



Folk Manchu Embroidery Creative Derivatives Based on Digital Design

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Abstract. Jinzhou Manchu embroidery in Liaoning Province was listed in the second batch of national intangible cultural genetic catalogue in 2008. In this paper, folk full embroidery as the research object, digital design of cultural and creative derivatives. Due to the acceleration of the digital process, people's cognition has also changed. If intangible cultural heritage culture wants to be better inherited in the digital age, corresponding changes should be made on the premise of maintaining the characteristics of "intangible cultural heritage", the digital design is applied to the integration of folk full embroidery cultural and creative products, so as to create cultural and creative products with both beauty and creativity and practicability, and make up for the shortage of manual production with digital design. With the digitization of cultural and creative derivatives, the intangible cultural heritage culture in China can be better handed down.

Keywords: Digital Design · Folk Embroidery · Cultural And Creative Derivatives Introduction

1 Introduction

In December 2021, General Secretary Xi Jinping pointed out at the opening ceremony of the 11th National Congress of the Chinese Federation of literary and art circles and the 10th National Congress of the Chinese writers' Association: "we hope that the majority of literary and art workers will adhere to the principle of keeping up with the times and open up a new realm of literature and art with their masterpieces that keep pace with the times". In today's digital background, embroidery works mainly composed of embroidered shoes, belly bags, quilt covers, curtains and other daily necessities are difficult to meet the needs of modern people, Jinzhou Manchu folk embroidery is one of China's valuable folk arts, with unique artistic characteristics. Embroidery is very practical, exquisite design, in the many embroidery skills, the leading [1]. With the change of people's cognition, today's era consumers need embroidery with aesthetic, innovative and practical coexistence. If we want to keep the "culture" of intangible cultural heritage, we must combine culture with science and technology, and we should firmly grasp the key of "digital design". At the same time, as a new industry, cultural and creative industries appear in people's life, which undoubtedly provides a good channel for the inheritance of intangible cultural heritage. If we want to inherit intangible cultural

heritage better, we should conform to the development of the times, the action of “keeping integrity and innovation” is urgent.

2 The Advantages of Folk Embroidery Cultural Creation and Development

(1) A wide range of subjects

For example, the worship of Manchu people and animals is related to Manchu people and animals. Folk Manchu embroidery mostly expresses Manchu women’s love for life, and the implied meaning of embroidery patterns is often created with homophonic meanings. Bats and auspicious clouds represent blessing from heaven, peony and Narcissus represent wealth and peace. They take the needle as the pen, the ink is the thread, and embroider the beautiful expectation of life into them. “Tu Bi auspicious” has become a bright spot in the development of cultural and creative derivatives

(2) Practical

“Willow branches grow in March, and mandarin ducks are embroidered in front of the big girl’s window” is the true life portrayal of Manchu women [6]. Manchu, as a race on horseback, lives by fishing and hunting. Their clothes are easy to be damaged due to long-term labor. In the old times, Manchu people used embroidery to increase the wear resistance of clothes, which not only played a decorative role, but also increased the service life of clothes. In the old days, Manchu rural women would embroider dowries for themselves to show their ingenuity and dexterity to their mother-in-law before they got married. Generally, the embroidered articles were pillow tops, belly bags and other daily necessities. It can be seen that at that time, Manchu women had attached importance to the combination of practicality and decoration, and the development of cultural and creative derivatives should still be followed.

(3) Various embroidery methods

Manchu folk embroidery has national characteristics. It is mainly distributed in Xiuyan, Jinzhou and other areas of Liaoning Province. The color of the embroidery is strong, red is red, and green is green. At the same time, folk Manchu embroidery also has different embroidery methods, such as plain embroidery, wrapping embroidery, sticking embroidery, needle embroidery, Nasha embroidery. Different embroidery methods have their own forms of expression, such as needle embroidery is more suitable for embroidering some plants or animals, characterized by a strong sense of hierarchy, vivid image.

As a “intangible cultural heritage” handicraft, folk Manchu embroidery will bring people a great spiritual wealth. It has a long history, diverse themes and varied techniques. It is the crystallization of the wisdom of the Manchu people, and has great historical value for people to study Manchu culture. If Manchu embroidery can be combined with digital design to develop cultural and creative industries, it will be integrated into people’s life once again. Liyun Xia, inheritor of national intangible cultural heritage of folk Manchu embroidery, once said in an interview that “to let traditional embroidery enter modern life, the industrialization of non heritage is an inevitable trend and the only way for traditional embroidery”.

3 Market Status of Folk Manchu Embroidery Cultural and Creative Derivatives

With the advent of the cloud era, cultural and creative industries, as an emerging industry, play an important role in the cultural and economic development of various countries. Cultural and creative derivatives are different from commodities. On the surface, cultural and creative derivatives exchange money with goods, but in essence, they are a kind of cultural carrier used to spread cultural connotation and humanistic thoughts, Cultural and creative derivatives are actually a way of transmitting ideological connotation in culture.

However, the cultural and creative industries of Manchu folk embroidery developed slowly, mainly for the following reasons: first, as a traditional handicraft, Manchu folk embroidery originated in rural areas. As a “compulsory course” for women at that time before marriage, most of the embroidery products mainly included embroidered shoes, quilt covers, door curtains and other daily necessities, the original embroidery can not comply with the trend of the times, leading to the downturn of folk embroidery industry. At present, it is difficult to form a single industrial chain. Pure handmade embroidery is expensive, and consumers don’t pay for it. Third, with the development of digital media, folk Manchu embroidery lacks digital media publicity, and some people have a weak understanding of Manchu embroidery, it is not conducive to the further development of folk full embroidery.

4 Research and Development of Folk Cultural and Creative Derivatives Based on Digital Design

(1) Integration of digital design technology and traditional handicraft

In the field of art design, digital design relies on the Internet, computer coding and human operation of computer technology, which can operate the design process for many times, that is, computer-aided design technology [3]. The rapid development of digital technology, not only the traditional product development process has been changed, but also the way of product processing and manufacturing has been greatly changed. For example, the patterns in traditional Manchu embroidery can be imported into the computer by digital extraction technology, and then quickly traced, edited, and color changed. For example, the application of CorelDRAW, illustrator, Photoshop and other software can depict many virtual two-dimensional images of Manchu patterns. The extracted patterns can be used to establish a database and classify the subjects, It is more conducive to the redesign of traditional patterns, which can better retain the characteristics of the original patterns, and integrate the modern trend features on this basis. (as shown in Fig. 1) the extraction process is: image selection, image processing and pattern extraction. After selecting the picture, Photoshop is used to process the image, use the shortcut key Ctrl + m to set the curve color to make the picture clearer and (as shown in Fig. 2) transform the graph to make the picture clearer after adjustment, so as to facilitate the subsequent pattern extraction (as shown in Fig. 3). In the color curve, the color is represented by numbers. The whiter the color is, the larger the number is; otherwise, the smaller the

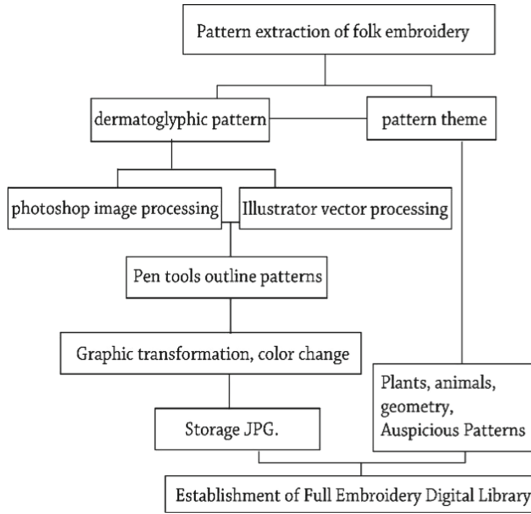


Fig. 1. Flow chart of establishing Manchu embroidery digital database.

number is. After the above operation, export JPG in Photoshop’s format, import into illustrator, draw with pen, path finder and other tools on the basis of the original graphics, and use the direct selection tool to adjust the anchor point to change the shape of the figure. A series of digital operations add more possibilities to the design of cultural and creative derivatives. (as shown in Fig. 4) repeat the above operation to quickly establish the full embroidery pattern material library. The traditional production process of folk full embroidery is to make patterns first and then to puncture the cloth with small steel needles. The application of digital extraction technology is more convenient for designers to deepen the design. The establishment of folk full embroidery digital database can reduce the modification times of worker’s drawing patterns and greatly shorten the production cycle.

Nowadays, the maturity of digital extraction technology has laid the foundation for the development of digital modeling technology. Modeling technology can complete the transformation from two-dimensional to three-dimensional (as shown in Fig. 5), and can give materials and scenes. Finally, products can be obtained through digital rendering. 3D modeling software such as 3Dsmax can perform Boolean operations like 2D plane software, in 3Dsmax, you can change a series of instructions such as shape preset, bump depth and material change to accurately create a solid shape (as shown in Fig. 6). In the development of cultural and creative derivatives, the maturity of digital modeling technology has injected great vitality into the development of new products, Digital modeling technology reduces the waste of materials in the process of traditional design experiment, saves the production cost, makes Manchu embroidery cultural and creative derivatives no longer rely on craftsmen to realize, allows excellent craftsmen to communicate with designers, enables products to innovate on the basis of retaining traditional features, and completely conveys the connotation of “intangible cultural Heritage” [4].

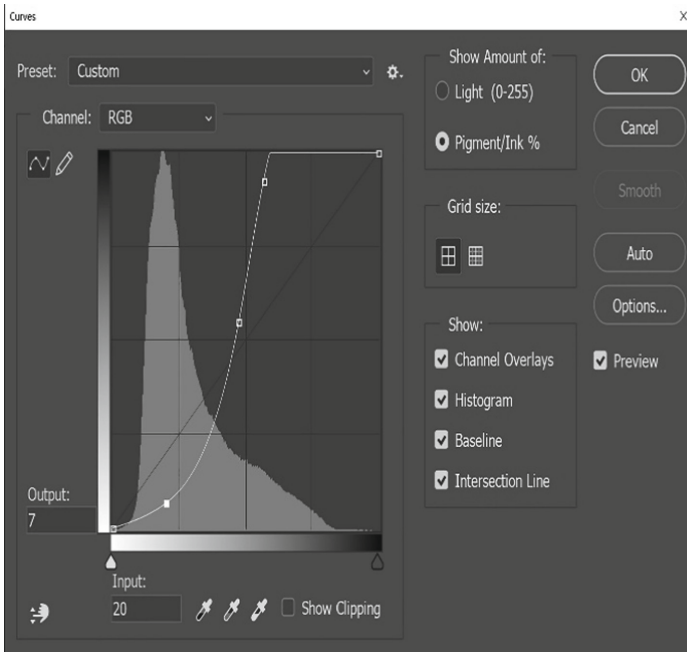


Fig. 2. Color curve setting in Photoshop



Fig. 3. Comparison before and after image processing.

With the promotion of digital technology, digital manufacturing technology, mainly including numerical control technology, computer-aided manufacturing, rapid prototyping and other technologies, has developed rapidly, and combined with the traditional manual manufacturing mode, forming the high-speed development of manufacturing industry [5]. Taking 3D printing technology as an example, as a rapid prototyping technology, it is widely used in various fields, for example, jewelry, medical, electronic and other industries, 3D printing technology is based on digital model, using plastic metal and other materials to bond, using layer by layer printing to construct products. The 3D printing technology is applied to the product development of folk Manchurian embroidery cultural derivatives [2], which



Fig. 4. Dependence Illustrator Drawing path diagram of pen tool.



Fig. 5. Flow chart of converting 2D image to 3D image (selected part).

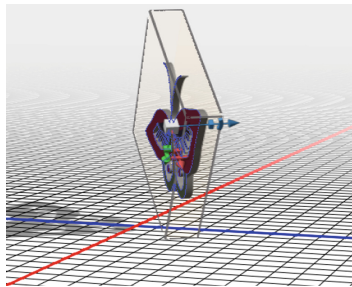


Fig. 6. 3D production display.

improves the product development process from the technical level, and opens up a new path for the innovation and development of folk full embroidery. In traditional handicraft production, samples are made by drawing first, and then after many modification experiments. The samples can be transformed continuously to form products. The appearance of 3D printing technology in the production of cultural and creative derivatives shortens the labor time of workers, reduces the waste of materials, and the reduction of cost leads to the reduction of price. More and more people are willing to buy, let folk full embroidery successfully enter modern life. The combination of traditional handicraft and 3D printing technology is the inheritance and protection of traditional handicraft, and also enriches the modern design concept.

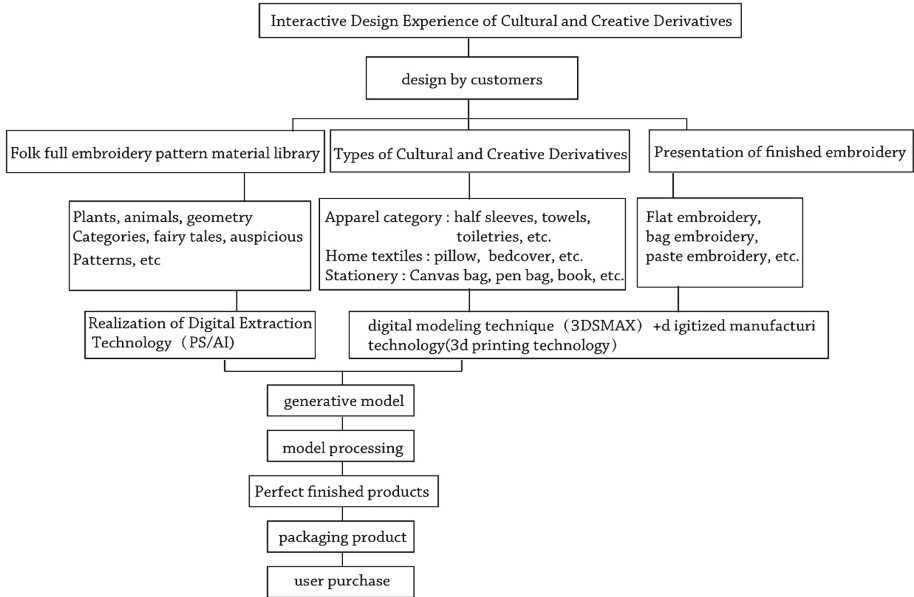


Fig. 7. Flow chart of user participation in cultural and creative derivatives design

(2) Enhance user experience with digital design

The purpose of design is people, and folk full embroidery also serves people at the beginning of creation. Today, the research and development of folk cultural and creative derivatives is also for people. Integrating digital design into the development of folk full embroidery cultural and creative derivatives is the inheritance and development of traditional handicrafts, and it also allows more people to have access to embroidery and participate in the development of cultural and creative derivatives. First of all, based on the Internet, relying on new media digital technology to spread folk embroidery culture, we can quickly spread it through software based on big data, such as tremolo and microblog, so that the masses can feel the charm of traditional culture. Secondly, interaction design should be carried out to strengthen user experience. Through the design and research, we established the folk full embroidery pattern material bank, cultural and creative derivatives types and embroidery method presentation. Folk full embroidery material library can be divided into: plants, animals, fairy tales, geometry, auspicious patterns. Cultural and creative derivatives can be divided into: clothing, home textile, stationery, water cup and so on. The types of embroidery are: plain embroidery, wrapping embroidery, sticking embroidery and other common techniques. In the interactive design experience, users can cooperate with designers, directly select their favorite design prototype from the full embroidery pattern material library, and select cultural and creative product types according to their preferences, and then combine the embroidery method to create the finished product. They can be divided into three categories: Fairy Tales and animal motifs. Cultural and creative derivatives can be divided into: clothing, home textile, stationery, water cup and so on. The

use of digital manufacturing technology to meet the needs of users (as shown in Fig. 7), users participate in the design process, but also deepen the understanding of folk full embroidery in the production process, the traditional handicraft of folk full embroidery has also been developed in this process.

5 Conclusion

As the intangible cultural heritage of our country, folk full embroidery shows the craftsman spirit of our country. We should not stagnate in the digital age. We should explore the folk Manchu embroidery culture, try to use digital design and traditional handicraft, take cultural and creative industries as the media, digital technology as means, and folk full embroidery as the carrier to spread traditional culture. By using the characteristics of folk full embroidery, it skillfully integrates with cultural and creative derivatives in digital design, so as to better inherit and develop intangible cultural heritage culture with interactivity, practicability and innovation.

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