

Collision of Tradition and Technology—Research on the Digital Development of Ningguta Manchu Embroidery

Yao Chengcheng^{1,*}, Zhao Xuehong², Tang Xue¹

¹Management College, Harbin Finance University, Harbin, China

²Innovation and Entrepreneurship College, Harbin Finance University, Harbin, China

*Corresponding author

Abstract: *The impact of the digital age on traditional skills is multifaceted, with both challenges and opportunities. On the basis of explaining the inevitability of digital development, this paper analyzes the problems existing in the development of Ningguta Manchu embroidery, and puts forward the strategies for the digital development of Ningguta Manchu embroidery, including the establishment of exclusive APP, crowdsourcing mode design and embroidery simulation games. Through the collision of tradition and technology, it is expected that Ningguta Manchu embroidery will glow with new vigor and vitality in the digital age.*

Keywords: *Digitalization, Ningguta Manchu Embroidery, APP*

1. Introduction

Ning' an Manchu embroidery was included in the intangible cultural heritage list by Mudanjiang People's Government in 2012, and was included in the intangible cultural heritage list by People's Government of Heilongjiang Province in 2013. The traditional embroidery workshop of intangible cultural heritage was listed as an important training base for inheriting Manchu embroidery skills in the province. In May 2021, it was listed as China's intangible cultural heritage by the State Council of the People's Republic of China and the Ministry of Culture of the People's Republic of China. Ning' an Manchu embroidery, commonly known as Ningguta Manchu embroidery, is one of the Manchu traditional embroidery techniques, with heavy cultural connotation and distinct national and folk characteristics. In the era of digital economy, the digital development of Ningguta Manchu embroidery is particularly necessary [1].

2. The necessity of digital development

Digital development can enhance the brand awareness and influence of Ningguta Manchu embroidery. Through digital means, the historical origin, technical characteristics and cultural connotation of Ningguta Manchu embroidery can be widely disseminated to attract more people's attention and understanding. At the same time, the construction of digital platform can also provide consumers with a more convenient and efficient shopping experience, so as to enhance the brand's reputation and loyalty. Digital development can expand the product line and sales channels of Ningguta Manchu embroidery. Through digital technology, traditional embroidery technology can be combined with modern design concepts to develop more fashionable and practical new products to meet the needs of different consumers. Digital development can also promote the upgrading and transformation of Ningguta Manchu embroidery industry. Digital technology can be applied to all aspects of embroidery production, management, sales, etc., to achieve intelligent, automated and refined management, improve production efficiency and product quality. At the same time, digital development can also provide more innovation and research and development opportunities for Ningguta Manchu embroidery, and promote its development in the direction of high-end, personalization and customization.

3. Problems in the development of Ningguta Manchu embroidery

3.1. Lack of innovation ability

Through investigation and research, it is found that the product structure of Ningguta Manchu embroidery brand is single, the innovation ability is insufficient, the degree of innovation is insufficient, there is no unique product advantage, the transmission of innovative technical personnel is also in a shortage, the lack of core competitiveness, so although the brand has a unique traditional manual embroidery skills and high-quality product quality, it still failed to gain enough attention and recognition in the market.

3.2. Serious homogenization

To a certain extent, the brand has won a certain consumer group and market recognition by virtue of its exquisite needle embroidery skills, exquisite modeling design and high-quality material selection. However, due to the serious homogenization of the current embroidery market, the same embroidery styles and types, consumers have confusion and visual fatigue, and aesthetic tastes have disappeared. The Ningguta Manchu embroidery cannot retain consumers.

3.3. Insufficient publicity

At present, the Manchu embroidery brand of Ningguta is faced with insufficient publicity, outdated marketing methods, lack of innovation and interactivity, and it is difficult to seize the attention and interest of potential consumers. Online publicity channels are relatively lacking, there is no good use of cyberspace, and there is a lack of diversified promotion methods [2-3].

4. Ningguta Manchu embroidery digital development strategy

In recent years, APP has become a frequent tool in people's daily life, and more deeply integrated into people's lives. APP is the abbreviation of 'Application', which refers to the mobile application of mobile phones. It is a marketing carrier for intelligent mobile devices such as mobile phones, tablet computers, etc. Initially, third-party applications were involved in the development of the Internet, connecting users through the Internet and becoming a source of dissemination of different information. With the development of the cloud era and the convenience brought to users by the popularity of intelligent terminals, people's network usage has gradually shifted to the mobile terminal. APP has become a new force, is changing people's way of life, there have been many kinds of APPs with various functions. Cultural communication APP has played a positive role in the spread of the corresponding culture. For example, the daily Forbidden City APP allows the mysterious Forbidden City cultural relics to enter the public life by pushing a cultural relic daily, effectively spreading the Forbidden City culture.

4.1. Create an exclusive APP

Establish 'Xiu Wei Ning Zao' APP. The design of an APP depends on its interface design, which includes visual design, interaction design and user design. These three aspects involve different fields, each playing different roles and playing different roles to work together to complete the information transmission between human-computer interaction. Visual design is mainly affected by factors such as text, graphics, color, layout, and tone. In addition, it is particularly important to reflect the functionality, human-computer interaction, and interactivity of the APP. The design of APP should follow the principle of simplicity that enables users to accurately understand the information as soon as possible. The design content should be intuitively expressed to the user and can understand the intuitive principle of what the designed content theme is. The design can bring users a special visual sensory experience, and allow users to easily and happily accept the main and auxiliary information to be conveyed by the work in a fresh and full state. The most important point is the principle of interaction, which reflects the interaction between the user and the interface. APP design should be human-centered and user-oriented, focusing on how to better serve users. Interaction has been reflected in the moment when the user clicks on a certain APP. From the navigation bar, the title bar to the icon size design, etc., it is necessary to pay attention to the embodiment of interaction[4].

The integration of elements is a crucial aspect in APP design. It embodies the content of APP, including text, graphics and picture visual elements. These elements need to be carefully designed and

integrated to present a unique visual effect and user experience. Through reasonable element integration, 'Embroidery for Ning Zao' can better convey the charm of embroidery culture, attract users' attention and improve users' satisfaction. Text elements can be integrated and applied according to the theme of embroidery content. The extraction range of graphic elements is roughly divided into three aspects: Extraction from the historical stories of embroidery culture, including historical characters, events, story scenes, etc.; Graphic integration and extraction can be carried out according to embroidery tools; It can also be extracted from thorn handicrafts. The picture elements are obtained by photographing famous products and handicrafts.

The extraction of all elements must have a certain degree of recognition, which can be expressed by the typical works, characters or representative patterns of embroidery known to the public. Through AI technology, the photos uploaded by users can be transformed into 3D modeling patterns of embroidery products; develop simple drawing functions, add classic Ningguta Manchu embroidery patterns, increase user participation, and make them gain happiness. If necessary, customers can pay for tailor-made Ningguta Manchu embroidery products. It enables consumers to customize unique intangible cultural heritage traditional embroidery products according to their own preferences, enhance users' sense of participation and acquisition, and enhance product originality and novelty.

4.2. Crowdsourcing model design

Ningguta Manchu embroidery crowdsourcing model is a model that allows people to complete a work or inspiration element design through network APP cooperation with limited resources. In a decentralized way, a group of people can decompose the details into multiple small tasks through the positioning platform, and then assign these small tasks to different groups of people to complete. This method helps to improve the quality of the project, complete the task more efficiently, and can save costs faster and better. The following is a description of some specific content.

4.2.1. Novice guidance function

After opening the software each time, the detailed steps will be indexed according to the needs of the user until the goal is achieved. Open App will first pop up authorization pop-up window, such as: request geographical location, album authorization, microphone permissions, etc. The App will push relevant content according to geographical location. The home page adopts the icon type and card form to closely link the buttons and information in the category, so that users can see at a glance, and effectively enhance the clickability of the content.

4.2.2. The advantages of crowdsourcing model

Ningguta Manchu embroidery adopts crowdsourcing mode and uses network system to link many embroidery artists, consumers and merchants to form a tripartite win-win business model. It can provide a designated platform for consumers to communicate directly with embroidery artists and businesses, and jointly develop a feasible embroidery plan to bring together the wisdom of the public to better meet the needs of consumers. It can make traditional embroidery artists use their own technology more effectively and contribute to the traditional embroidery industry. It can provide a development opportunity for businesses, so that they can better play their own advantages, meet the needs of consumers and increase their income; consumers can find suitable embroidery artists more easily, enjoy better traditional embroidery works, and can also complete purchase transactions more easily. Through this crowdsourcing model, we release strong design creativity - more creative, faster, cheaper, smarter, and easier. Ningguta Manchu embroidery collects the most massive design element information through mass user participation in design, mobilizes more participation in the crowdsourcing model, and enhances brand value.

4.2.3. Crowdsourcing mode operation process

1) Consumer + embroidery artist + business model

Consumers send embroidery demands to embroidery artists through the exclusive APP of Ningguta Manchu Embroidery, and put forward requirements on the type, size, quantity and color of works. Embroidery artists according to the requirements of consumers, combined with their own technical level, to develop a feasible embroidery plan, and the embroidery plan uploaded to the APP cloud; through APP data, merchants provide corresponding demand materials according to the embroidery plan; the embroidery artist completes the embroidery works according to the materials provided by the merchants and the requirements of the consumers, and uploads the works to the APP embroidery library; the fee-payer reviews the work, and after satisfaction, pays the merchant and the embroidery artist to complete

the transaction.

2) Mass crowd + professional training + business model

Embroidery merchants help the public understand the embroidery design process and production steps by providing effective technical support such as technical documents and technical training, so that the public can design and make works on the APP platform. Mobilize a large number of user groups and crowdsourcing, and at the same time, rely on the APP platform to hold traditional embroidery design creative competitions from time to time to improve prizes for participants and schedule users to participate actively; the traditional embroidery merchants of intangible cultural heritage should formulate a set of reasonable remuneration distribution methods to bring considerable remuneration to the participants, so as to encourage the participants to continue to participate in the project. After participating in the design, the mass users successfully completed the project submission and obtained satisfactory remuneration income, thereby expanding the crowdsourcing model, attracting more mass groups to join, and improving more traditional embroidery new elements.

4.3. *Embroidery simulation game*

Embroidery simulation is an in-app simulation game that allows players to experience digital embroidery. The player will play an embroidery technician in the game, collect various embroidery materials in the game, design his own embroidery works, improve his skill level, and compete with other players in the game for embroidery skills. At the same time, the order of each embroidery is very exquisite, and the young partner can experience different game fun.

A major feature of the game is that the game presents an original design. Unlike traditional embroidery products, it gets rid of the rigid embroidery form, is very creative, and has a more free creative space, so that those players who are tired of traditional embroidery aesthetics have a refreshing creative experience. The characteristics of embroidery simulation games are reflected in the following aspects.

Rich and colorful embroidery materials: players can collect different kinds of embroidery thread, embroidery cloth, needle and other materials, and color matching according to their own design needs; simulate real embroidery production: Players can directly refer to real embroidery works in the game, and simulate the embroidery production process to improve their skills. Realistic embroidery production process simulation, so that players can feel the real production experience; diversified embroidery design: Players can design their own embroidery works in the game and compete with other players in the game. A variety of embroidery materials, design patterns, competition forms, so that the game has a high playability; social interaction: Players can show their embroidery works with other players, exchange embroidery production skills, and increase social interaction experience. The game is simple to operate, easy to get started, and can attract a large number of fans. There are rich welfare systems, such as daily check-in, task rewards, etc., that can motivate players to participate in the game for a long time. In order to increase interest, some embroidery-related expressions and stickers can be designed for users to use when chatting. An effective notification system is designed to ensure that users can receive new message reminders in time. Design a user feedback mechanism, so that users can easily report problems or make recommendations to developers in order to continuously improve the chat function; embroidery games can also encourage players to explore their own artistic talents, enhance their personal art literacy, and enhance their appreciation ability.

5. Conclusions

The digital era presents both opportunities and challenges for Ningguta Manchu embroidery. After recognizing the irreversible trend of digital development, we must face the problems faced by Ningguta Manchu embroidery in its inheritance and development. By implementing innovative digital strategies such as developing exclusive apps, adopting crowdsourcing models for design, and launching embroidery simulation games, the integration of traditional skills and modern technology can be effectively promoted. This integration not only helps to protect and inherit the unique cultural value of Ningguta Manchu embroidery, but also revitalizes it in the digital age, achieving wider dissemination and recognition.

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