

Research on the digital inheritance and development of Weixian paper-cutting from the perspective of intangible cultural heritage

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Abstract

As a traditional folk art in northern China, Weixian paper-cutting has been listed in the national intangible cultural heritage list and has rich cultural connotations and artistic value. However, with the acceleration of modernization and changes in lifestyle, the inheritance of Weixian paper-cutting faces severe challenges, including a decrease in the number of inheritors, shrinking market demand, and a decline in the younger generation's attention to traditional culture. The rapid development of digital technology has provided a new opportunity for the inheritance and development of Weixian paper-cutting. This study aims to explore the application and practice of digital technology in the inheritance of Weixian paper-cutting from the perspective of intangible cultural heritage protection. The study found that digital technology can not only enhance the cultural communication power of Weixian paper-cutting, but also bring it the possibility of innovative design and broaden its marketization path. Through the analysis of the digital practice of Weixian paper-cutting, this paper puts forward countermeasures and suggestions in the future in terms of digital platform construction, policy support and inheritor training, providing a theoretical basis and practical reference for the sustainable inheritance of Weixian paper-cutting.

Keywords

Weixian paper-cutting, digital inheritance, intangible cultural heritage, cultural innovation.

1. Introduction

1.1. Research background

As a unique traditional folk art in northern China, Weixian paper-cutting has a long history and profound cultural heritage. Weixian paper-cutting is famous for its delicate and exquisite knife skills, rich themes and strong folk colors. It is one of the important representatives of Chinese paper-cutting art. However, with the rapid development of society and the changes in modern lifestyles, Weixian paper-cutting, a traditional art form, faces a severe inheritance crisis. First, the inheritors are gradually aging, and the younger generation's interest in and willingness to learn this handicraft has greatly weakened; secondly, the disconnection between traditional handicrafts and the modern consumer market makes it difficult for paper-cutting art to adapt to the needs of the contemporary economic and cultural environment. Finally, with the advancement of modern science and technology and the change of communication methods, the influence and communication channels of traditional paper-cutting art in modern society are obviously limited. Therefore, it is imperative to use modern technical means to achieve its

wider dissemination and sustainable inheritance while maintaining the essence and cultural value of Weixian paper-cutting art.

1.2. Research Questions

Based on the inheritance challenges currently faced by Weixian paper-cutting and the rapid development of digital technology, this study raises the following core questions. First, how can Weixian paper-cutting achieve a wider range of cultural inheritance through digital means, including how to use modern digital technology to make the traditional art form of paper-cutting better adapt to the communication methods and aesthetic needs of contemporary society. Second, what specific opportunities and challenges does Weixian paper-cutting face in the process of digitalization? Digital technology has brought innovative possibilities and commercial opportunities to Weixian paper-cutting, but it also raises the issue of the balance between artistic authenticity and technological innovation. Finally, how to achieve innovative design through digital means while retaining the traditional cultural connotation of Weixian paper-cutting, and find effective ways to adapt to modern consumer needs in market promotion. The discussion of these issues will provide new solutions for the sustainable inheritance and development of Weixian paper-cutting, and provide reference for the digital inheritance of other intangible cultural heritage.

2. Theoretical Basis and Practical Experience of Digital Protection of Weixian Paper-cutting

2.1. Relevant theories on the protection of intangible cultural heritage

As an important intangible cultural heritage of China, the digital protection of Weixian paper-cutting must be based on relevant theoretical frameworks. The theory of cultural inheritance is one of the core of intangible cultural heritage protection, emphasizing the maintenance of its vitality and vitality through the continuous dissemination and practice of cultural customs and art forms. On this basis, the principle of protection priority also lays a theoretical foundation for the inheritance of Weixian paper-cutting. This principle advocates that when protecting cultural heritage, its authenticity and integrity should be ensured first, which points out the direction for the digital protection of Weixian paper-cutting. Especially in the handicraft intangible cultural heritage, technicality and artistry are its core characteristics. Therefore, any innovation in digitalization must ensure that the inheritance of paper-cutting art skills and cultural connotations will not be weakened by the intervention of modern means. It is necessary to find suitable digital technologies while ensuring the cultural essence to creatively continue the cultural life.

2.2. The historical and cultural value of Weixian paper-cutting

Weixian paper-cutting has a long history, and its origins can be traced back to the Ming and Qing Dynasties. After hundreds of years of development, it has become one of the representatives of paper-cutting art in northern China. Weixian paper-cutting is famous for its unique folk patterns and paper-cutting craftsmanship. Its pattern design not only includes specific shapes such as figures, animals, and flowers, but also has profound symbolic meanings, such as the tiger symbolizes bravery and the fish represents "abundance every year", reflecting the local folk beliefs and living habits. The production process of paper-cutting is mainly completed by skilled scissors or carving knives, and the craftsmanship emphasizes delicate knife skills and smooth lines. Weixian paper-cutting is not only used as a decoration in traditional ceremonies such as weddings and festivals, but also reflects the folk characteristics and social functions of regional culture. However, with the changes of the times, the number of inheritors of paper-cutting has gradually decreased, and the younger generation has lost interest in this traditional art form, resulting in severe challenges to the inheritance of Weixian

paper-cutting. Therefore, digital protection of Weixian paper-cutting is not only a means of preserving this cultural heritage, but also a way to reawaken the public's attention to it.

2.3. Current status and development of digital inheritance

Many successful cases have been accumulated at home and abroad in the digital protection and inheritance of intangible cultural heritage, providing valuable experience for the digital protection of Weixian paper-cutting. Taking the Palace Museum as an example, it has launched a series of digital cultural and creative products by combining traditional cultural symbols with modern design, which not only retains the essence of traditional culture but also meets the aesthetic needs of contemporary consumers. Similarly, the digital reconstruction project of Dunhuang murals uses high-definition scanning and 3D modeling technology to preserve and display these precious cultural heritages for a long time. Through the analysis of these cases, the digital inheritance of Weixian paper-cutting can also draw on similar ideas: first, use digital image processing and 3D modeling technology to accurately record and archive paper-cutting works to ensure cultural integrity; second, combine augmented reality (AR) and virtual reality (VR) technology to develop interactive paper-cutting display and teaching platforms, so that more people, especially young groups, can feel the charm of paper-cutting through digital technology. In addition, digitalization can also bring innovative design inspiration to paper-cutting, integrate traditional paper-cutting elements into modern graphic design, animation, electronic products and other fields, and open up new commercial development space.

3. Analysis of the current situation of paper-cutting in Wei County

3.1. Cultural characteristics and artistic style

As a representative of paper-cutting art in northern China, Weixian paper-cutting has distinct regional characteristics and strong folk cultural colors. Its artistic style is mainly reflected in delicate knifework, rich modeling design and diverse subject selection. Weixian paper-cutting has a wide range of themes, covering a variety of objects such as figures, animals, flowers, etc. Among them, works with folk activities such as weddings, festivals, and religious beliefs are particularly prominent. Weixian paper-cutting has delicate knifework and pays attention to techniques such as "pushing, squeezing, flipping, and turning", which makes the lines of the works smooth and layered, reflecting a high degree of handicraft skills. This artistic style not only carries the unique cultural memory and lifestyle of the local area, but also provides rich visual materials for modern art design. In modern society, the folklore and artistry of Weixian paper-cutting still have a strong cultural appeal, especially in folk festivals, where paper-cutting works are still widely used as decoration and art displays. However, due to changes in the aesthetic tastes of contemporary people, the acceptance of Weixian paper-cutting among the younger generation is relatively limited, and it is urgent to expand its audience through innovative design and digital communication.

3.2. The current dilemma of inheritance

Although Weixian paper-cutting, as an important intangible cultural heritage, has profound cultural value, it faces severe practical difficulties in its inheritance process. First, the age structure of inheritors is seriously aging. Most of the existing inheritors of paper-cutting skills are middle-aged and elderly, and many skilled old artists have gradually withdrawn from the stage of creation and inheritance. The younger generation's interest in learning paper-cutting skills has gradually weakened, and there is a lack of successors. According to statistics, the number of inheritors of Weixian paper-cutting has decreased year by year, especially there are very few high-level inheritors who can master complex techniques. Secondly, insufficient market demand is also a major problem. Traditional handicraft products are impacted by mechanized production in the modern consumer market. Handmade paper-cutting has high

production costs, large time investment, and weak market competitiveness, making it difficult to find a stable sales channel in the fast-paced modern economy. In addition, the younger generation's attention to traditional culture has declined, and their understanding of the cultural value and artistic characteristics of Weixian paper-cutting is limited, resulting in low social influence and inheritance enthusiasm for paper-cutting skills. Combined with these practical problems, the survival of Weixian paper-cutting faces multiple dilemmas. It is necessary not only to deal with the problem of inheritor faults, but also to reshape its cultural influence and economic value through innovative ways. Solving these problems requires cooperation among the government, society and cultural inheritors to jointly promote the sustainable inheritance of Weixian paper-cutting through various means such as policy support, market promotion and education popularization.

4. Analysis of digital inheritance practice

4.1. Application of digital technology

With the development of digital technology, the traditional art form of Weixian paper-cutting has gradually explored a variety of digital inheritance methods. Digital image processing technology makes it possible to record and store paper-cutting art with high precision and digitally. Through high-definition scanning and image optimization processing, traditional handmade paper-cutting works can be permanently preserved and can be reproduced and disseminated on a large scale. In addition, 3D modeling technology has also created conditions for the three-dimensional display of paper-cutting. Paper-cutting art can not only be displayed on a two-dimensional plane, but also achieve a three-dimensional visual effect in a virtual space through 3D modeling, providing the audience with a new sensory experience. Virtual reality (VR) and augmented reality (AR) technologies also have important applications in the digital inheritance of Weixian paper-cutting. The audience can experience the process of paper-cutting creation "personally" through VR equipment, or combine paper-cutting works with real scenes through AR technology to enhance interactivity and immersion. These technologies not only provide a more efficient means for the digital protection of paper-cutting art, but also enable the traditional art form of paper-cutting to be spread across time and space through modern technology, expanding its cultural influence.

4.2. Innovation in digital paper-cutting design

Digital technology has not only played a role in protecting and spreading traditional paper-cutting art, but also provided rich possibilities for the innovative design of Weixian paper-cutting. Through digital means, designers can combine modern graphic design concepts to redesign and construct traditional paper-cutting elements to create new works with a sense of the times and modern aesthetics. For example, through digital drawing software, designers can freely adjust the composition and color of paper-cutting patterns to make them more in line with contemporary aesthetic needs. In addition, traditional paper-cutting elements can also be combined with digital art, animation and multimedia design to form more diverse forms of expression. Integrating paper-cutting patterns into modern visual art, such as for animation scene design, interactive art installations, etc., can not only enhance the artistic expression of paper-cutting, but also combine it with modern culture and business to expand new application scenarios. This digital design innovation not only maintains the cultural heritage of Weixian paper-cutting, but also injects the creativity of modern art, giving new vitality to paper-cutting art.

4.3. Online promotion and platform construction

In the digital age, the dissemination channels of Weixian paper-cutting are no longer limited to traditional offline exhibitions. Digital platforms have opened up new ways of promotion for it.

First, social media platforms provide a broad space for the dissemination of Weixian paper-cutting. Through short videos, picture sharing and other forms, paper-cutting works can be quickly spread and attract the attention of more young users. For example, on platforms such as Douyin and WeChat, the video of the creation process of paper-cutting artists has received widespread attention and dissemination, greatly increasing the popularity of Weixian paper-cutting. Secondly, e-commerce platforms have also provided new opportunities for the commercialization of paper-cutting products. Weixian paper-cutting products can be sold directly to consumers through e-commerce platforms such as Taobao and JD.com, promoting its market development. In addition, virtual exhibitions are also an important form of paper-cutting dissemination in the digital age. By building an online virtual exhibition hall, the audience can appreciate the exquisite works of Weixian paper-cutting without leaving home. Virtual exhibitions not only break geographical restrictions, but also enhance the display effect and interactivity of paper-cutting. These digital platforms not only provide convenience for the cultural dissemination of Weixian paper-cutting, but also explore new ways for its commercialization, helping the sustainable development of paper-cutting in modern society.

5. Opportunities and Challenges of Digital Heritage

5.1. Opportunities

The development of digital technology has brought unprecedented opportunities for the global dissemination of Weixian paper-cutting. Traditional paper-cutting works of art usually rely on offline exhibitions and craft displays, but the rise of digital platforms has broken this limitation, allowing Weixian paper-cutting to be shared with global audiences through the Internet. Whether it is high-definition pictures, video displays, or the application of virtual reality and augmented reality technology, it can allow the audience to transcend the limitations of time and space and experience the unique artistic charm of paper-cutting. For example, the digital display of Weixian paper-cutting can play an important role in international cultural and artistic exchanges. It not only shows China's intangible cultural heritage to the world, but also promotes cross-cultural communication and understanding. At the same time, digital technology provides a broad space for the commercial development of paper-cutting. Through digital means, Weixian paper-cutting can be designed into various digital cultural and creative products, such as mobile phone wallpapers, e-cards, digital artworks, etc., and can even be integrated into interactive experiential online games or applications. This not only expands the application scenarios of paper-cutting, but also creates new commercial value for it. Through these market-oriented means, Weixian paper-cutting culture can not only obtain greater economic returns in modern society, but also attract more young people to participate in the learning and creation of paper-cutting art, forming a sustainable cultural inheritance and innovation system.

5.2. Challenges

Although digital technology has brought many opportunities to the inheritance and development of Yuxian paper-cutting, its integration with traditional art forms also faces a series of challenges. First of all, how to use modern digital technology to innovate while retaining the traditional artistic style and craft characteristics of Yuxian paper-cutting is an urgent problem that needs to be solved. Yuxian paper-cutting is famous for its fine knife work and unique shape design. Although digital means can enhance its communication effect, the original style and handicraft details of paper-cutting art are easily overlooked or simplified during the technical processing. Over-reliance on digital technology may cause paper-cut works to lose their most valuable cultural essence, leading to the phenomenon of "form over content". Secondly, the balance between cultural inheritance and innovation is equally challenging. Digital innovation has indeed injected new vitality into Yuxian paper-cutting, but excessive

digitization may cause the traditional cultural connotation of paper-cutting to be weakened or even lost. How to ensure that the historical and cultural background and folkloric value of paper-cutting are not deviated from during the digitization process is still a topic that requires in-depth discussion. Only by carrying out moderate innovation on the basis of respecting tradition can Yuxian paper-cutting achieve sustainable inheritance and development through digital means while maintaining cultural authenticity.

6. Suggestions for future development

6.1. Technical support and training of successors

In order to ensure the smooth inheritance of Weixian paper-cutting in the digital age, it is necessary to strengthen technical support and training for inheritors. Many paper-cutting inheritors are older and have limited knowledge and use of modern digital technology, which has become one of the main obstacles to the digital inheritance of Weixian paper-cutting. Therefore, it is recommended to provide inheritors with special digital technology training to help them master basic digital tools, such as image processing software, 3D modeling technology, and the operation of virtual reality (VR) and augmented reality (AR) platforms. These technologies can not only improve the digital presentation of paper-cutting works, but also help inheritors better participate in the digital protection and innovative design process of paper-cutting art. In addition, by holding workshops or training courses, the younger generation is encouraged to learn digital paper-cutting skills and stimulate their interest in traditional culture. By combining digital technology with paper-cutting craftsmanship, young people can not only learn traditional skills, but also use modern technology to create paper-cutting works with a new era style, thereby enhancing cultural identity and injecting fresh blood into paper-cutting art.

6.2. Combining Diversified Communication with Marketization

The inheritance of Weixian paper-cutting requires not only technical support, but also the combination of its cultural value and market demand to achieve diversified dissemination and market-oriented development. It is recommended to fully explore the artistic elements in Weixian paper-cutting and develop more creative cultural and creative products, such as clothing design, home decoration, and electronic product accessories with paper-cutting themes, and give them new practical functions and fashion sense with the help of modern design methods. At the same time, it can be promoted through a combination of online and offline methods, such as displaying paper-cutting products through social media, e-commerce platforms, and virtual exhibitions to increase its influence among young groups; offline, the public's cognition and interest in Weixian paper-cutting can be enhanced through paper-cutting art exhibitions, cultural and creative markets, etc. This organic combination of culture and market can not only promote the innovative development of paper-cutting art, but also bring new economic income to inheritors and inspire them to continue to inherit and develop. Through this path of cultural industrialization, Weixian paper-cutting is expected to find a balance in modern society and achieve sustainable inheritance.

6.3. Policy support and academic research:

The digital inheritance and development of Weixian paper-cutting still need support and promotion from the government and academia. The government should further increase policy support for the digital protection of intangible cultural heritage, especially in terms of funding and technology. It is recommended that the government set up special funds to support the development of the digital inheritance project of Weixian paper-cutting, and promote the digital achievements of Weixian paper-cutting through public cultural platforms. In addition, policymakers should encourage more enterprises and technical teams to participate in the

digital protection of intangible cultural heritage and form a benign cooperation mechanism. The academic community should also play an important role in this process and further study the models and methods of digital protection of intangible cultural heritage, especially the integration model of traditional handicrafts such as paper-cutting and modern technology. Through theoretical research and practical exploration, the theoretical level of intangible cultural heritage inheritance can be improved, and academic support can be provided for the digital development of Weixian paper-cutting. At the same time, interdisciplinary research can be carried out to explore the diversified integration paths of cultural heritage protection, digital technology and creative design, and promote the further improvement of Weixian paper-cutting in theory and practice.

7. Conclusion

7.1. Research conclusions

This study conducts a comprehensive analysis of the current status of digital inheritance of paper-cutting in Yu County, focusing on the specific application and effect of digital technology in the inheritance of paper-cutting. Through the analysis of technologies such as digital image processing, 3D modeling, virtual reality (VR) and augmented reality (AR), the study shows that digitization not only provides a new display platform for Yuxian paper-cutting, but also significantly enhances its global popularity. range of communication. The introduction of digital means has given traditional paper-cutting more room for innovation, not only improving the commercialization potential of paper-cutting art, but also injecting the possibility of modern design and market-oriented development into it. However, although digital technology has provided diverse paths for the preservation and innovation of Yuxian paper-cutting, the study also found that the integration of technology and traditional art forms is not without challenges. In particular, how to use digital technology to innovate while maintaining the authenticity and artistic value of paper-cut culture is a core problem faced in the current digital inheritance. In addition, the balance issue between cultural inheritance and commercial development brought about by digital innovation also deserves in-depth discussion. Overall, digitization has brought new possibilities to the inheritance of Yuxian paper-cutting, but more practical experience and theoretical support are needed to achieve a balance between technological innovation and art protection.

7.2. Research Prospects

Future research can further explore the digital inheritance experience of other intangible cultural heritage projects, and provide more references and lessons for the digital development of Weixian paper-cutting. Different types of intangible cultural heritage projects face different opportunities and challenges in the process of digitization. Through comparative research, we can better understand the applicability and effectiveness of different digital means. In addition, with the rapid development of emerging technologies such as artificial intelligence (AI) and blockchain, the application potential of these technologies in the protection of intangible cultural heritage is also worthy of attention. For example, artificial intelligence can be used for the automatic generation and intelligent restoration of intangible cultural heritage art styles, and blockchain technology can provide guarantees for the digital assetization and property rights protection of intangible cultural heritage. Future research can explore how to combine these cutting-edge technologies with the protection of traditional cultural heritage, and further enrich the inheritance methods and application scenarios of intangible cultural heritage. At the same time, interdisciplinary research will also provide more extensive theoretical support and practical guidance for the integration of digital technology and cultural protection, so that intangible cultural heritage can be revitalized in the digital age.

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