

Design and Implementation of Digital Protection and Communication Platform for Wangjiang Cross - Stitch from the Perspective of Rural Revitalization

Rui Hua, Dan Liu

School of Arts, Anhui University of Finance and Economics, Bengbu 233030, China

* Corresponding author: Rui Hua (Email: 2874570346@qq.com)

Abstract

Based on the rural revitalization strategy, an in - depth study on the digital protection and communication of Wangjiang cross - stitch is carried out. The traditional folk handicraft art of Wangjiang cross - stitch is preserved and recorded by means of the new form of digital technology communication. The constructed digital communication platform will present the characteristics such as the centralization of literature materials, the visualization of information presentation, and the diversification of cultural activities. On the one hand, this study conforms to the characteristics of the current era, satisfies people's spiritual needs to a certain extent, and enhances cultural confidence; on the other hand, it also promotes the development of the local economy.

Keywords

Rural revitalization; Wangjiang cross - stitch; Digital protection and communication.

1. Introduction

Wangjiang cross - stitch is not just an ancient ethnic handicraft technique, but also contains profound historical heritage, spiritual connotations and rich aesthetic values. Therefore, the Wangjiang county government is striving to include it in the national intangible cultural heritage to ensure the long - term prosperity of Wangjiang cross - stitch. With the passage of time, due to the lack of effective prevention and treatment methods, being restricted by technology and resources, the lack of sustainable traditional techniques and the lack of creative products.

In today's digital age, the traditional ways of protection and dissemination can no longer meet the requirements. Through digital technology, it is possible to cross the boundaries of time and space, giving more people the opportunity to explore the wonders of Wangjiang cross - stitch. Through the digital platform, information such as the works, historical culture and manufacturing techniques of Wangjiang cross - stitch can be comprehensively and systematically displayed and disseminated to enhance its popularity and influence.

2. Digital protection and dissemination methods of Wangjiang cross - stitch

2.1. Resource integration and digital acquisition

(1) Comprehensive census

After careful research, our team has conducted in - depth investigations into the historical origin, technical characteristics, inheritance status, representative works, etc. of Wangjiang cross - stitch, and has carried out classification, digital conversion, and storage of these aspects in order to establish a comprehensive archive database. We have also visited old artists,

inheritors, relevant scholars, and research institutions to collect precious materials such as oral accounts of the historical development of Wangjiang cross - stitch, technical mnemonics, and traditional pattern lines.

(2) Digital acquisition

Using high - definition photography, 3D scanning, and other technologies, digital acquisition is carried out on the physical works of Wangjiang cross - stitch, including the front, back, and detailed parts of the cross - stitch embroidery, ensuring clear images and accurate colors. Record videos of the inheritors making cross - stitch on - site, recording every stitch, step, and technique, and at the same time carry out audio acquisition to save the explanations and insights of the inheritors, so that users can feel the cultural heritage and artistic charm of Wangjiang cross - stitch more clearly and intuitively.

(3) Database construction

Establish a Wangjiang cross - stitch intangible cultural heritage database, classify and store the collected text, pictures, audio, video, and other materials for easy management and query. Adopt advanced data storage technologies to ensure the security and stability of the database, and at the same time establish a backup mechanism to prevent data loss. Use digital technology to build a standardized, standard, and sustainable intangible cultural heritage database, such as comprehensively collecting the oral history, images, audio, and relevant research results of intangible cultural heritage projects to achieve the digital immortality of Wangjiang cross - stitch intangible cultural heritage resources. In order to better protect Wangjiang's cultural heritage, we are building a data service platform to break through data barriers and achieve data exchange and dissemination. We hope that this platform can integrate Wangjiang's cultural heritage data into the big data system and bring convenient cultural traditional trading methods to more people. We also hope that this data service platform can improve data exchange and dissemination and bring more available materials for the development of the cultural and creative industries to the public.

2.2. Create diversified digital cultural service projects for Wangjiang cross - stitch

(1) Carry out Virtual Reality (VR) and Augmented Reality (AR) experiences of Wangjiang cross - stitch culture

In this digital age, we are constantly pursuing reform, innovation and development breakthroughs. Virtual Reality (VR) refers to a computer simulation system that can simulate the real natural world. In order to better attract tourists, we use VR and AR technologies to create a Wangjiang cross - stitch museum with a realistic atmosphere and provide tourists with all - round viewing pleasure. There is also a special news information section that releases the latest news, activity information and research results of Wangjiang cross - stitch in real time, and adopts presentation forms such as pictures, music, articles, videos, animations, etc. to provide richer viewing pleasure. Wangjiang cross - stitch culture is a vibrant topic with a long history and exquisite techniques. Users can visit the virtual exhibition hall of Wangjiang cross - stitch in person, appreciate the exquisite cross - stitch works and feel the charm of cross - stitch art. Users can also combine virtual cross - stitch patterns with real - life scenes through mobile phones or tablets. For example, the common patterns used in Wangjiang cross - stitch include swastika patterns, double happiness, phoenixes, butterflies, lotuses, peonies, Chinese zodiac signs, etc. There are also common things in life, such as "Double Blessings Presenting Longevity", "Carp Jumping over the Dragon Gate", "Good Fortune as One Wishes", etc. Almost all patterns are endowed with beautiful and happy meanings. The exquisite patterns can be digitally processed to set up an AR check - in wall with Wangjiang cross - stitch pattern happy wishes for creative photo check - in and sharing of one's own beautiful wish patterns to increase the interactivity and fun of the activity.

(2) 3D digital display

Using 3D scanning and modeling technologies, the physical works of Wangjiang cross - stitch are converted into digital models. Users can perform operations such as 360 - degree rotation, zooming in and out on the Wangjiang cross - stitch intangible cultural heritage database platform to fully appreciate the detailed content of the cross - stitch works. 3D digital display can also provide corresponding technical support for the protection and restoration of cultural relics. Through the digital modeling of damaged works, accurate reference basis can be provided for the restoration work of cross - stitch handicrafts. With the help of technologies such as digital space modeling, virtual reality, augmented reality, as well as the applications of blockchain, cloud computing and artificial intelligence, a public non - intangible cultural heritage digital service platform integrating public welfare and commerciality is created, such as the interactive and experiential Wangjiang cross - stitch intangible cultural heritage museum, digital intangible cultural heritage library, Wangjiang cross - stitch works art museum and other public digital cultural venues, or a multi - dimensional three - dimensional cultural space integrating multiple functions is constructed to enable people to understand and experience the Wangjiang cross - stitch intangible cultural heritage culture more deeply.

2.3. Expand the peripheral cultural and creative products of cross - stitch and open up multiple interactive communication channels

(1) Derivative development of cultural and creative products of Wangjiang cross - stitch

Make high - definition archive records of the existing collections of Wangjiang cross - stitch, comprehensively consult the relevant materials of cross - stitch processes in other places, and carefully compare the photos with the text materials. On this basis, summarize the unique design elements and process patterns of Wangjiang cross - stitch, and conduct innovation based on this to develop brand - new cross - stitch patterns, and then create a derivative series of cultural and creative products of Wangjiang cross - stitch. At the same time, set up a display and sales section for cultural and creative products, and grandly launch various cultural and creative products with the theme of Wangjiang cross - stitch, covering multiple fields such as clothing, accessories, and household items, fully meeting the diverse consumption needs of users. It is also possible to develop an artificial intelligence cross - stitch pattern design tool with the help of artificial intelligence digital - aided design. Users can input their own design requirements and creative inspiration, and the artificial intelligence algorithm will automatically generate multiple cross - stitch pattern schemes for users to choose from. Artificial intelligence digitalization can also collect and sort data according to user feedback, continuously optimize and innovate, improve design efficiency and quality, provide new ideas and methods for the innovative development of cross - stitch art, and accelerate the derivative development of cultural and creative products of Wangjiang cross - stitch.

(2) Storytelling and IP building to innovate cultural and creative products

The term IP originated from ancient Greece. It represents an enterprise with individuality, innovation and sustainable development capabilities. It not only reflects the history and status of an enterprise, but also has a profound influence. These IP images play an important role in attracting people's attention, transmitting values and expressing cultural traditions in traditional culture. The building of IP images has an important promoting effect on conveying the inheritance and development of intangible cultural heritage. By enhancing cultural attraction, promoting cultural dissemination and promoting cultural innovation, IP images can make intangible cultural heritage glow with new luster in modern society. According to the announcement of the National Press and Publication Administration, some animated versions of Chinese traditional folk stories have been selected, such as "Meng Mu Educates Her Son".

By presenting ancient folk stories in the form of animations, innovatively expressing Chinese aesthetics, giving new vitality to traditional stories, and at the same time creating influential

cultural IPs. We can deeply excavate the cultural stories and historical legends behind Wangjiang cross - stitch, and deeply study the cultural elements such as the history, patterns, colors, and stitches of Wangjiang cross - stitch, extract representative symbols, themes, elements, etc. from them, sort out and create these contents, and present them in the forms of animations, comics, novels, etc. to create the exclusive cultural IP of Wangjiang cross - stitch. Develop a series of derivative products and cultural activities around this IP, such as animated movies, children's picture books, games, etc. with the theme of Wangjiang cross - stitch. Using the IP building to develop the derivative products of Wangjiang cross - stitch can inject new vitality and impetus into the inheritance and development of Wangjiang cross - stitch. By shaping unique IP images, developing diversified derivative products, and adopting positive and effective marketing and promotion strategies, stimulate more people to understand and love Wangjiang cross - stitch, expand the cultural influence and market popularity of Wangjiang cross - stitch, and promote Wangjiang cross - stitch to move towards a broader market and future.

Develop diversified communication channels for Wangjiang cross - stitch intangible cultural Heritage Relying on platforms such as short videos and live broadcasts, establish a Wangjiang cross - stitch intangible cultural heritage cultural and creative e - commerce platform to facilitate users to buy cross - stitch cultural and creative products, and at the same time expand sales channels and improve product sales. Use the live e - commerce platform to attract multiple subjects to participate in the creation of intangible cultural heritage content, vividly display the popular science knowledge of Wangjiang cross - stitch intangible cultural heritage, the skill performance of inheritors, the imitation experience of enthusiasts, etc., and make the intangible cultural heritage inherit and develop through the way of communication and co - creation in the digital scene. For example, with the help of the digital platform, hold activities such as live broadcast challenge competitions related to intangible cultural heritage, and integrate the intangible cultural heritage traditional handicrafts into contemporary life.

By introducing advanced digital intelligent technologies, we can greatly improve traditional handicrafts and use advanced equipment to achieve automated production. This can not only greatly improve production efficiency, but also ensure product quality. In addition, we can also help consumers easily experience the unique charm of intangible cultural heritage and help promote these precious cultural treasures through platforms such as "intangible cultural heritage + live broadcast" and "intangible cultural heritage + e - commerce".

At the same time, promote the increase of data intelligent analysis and operation optimization. The Wangjiang cross - stitch intangible cultural heritage digital platform combines spatio - temporal data intelligent analysis technology to comprehensively perceive, monitor and analyze data such as the utilization rate of Wangjiang cross - stitch project product facilities, the scale of commercial sales, and user behavior, effectively promoting the scientific operation and decision - optimization of the Wangjiang cross - stitch intangible cultural heritage cultural and creative e - commerce platform. Wangjiang cross - stitch can collect and analyze data on consumer preferences, market demand, product sales, etc. by establishing a digital platform, understand the demand characteristics and purchase intentions of consumers in different regions and age groups for cross - stitch products, and optimize product design and production strategies based on this to improve market adaptability.

3. Construction of the digital protection and dissemination platform for Wangjiang cross - stitch

Traditional intangible cultural heritages are undoubtedly of great importance as they record our past. If we can properly preserve and rationally utilize these traditions, they will bring huge potential for our future. However, as the world is becoming more and more complex today, we

must take measures to deal with these challenges. Wangjiang cross - stitch in Wangjiang County, a traditional folk custom with a long history and its unique artistic style, has been successfully rated as a national - level intangible cultural heritage. However, due to the lack of necessary protection, narrow publicity channels, the lack of technicians who can inherit continuously, and the lack of creativity, the development of Wangjiang cross - stitch still faces many difficulties. With the development of the times, digital technology has been widely applied to the protection and inheritance of traditional culture, and the situation of Wangjiang cross - stitch is also benefiting from this new and dynamic way.

Moreover, the construction of the digital protection and communication platform for Wangjiang cross - stitch is highly feasible. Firstly, from the technical level, in the current digital era, digital technology is developing rapidly. Technologies such as high - definition image scanning, 3D modeling, and VR experience can accurately record the details such as the patterns, stitches, and techniques of Wangjiang cross - stitch works. Secondly, from the perspective of demand, Wangjiang cross - stitch is facing the inheritance dilemma and needs new communication channels to let more people know about it. The digital platform can break the geographical limitations and attract a global audience. Thirdly, in terms of economic cost, although a certain investment is required in the early construction, in the long run, it can obtain income through online display, sales of cultural and creative products, etc. In recent years, China has actively taken measures to implement the protection of cultural heritage, made huge financial investments in the digital field, and fully implemented the rural revitalization strategy. The construction of the digital protection and communication platform for Wangjiang cross - stitch not only enriches the expression forms of Wangjiang cross - stitch art but also broadens the employment channels for its practitioners, thus effectively encouraging farmers to engage in the sustainable development of the agricultural ecological environment, greatly improving the social reputation of Wangjiang cross - stitch, and inspiring more and more people to participate in the maintenance of the agricultural ecological environment to activate the sustainability of agriculture. To sum up, it is feasible to construct the digital protection and communication platform for Wangjiang cross - stitch.

4. Significance of the construction of the digital platform for Wangjiang cross - stitch under rural revitalization

Against the background of rural revitalization, Wangjiang cross - stitch, as a unique folk art, is facing the challenges of inheritance and development. This project aims to inject new vitality into the inheritance of Wangjiang cross - stitch and promote the revitalization of rural culture by designing and implementing a digital protection and communication platform. The construction of the digital platform for the inheritance of Wangjiang cross - stitch intangible cultural heritage has made a significant contribution in many aspects to the development of Wangjiang cross - stitch.

4.1. In terms of protection and inheritance

The digital platform can comprehensively record Wangjiang cross - stitch works, stitching methods, production processes, and the skill demonstrations of inheritors in the form of high - precision images, videos, etc. This provides a reliable data reserve for the protection of Wangjiang cross - stitch and avoids the loss of skills due to the passage of time and human factors. At the same time, through digital means, precious cross - stitch works can be three - dimensionally modeled for longer - term preservation. For example, for some works that are old and at risk of damage, they can be viewed and studied at any time after digital modeling to ensure the continuation of their artistic value. Moreover, the platform can conveniently sort and classify various cross - stitch materials and establish a systematic intangible cultural

heritage archive, providing a convenient resource library for the inheritance and learning of future generations.

4.2. In terms of dissemination and promotion

Breaking geographical limitations allows people all over the world to understand Wangjiang cross - stitch through the Internet. With the help of functions such as social media and online exhibitions, Wangjiang cross - stitch can quickly enter the public's field of vision. People can share their love and insights about cross - stitch on the platform, forming a good communication atmosphere. For example, holding an online cross - stitch works exhibition to attract art lovers from different regions to participate in the interaction and increase the popularity of Wangjiang cross - stitch. The digital platform can also cooperate with educational institutions to carry out online teaching courses, giving more people the opportunity to learn cross - stitch skills and expanding the group of inheritors. In addition, by using popular communication methods such as short videos, wonderful content about Wangjiang cross - stitch is produced to attract the attention of the younger generation in a vivid and interesting form, injecting new vitality into the inheritance of cross - stitch. It provides a broader display platform for local cross - stitch artists, increases their sources of income, promotes the development of the rural economy, and injects cultural impetus into rural revitalization.

4.3. In terms of innovation and development

It provides a platform for designers and artists to communicate and cooperate and stimulate innovative inspiration. They can appreciate rich cross - stitch works on the platform, draw creative elements from them, combine them with modern design concepts, and develop cultural and creative products with a stronger sense of fashion and market competitiveness. For example, designers can design cross - stitch derivatives that meet the current aesthetic and life needs, such as home accessories and clothing accessories, according to the feedback and needs of users on the platform. At the same time, the digital platform can collect users' opinions and suggestions to provide a direction for the innovative development of cross - stitch. Through big data analysis, understand market trends and user preferences, guide the development direction of the cross - stitch industry, and promote Wangjiang cross - stitch to achieve sustainable development in the new era.

5. Conclusion

With the rapid advancement of modern technology, digital protection and dissemination technologies have greatly broadened the expression space of Wangjiang cross - stitch culture. The study has found that the intangible cultural heritage of Wangjiang cross - stitch can be presented in real time to consumers by using different carriers such as text, images, videos, animations, virtual reality simulations, etc., and can meet their different needs. Make full use of information technology and take effective measures to integrate the history, spirit, and experience of Wangjiang cross - stitch together to achieve its sustainable development, thus promoting rural revitalization, enhancing the public's cultural pride, and making the cultural value of Wangjiang cross - stitch more prominent.

Acknowledgments

Funded by the Anhui University of Finance and Economics, National College Students' Innovation Training Project (Project Approval No. 202310378042)

References

- [1] Y. Liu, Research on the Digital Protection and Inheritance of Wangjiang Cross - stitch from the Perspective of Intangible Cultural Heritage,Suihua University,2022.
- [2]L.Dong,The artistic characteristics of Yangxin woodcarving and the continuation of digital techniques ,Art Education Research,2023.
- [3]D.H.Zhuang,Dai Chaonan. Research on the Communication Path of Wangjiang Cross-Stitch in Digital Interactive Design,Journal of Hefei Normal University ,2023.