and Exchange Effect of the Exhibition***

Due to the limitation and influence of capital, technology and talents in the development of Jilin Provincial Museum, the intelligent application and development of the museum are relatively slow, and many of them only play multimedia video and audio, and intelligent interactive applications are rarely or are making preliminary attempts. Through this study, it is hoped to promote the establishment of more cooperation and link platforms between museums and university design education, and improve the exhibition and communication effectiveness of folk museum on the basis of intensive resources and mutual integration.

The exhibition area of most museums in Jilin Province, especially folklore museums, is limited, and they cannot display all the cultural relics and materials. Through digital technology, these cultural relics and materials can be displayed digitally, so that the audience can better understand the folk culture of Jilin Province in a virtual environment, and the exhibition content is more vivid and intuitive. At the same time, multi-media means of virtual reality and other interactive forms, can break through the traditional only static display of cultural relics, two-dimensional, three-dimensional, dynamic, multimedia, interactive and other ways to display and interact, can enhance the audience's sense of participation. It can also improve the interactivity and interest of the exhibition, provide a more vivid and intuitive exhibition experience for the audience, and attract more audiences.



#### ***4.4 Breaking Through the Limitations of Time and Space, and Providing More Convenient Visiting Experience for the Audience***

Most of the museums in Jilin Province are far away from the city center, and the transportation is not convenient enough. In addition to the Jilin Provincial Museum, there is still a lot of room for improvement in the number of visits to other places. After upgrading the digital design of Jilin Provincial Museum, visitors can obtain three-dimensional, multi-dimensional and more intuitive cultural relic information. Visitors can access the museum information, visit the virtual exhibition hall and participate in interactive games at any time and place through PC, mobile phone, VR equipment and other terminal devices. Digital technology can also provide innovative educational methods for museums to disseminate knowledge through immersive interactive learning experiences such as VR, AR, MR and XR. In the future development of Jilin Provincial Museum, the digital development of the museum should be coordinated and integrated according to categories and themes.

#### **5. CONCLUSION**

This study highlights the theme of ethnic and folk customs to carry out digital research on museums in Jilin Province. On the one hand, it will drive related research and carry out innovative scientific research. Museums will cooperate with more research institutes and universities to form a long-term mechanism of mutual support and complement, mutual benefit and win-win. At the same time, make full use of digital technology to bring new management and operation paths for museum collection utilization, architecture and display design, publicity and education, and adapt to the new era and new people of the exhibition form. In addition, give full play to the creative ability of colleges and research institutes, promote the development and innovation of cultural and creative products, and create Jilin folk culture brand. To form cultural and creative products that rely on the special colors of folklore museum, have cultural novelty, high quality and affordable prices. To promote the development and innovation of ethnic folk museums in Jilin Province from multiple perspectives such as intelligent display innovation, cultural and tourism integration, and education empowerment, and promote the regional characteristics, vitality and sustainable development of cultural and tourism integration in Jilin Province.

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