



# Intangible Cultural Heritage APP Design Based on Craftsman's spirit: The Case of Chinese Cantonese Embroidery

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**Abstract.** The continuity of Chinese excellent traditional culture depends not only on the inheritance of Chinese excellent traditional culture, but also on the continuous innovation and creation of Chinese people in response to the needs of the times, and the craftsmanship of Chinese artisans, as the main body of Chinese culture, plays a significant role in the continuation of Chinese excellent traditional culture's lineage. This paper applies the theory of Chinese craftsmanship to the design of a Cantonese embroidery intangible cultural heritage application for Guangdong province. Apply the artisanal principles of "skill" (technical principle), "decoration" (artistic and aesthetic principle), "law" (behavioural principle), "harmony" (ecological principle), and "innovation" (ecological principle) to the design of Cantonese embroidery. The innovative spirit of "skill": technical principle, "decoration": artistic and aesthetic principle, "law": behavioural principle, and "harmony": ecological principle is applied to the design of APP of intangible cultural heritage so that the traditional culture of Chinese Cantonese embroidery can maintain its own characteristics in the dissemination and communication with the world, serve the modern culture, and face the future.

**Keywords:** Craftsman's spirit; Intangible cultural heritage; APP design

## 1 Introduction

From a sociological perspective, craftsmen are a type of industry group, which is further subdivided into several levels, such as management, intelligence, technology, and general craftsmen, etc. Traditionally, craftsmen are more of a status symbol of a profession that excels in a particular field. In general, "craftsmen" refers to an industry talent that enables "creation, production, and decoration," among other capabilities. In general, "artisan" refers to a type of industry talent that can create, manufacture, and decorate objects, etc. On the contrary, it is closer to "designer" in the description of modern vocabulary. Today's designers can best exemplify the central connotation of the artisan Craftsman's spirit, its excellence, and its willingness to innovate. In 2006, Guangdong embroidery was designated a national intangible cul

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E. Marino et al. (eds.), *Proceedings of the 2023 5th International Conference on Literature, Art and Human Development (ICLAHD 2023)*, Advances in Social Science, Education and Humanities Research 806,

[https://doi.org/10.2991/978-2-38476-170-8\\_46](https://doi.org/10.2991/978-2-38476-170-8_46)

innovate. In 2006, Guangdong embroidery was designated a national intangible cultural heritage. As a result of the combination of Chinese and Western cultures after the Maritime Silk Road, Guangdong embroidery, with its refined skills, rich compositions, themes, and colours, was renowned in more than 30 countries in Europe, South-east Asia, and Japan between the sixteenth and nineteenth centuries. The perpetuation of Guangdong embroidery culture is inseparable from the Guangdong embroidery inheritors' culture of craftsmanship.

## **2 A Summary of Guangdong Embroidery and Its Current Development**

Cantonese embroidery is one of China's four most renowned embroidery styles. The two main branches of Cantonese embroidery are Canton embroidery and Chiu Chow embroidery, which is located in the coastal region of Guangdong. Since its inception, Cantonese embroidery has a history of more than two thousand years. In ancient times, Cantonese embroidery was used to pay homage to the royal family. During the Ming and Qing Dynasties, the government policy gave the embroidery great support, allowing it to be exported overseas. In the late stages of the founding of the People's Republic of China, the war and the development of industrialisation had a significant impact on Cantonese embroidery. Canton embroidery and Chao embroidery, the two primary branches of Cantonese embroidery, have been industrialised to incorporate Chao embroidery with wedding costumes and bridal wear<sup>[1]</sup>. The nearly 2,000-year-old history and culture of Cantonese embroidery continues to this day and is closely related to the craftsmanship culture of the embroidery's inheritors.

The traditional Guangdong embroidery culture and products have found it difficult to attract a new generation of young people due to the development of society, the shift in public aesthetics, and the evolution of consumption concepts. Simultaneously, inheritors of traditional Guangdong embroidery are progressively ageing, and there are few new generations of inheritance groups joining in, which ultimately makes it difficult to extend the cultural lineage of Guangdong embroidery. This article concentrates on the development of China's intangible cultural heritage of Cantonese embroidery in order to preserve and promote its cultural, aesthetic, economic, Craftsman's spirit, and artisanal values. This paper uses the intangible cultural heritage of Chinese Cantonese embroidery as its research object, and through the theory of Chinese craftsmanship, employs the literature research method and field survey method to transform the intangible culture of Chinese Cantonese embroidery into an application for public dissemination.

### **3 Literature Review on Craftsman's spiritip and Guangdong Embroidery**

#### **3.1 Literature Review on Craftsman's spiritip**

At present, the research trend of domestic and foreign scholars on craftsman spirit is the study of craftsman spirit as the spiritual attitude of human beings and the study of the application of craftsman spirit to the inheritance and skills of intangible cultural heritage. WU Yue-jun On the Cultivation of Intangible Cultural Heritage Inheritors of Craftsman Spirit, It is mentioned that in the context of artisan spirit and culture, for the new generation of young people to join the team of intangible cultural heritage inheritors, the modern apprenticeship system based on school-enterprise cooperation is highly coupled with the professional concept and value orientation contained in the artisan spirit. In A Historical Geography Study of the Paintings of the Sui, Tang, and Five Dynasties<sup>[2]</sup>.ZHANG Kai proposed the continuation of craftsman spirit and the public's cultural identity. Taking the craft of Shexian inkstone as the research object, this paper probes into the continuation and inheritance of craftsman spirit in the craft of Shexian inkstone<sup>[3]</sup>. The research and understanding of artisan spirit at home and abroad are all from the perspective of people. As an attitude and spirit of people, artisan spirit depends on people to survive.

#### **3.2 Literature Review on Guangdong Embroidery**

Domestic and foreign scholars' research on the intangible culture of Cantonese embroidery can be roughly divided into the graphics and colors of Chinese Cantonese embroidery works, the integration, development and dissemination of Cantonese embroidery in the "Belt and Road", and the artistic value, aesthetic value and craftsman spirit of Cantonese embroidery culture<sup>[4]</sup>. For example, Wenxing yu, in his study on the integration, development and dissemination of overseas Chinese and Western cultures in Chinese Cantonese embroidery, proposed to study the aesthetic value and cultural identity created by Chinese painting on Cantonese embroidery works, and to study the multi-pattern design formed by the integration of Chinese and Western cultures<sup>[5]</sup>. Luo Jie Comparative Study on Artistic Style and Craft of Guangdong Embroidery and Chaozhou In Embroidery, a comparative analysis of the cultural origin, craft techniques and artistic characteristics of two branches of Guangdong embroidery and tidal embroidery is carried out, and several artistic styles such as composition, stitch and color can be compared one by one<sup>[6]</sup>. Xian WU makes an in-depth study of patterns, colors and techniques in the artistic language of Cantonese embroidery in the analysis of its artistic language and innovative design, and applies these artistic languages to modern clothing for innovation<sup>[7]</sup>.

In conclusion, the predominant trend in domestic and international research on Cantonese embroidery and craftsmanship is that artisans continue to perpetuate the artistic value, aesthetic value, and artisanal culture of Cantonese embroidery culture. From the literature and field research, it can be concluded that Cantonese embroidery contains an abundance of technical characteristics, such as composition, color, pat-

tern, technique, modeling, cultural significance, etc. (see Figure 1). Not only is Cantonese embroidery an excellent example of China's intangible cultural heritage, but it also encapsulates the spirit of Chinese craftsmanship by crystallizing the wisdom and sweat of Chinese craftsmen throughout the centuries.

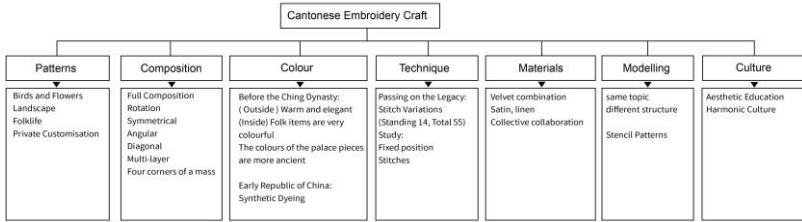


Fig. 1. Classification of Cantonese Embroidery Craftsmanship (Self-drawn by the author)

### 4 Craftsman’s spirit Theory Applied to Intangible Cultural Heritage APP

The English term "craftsman's spirit" refers to a type of professional spirit that embodies professional integrity, professional ability, and professional quality, as well as a type of professional value orientation and practitioner behavior. Craftsman in ancient times was a type of "create things, make things, and decorate things" industry talent; with contemporary terminology, "designers" is the closest descriptor. Craftsmanship, as a type of practitioner's spiritual trait, should be incorporated into the construction of certain platforms due to the innovation, scientific rigor, delicacy, and tenacity that this trait embodies. Not only can the characteristics of craftsmanship be applied to the training of individuals, but also to the construction of platforms. There are four fundamental components of craftsmanship: the technical principle of "skillfulness," which signifies technical sophistication and proficiency. "Adornment" is the aesthetic principle that represents the beauty of eliminating impurities and transforming them into artistic embellishments. "Law" is the code of conduct, which encompasses both the rule of law and the rule of artisanal production. "Harmony" is the ecological principle that refers to the combination of various elements that are then refined and shaped into something exquisite<sup>[8]</sup>. Incorporating the four elements of craftsmanship into the design of an application can assist in extending the ecological chain, interface artistry, excellent user experience, and a clear structure.

Craftsmanship remains an essential qualification for all designers. The theory of craftsmanship differentiates between the traditional identity and significance of craftsmen, the formation of a cultural system of craftsmen by community organizations, and the separation of the labor system and the living system. Figure 2 depicts the artisan spirit as the final component of the artisan system.

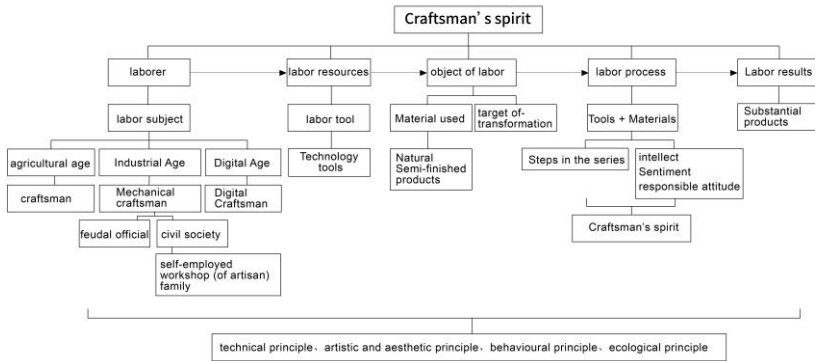


Fig. 2. craftsman's spirit combing (author's own drawing)

### 5 Craftsman's spirit Theory in Practice in ICH APP

As a traditional handicraft, the intangible cultural heritage of Cantonese embroidery wishes to be presented to the public in a new form, with the interface design of the APP adhering to the aesthetic principle of "decorative," the user experience adhering to the code of conduct of "law," the architectural design reflecting the technical principle of "skillful," and the entire framework of the APP depending on the ecological principle of "and"<sup>[9]</sup>. As show in Fig 3.

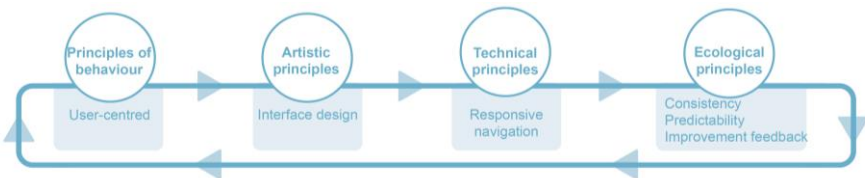


Fig. 3. app design flow chart (Author drawing)

#### 5.1 User Experience - "Law" Code of Conduct

When designing an app, it is essential to place the user at the center of the design in order to comprehend their requirements, preferences, and behavior patterns<sup>[10]</sup>.The app's design and functionality must meet user expectations and provide a convenient and intuitive experience. Google's new dimension of HEART model, a user-centered metric model, provides a positive experience for the user. The HEART model's starting point is to be user-centric and applicable to a wide variety of user experience metrics. It is primarily for the purpose of integrating Cantonese embroidery techniques, the ecological environment of Cantonese embroidery, the history and culture of Cantonese embroidery, including export culture, aesthetic culture, and the stories of the inheritors, etc., into the design of the main page. On the homepage, a search box enables users to seek by entering the address and name of the intangible cultural heritage,

etc. The search box can also be used to seek for intangible cultural heritage, such as figure 4. The homepage, or default page, is used for browsing, interacting, and sharing. The learning page is for embroidery science, work appreciation, pattern selection, and stitching course explanation. The plus button in the middle of the hover bar can publish personal creation. In figure 5, The message page will display interactive information such as @Me, My Likes, My Comments, Chatting Box (order page), and so on.



Fig. 4. google New dimension (Author drawing)



Fig. 5. Guangdong embroidery APP homepage (Author drawing)

### 5.2 Interface Design - Aesthetic Principles of Decoration

In ICH app design, it is essential to keep the user interface plain and intuitive. This involves the use of understandable icons, labels, and navigation. Avoiding excessively complex elements and features enables users to swiftly locate the information and functionality they require. The Cantonese Embroidery APP interface extracts colors from the embroidery works of Chinese Cantonese Embroidery to form its own color culture; the selection of patterns and works adheres to the principle of removing impurities and retaining beautiful works, figure 6. The design interface is based on simplicity and function clarity, and the distinctive embroidery works of Cantonese Embroidery are displayed on the log-in page, highlighting the aesthetic and artistic characteristics of Cantonese Embroidery in China. From the learning page to the colour matching page, the APP is presented to the user in the form of simple rounded box

images with text, which enhances the user's experience with the interface and the interface design aesthetics of the APP.

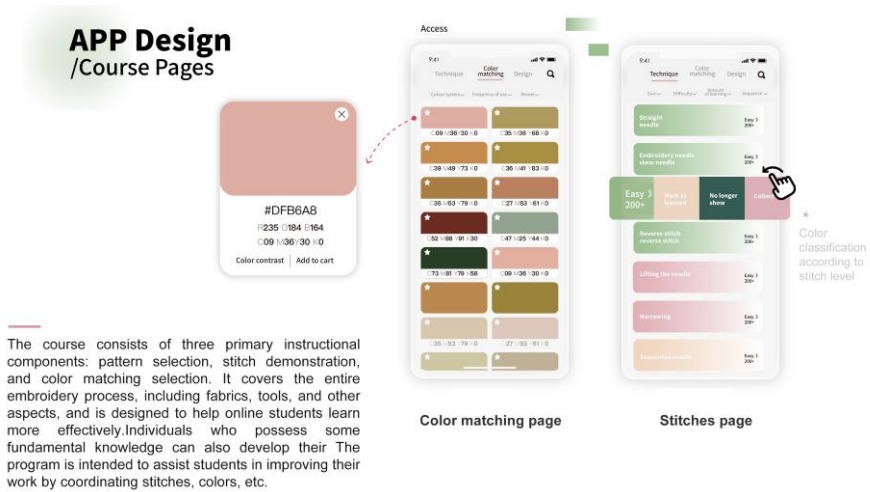


Fig. 6. Guangdong embroidery APP interface design (Author drawing)

### 5.3 Responsive and navigation design - "skill" technical principles

The current trend in APP design is a responsive layout with intuitive navigation. This allows for the consideration of adaptability on various devices and screen sizes and ensures that the APP provides a positive user experience on a variety of devices. Likewise, considering the requirements of users to use the APP, it is essential to make the functions and navigation structure of the APP transparent and unambiguous. In the architectural design of the entire page of the Cantonese embroidery APP, it is necessary to express the functional framework of the APP with delicacy and skill, and to discover the motivations and requirements of the inheritors of Cantonese embroidery and future learners through the questionnaire research process in order to clarify the entire architectural design of the APP based on their requirements. After determining the requirements and functions of the user, the home page, course page, news page, and personal page were developed. Each page's primary functions and messages are plainly defined, figure 7. For instance, in the course page design, the introduction of Guangdong embroidery inheritance of the relevant teaching courses and the introduction of a series of brief, easy-to-learn courses at various levels. The course page is divided into a pattern page, a video page, a color page, and a stitch page, with a reminder that you are in an artisanal state so that you can experience the essence of the artisanal spirit of Cantonese embroidery.

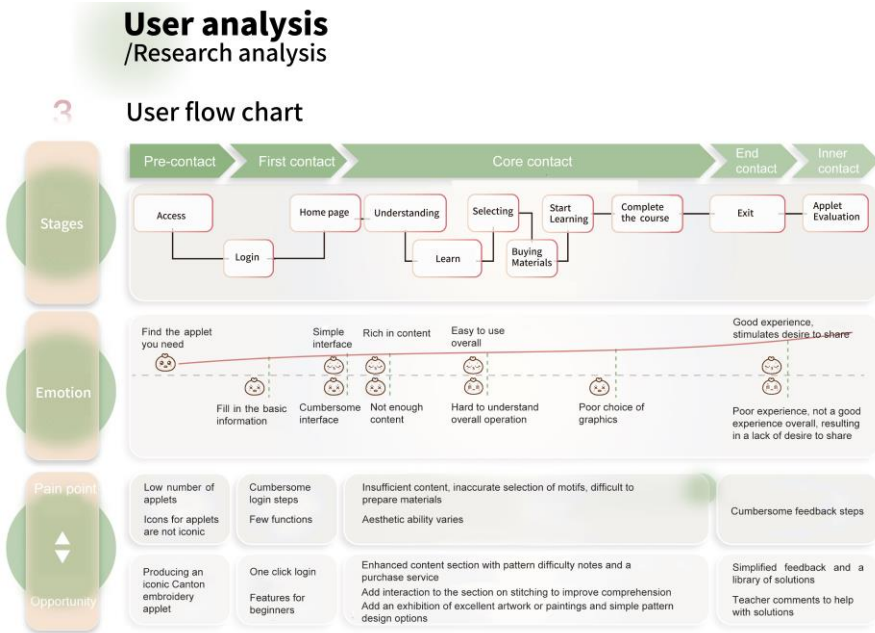


Fig. 7. APP User journey diagram (Author drawing)

### 5.4 Cantonese Embroidery APP - "Harmony" Ecological Principle

Throughout the design process, it is essential to maintain consistency between the app's numerous pages and functions. The use of a uniform logo, color scheme, and layout principles enables users to comprehend and anticipate the interface's operation, and ensures that users have a consistent navigation and experience between pages. The conjunction "and" reflects a comprehensive set of ecological processes, while the design must also prioritize the APP ecosystem as a whole. The function extends to subsequent APP brand and IP construction, in addition to other concerns, figure 8. As illustrated in Figure 3, the page contains a purchase page, a personal page, a message page, and a personal emotion punch card. ip emotion feedback punch card utilizing emotional tendency analysis technology, which through python with the assistance of baidu intelligent cloud interface, for the generic scene with subjective description of the Chinese text, automatically determine the text of the emotional polarity category and give the corresponding confidence level, and will be divided into three types of emotional polarity, for the positive (2), negative (0), and neutral (1). Based on the three confidence values, the probability of a positive category, and the probability of a negative category, the emotion of the learner at the time of uploading the log is determined, and the IP punch card interface corresponding to different emotions is sequentially displayed to motivate the learner.





**Fig. 8.** Guangdong embroidery APP interface design (Author drawing)

## 5.5 App Prototype Evaluation and Analysis

The YUE Embroidery App is for a wide range of groups and the general public. This study is a test survey of different online users, based on different online user questionnaires, using a five-point scale approach to online user research. In order to verify whether the Yuet Embroidery APP is real and effective, questionnaire surveys were conducted on different groups of people, such as learners of Cantonese embroidery, totalling 306 people, removing 29 invalid questionnaires and obtaining 277 valid questionnaires, with a reliability of 0.89, and a value of 0.952 for KMO, which means that the reliability tests have met the standards. Table 1 shows that the average score of all the questions reached 3 or more, which indicates that the overall expectation is good and feasible. And Table 2, A total of five questions Q13, 14, 16, 18 and 19, reached a score of 3.7 or more, indicating that the fluency and value aspects of these five questions, which were mainly targeted, were highly recognised. Therefore, it is concluded that the public is interested in using Yuexiu APP to learn about Cantonese embroidery smoothly. The lowest score in Q20 - "I think it is relatively easy to operate the interface of Yuexiu APP" is only 3.62, which is lower than the overall level of the questionnaire, indicating that the simplicity of the APP's interface needs to be improved, and that it is still an important task for this age group to consider how to balance multiple modules, large amount of information, and simplicity of operation.

**Table 1.** Validity analysis

KMO test and Bartlett test		
	KMO	0.952
Bartlett Sphericity test	Approximate chi-square	1494.641
	df	78
	P	0.000***
note: ***, **, *(Distribution representation 1%, 5% 10% Level of significance)		

**Table 2.** Reliability analysis

<b>Problem</b>	<b>Average score</b>
Q12-I clearly know what platform Yuexiu APP is	3.682310469
Q13-Using this APP, I can understand the intangible cultural heritage knowledge related to Guangdong embroidery smoothly	3.700361011
Q14-The functions of Yuexiu APP help me learn Cantonese embroidery intangible cultural heritage more independently	3.722021661
Q15-I think Yuexiu APP introduces the changes of Cantonese embroidery intangible cultural heritage in a new form	3.685920578
Q16-I think Yuexiu APP interface function sequence arrangement is more reasonable	3.703971119
Q17-I think the pictures in Yuexiu APP are more compatible with the content	3.649819495
Q18-The switching of APP page operation can be carried out smoothly	3.736462094
Q19-I think the application process is relatively simple	3.722021661
Q20-I think it is relatively easy to operate the Yuexiu APP interface	3.646209386
Q21-I think the interactive process of Yuexiu APP is clear and clear	3.649819495
Q22-I think the interface of Yuexiu APP is very beautiful and attractive to me	3.685920578
Q23-I will use Yuexiu APP to understand the intangible cultural heritage of Guangdong embroidery	3.667870036

The future development trend of APP is a mixture of offline and online hands-on experiential activities, which accounted for 40% of the total, indicating that hands-on embroidery is the primary expectation of the embroidery learning community. Only 18% of academic and design competitions are related to Cantonese embroidery, indicating that the public is not interested in Cantonese embroidery as a form of academic competition and there is less demand for the use of Cantonese embroidery as a theme for design competitions. This demonstrates that the public's use of the Yue embroidery APP is more inclined toward aesthetic education and stress-relieving daily entertainment. Due to the technical difficulty of Cantonese embroidery, the future development trend is to present and design Cantonese embroidery in a more fashionable and straightforward manner, so that the original purpose of creating embroidery can be reintroduced.

## 6 Conclusions

In the process of new media inheritance and dissemination, the YUE embroidery APP has more advantages than traditional communication methods, including a positive user experience, an abundance of dissemination channels, and a large number of target audiences. YUE Embroidery APP's platform not only improves the interaction between users and Cantonese embroidery, but also promotes the sustainable dissemination of Cantonese embroidery non-heritage. This study combines the transformation model of intangible cultural heritage and the sustainable dissemination of YUE Em-

broidery APP with the form of new media to digitally visualize the aesthetic value of Cantonese embroidery and the spirit of Cantonese embroidery artisans. Using YUE APP as an illustration, this paper demonstrates that knowledge transformation has important guiding significance in the process of sustainable communication in new media, which not only plays a role in the dissemination of Yuexiu, but also serves as a partial reference for the development and design of other intangible cultural heritage APPs.

## Acknowledgment

Guangdong provincial project<Research on the construction of embroidery intangible cultural heritage curriculum and the innovative design of aesthetic education path in universities in Guangdong-Hong Kong-Macao Greater Bay Area> Phased results, Item number: WGKM2023089

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