

# Design and Application of Intangible Cultural Heritage APP Based on Cultural Translation Theory

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## Abstract:

The arrival of the mobile Internet era has brought an opportunity for the “activation” of cultural traditional theory. Based on the concept of cultural translation, it is proposed to extract typical cultural elements from the material, behavioral and spiritual layers of intangible cultural heritage. Design practical APP to promote the dissemination of intangible cultural heritage.

## Keywords:

Intangible Cultural Heritage, Design Elements, Cultural Translation, User Experience, Application Program Design

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## 1. Introduction

Traditional culture is the transmission source and content element of the output of cultural construction. Although it has been excavated, with the rapid development of the national economy and technology, some traditional cultural forms representing the unique cultural value of the country have gradually disappeared in people’s vision. Many traditional folk arts and technologies are on the verge of disappearing, and the living environment is increasingly worrying [1]. The arrival of the mobile Internet era has brought an opportunity for the “activation” of traditional culture. Traditional culture is diversified through the mobile Internet platform in the form of vivid, real, and close to the public life scene [2]. On the one hand, users can understand and learn the essence of traditional culture by installing traditional culture apps; On the other hand, the combination of apps in e-commerce, games, live broadcasting, and other fields with traditional cultural IP also gives everyone the opportunity to participate in cultural innovation and inheritance, so as to achieve a win-win situation between cultural value and commercial value. On the basis of respecting and restoring the traditional culture itself, how to improve the effectiveness, interest and

Artistry is a problem worth discussing. The design of a traditional culture app based on a mobile Internet platform needs to make users feel the connotation of traditional

culture, and obtain a smooth operation experience, pleasant emotional experience, and deep cultural content.

## **2. Traditional Culture Communication in the Background of Mobile Internet**

### ***2.1. Application of Traditional Cultural Elements in APP***

In recent years, many mobile apps and web pages based on traditional culture and combined with digital media technology have been launched. They cover many fields, such as cultural education, interest cultivation, game interaction, etc., so that traditional culture can appear in a communication form that is more suitable for the scenes of public life.

The forms of expression are also more abundant, from graphic visual design and cultural and creative product design to new media interactive design. For example, Songjin - Intangible Cultural Heritage interactive game design, 24 solar terms, Songjin production app, and a series of other high-quality apps pay attention to folk art and folk technology in the inheritance of traditional culture. These apps have elegant pictures, novel interaction, and a smooth experience. Songjin - Intangible Cultural Heritage interactive game design, 24 solar terms, Songjin production app, and other apps launched by the Palace Museum directly, professionally, and interestingly explain the historical inheritance and chronological changes of traditional culture. These apps once became major applications. The high-quality app recommended by the store and the innovative design of traditional culture has quickly become a hot spot in the Internet industry.

### ***2.2. Problems Existing in Traditional Cultural Apps***

App quality in major application markets is mixed, and many traditional cultural apps have some design problems. For example, the content and elements of traditional culture are directly transferred to the design of the interface. Such a design method will certainly enable users to experience the freshness and familiarity brought about by traditional culture when they first enter the app, but the separation of its interface function and form will also make users feel stiff and messy. Cultural elements that copy and graft each other cannot reflect the real traditional aesthetics. Another problem is that some products imitate the design architecture and interaction forms of apps in other fields, ignoring their inherent traditional cultural characteristics and spiritual connotation. The design of these products weakens the artistic value of traditional culture at all levels, ignores the public's understanding of cultural elements and the cognitive differences of interface operation, and thus reduces the public's tolerance and recognition of the promotion of traditional culture. Facing this situation, designers should think about how to use the mobile Internet as a platform to achieve a more basic, extensive, and in-depth inheritance and transformation of traditional culture. Explore the harmonious unity of traditional cultural aesthetic content and expression form, and naturally and vividly integrate cultural aesthetic consciousness, behavior habits, philosophical thoughts, traditional concepts, and other aspects into all links of APP design, so as to achieve the translation, continuation, and innovative design of traditional cultural form and spirit.

### 3. Translation of Traditional Culture

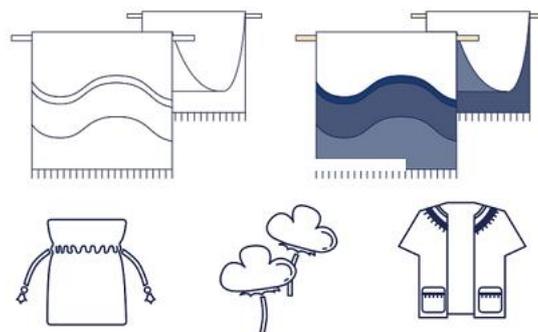
#### 3.1. Concept of Cultural Translation

“Translation” belongs to the category of linguistics, which refers to the special translation behavior of translating one text into another through the medium language [3]. A typical example of a translation application is Burberry. In order to enter the Chinese market, Burberry subtly transliterates its English trademark “Burberry” into “巴宝莉” according to the characteristics of Chinese culture and the use law of Chinese characters, thus successfully completing the cultural output of its brand values in China [4]. Translation has great value, so it has been developed and applied in biomedicine, aesthetic appreciation, landscape architecture, architecture, and other professional fields.

The cultural translation defined in this paper is a process of information extraction, design and expression, reorganization, and dissemination of traditional culture based on the translation concept.

Design, interpret and translate traditional culture, explore more possibilities, and finally realize the output of cultural values. Cultural translation in the context of mobile Internet is a process of transmission and transfer of traditional culture through Internet media. It includes the extraction and processing of visual elements such as graphics and patterns in traditional culture, the refinement and coding of user behavior habits, and the enhancement of cultural spiritual connotations [5].

For example, the designer selects the brush as a traditional cultural element and extracts and processes its color, shape, and texture. The translated brush element can be used as a button for the “essay” or “drawing” function in the app interface. Such a design is to convert a traditional cultural element into an icon in the app interface and use it as an entry point for product functions. The “essay” function icon in the app interface is shown in Figure 1.

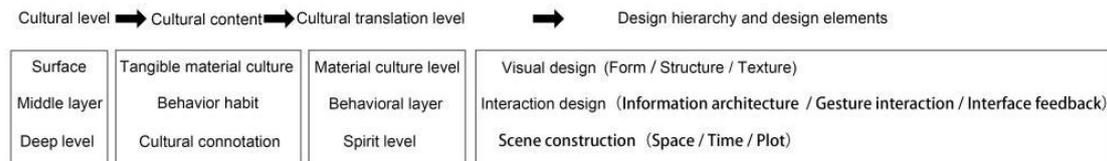


*Figure 1. APP interface function icon.*

#### 3.2. Translation of Traditional Culture

The translation of traditional culture is the transformation process of traditional cultural elements from the original system into the new system. This process is based on the traditional cultural symbols as the link, the mobile Internet as the carrier, and the interface as the form of translation. The translation of traditional culture realizes the “culture +” mode in the context of “Internet +”. This “+” should not be imposed on traditional culture for more connotation, but should make culture more possible in terms of design, creation and expression [6].

Based on the theory of cultural hierarchy and the concept of cultural translation, this paper gradually deduces the design level of translation of traditional cultural elements. The relationship between cultural theory and cultural content is deduced from the three levels of cultural theory. The mapping relationship between the two provides a theoretical support for sorting out the translation levels of traditional culture. The core of traditional culture translation is based on three levels: material level, behavioral level and spiritual level, which translates traditional culture from exterior to interior, truly and naturally into the visual expression, interaction design and scene image construction of mobile Internet products. See Figure 2 for the derivation of the translation level of traditional culture.



*Figure 2. Traditional cultural translation level deduction.*

## 4. The Level and Design Application of Traditional Cultural Translation

### 4.1. The Physical Translation of Traditional Culture

Surface culture, also known as material culture, is the use of material by human beings, which is usually reflected in the fields of clothing, food, housing, and transportation [7].

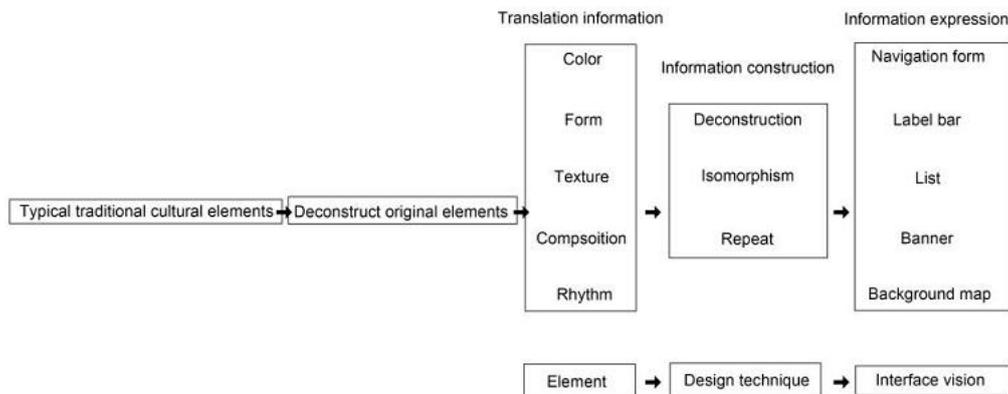
The traditional culture at this level is mainly composed of some dominant visual elements, such as decorative patterns, shape artifacts, and text symbols that can convey the traditional meaning. The public can understand the aesthetic value of the material layer of traditional culture through visual language.

When translating the material layer of traditional culture, first of all, determine the traditional cultural theme and design positioning of the products to be developed, such as the New Year Festival theme or regional cultural characteristics. Then, typical elements with unique symbolic significance are selected from the complex traditional cultural system, and users conduct secondary subjective perception evaluation according to the screening conditions such as “cultural typicality”, “degree of preference” and “ease of use”. Finally, the cultural elements that are more in line with the theme are determined for visual translation.

The selected traditional cultural elements need to extract and process the translation information. The designer extracts the abstract or concrete, static or dynamic elements such as color, shape, texture, and composition techniques of each element, then disassembles the elements with similar characteristics according to certain rules to form the element feature factor atlas and then constructs a new visual symbol system by using the design expression methods such as deconstruction, isomorphism, and repetition [8].

The visual carriers of these cultural factors are interface design elements, such as label bar, navigation form, list, banner advertisement, etc. Translate the form and meaning of traditional cultural elements into the visual design of the mobile terminal interface. This process makes the graphical symbols of traditional cultural elements

and app design interface controls interrelated and realizes the editing and reorganization of cultural elements. See Figure 3 for the material translation of traditional culture.



**Figure 3.** Physical layer translation of traditional culture.

#### 4.2. Behavioral Translation of Traditional Culture

Middle-level culture is the concentrated embodiment of people's customs, lifestyle, and emotional expression, which imperceptibly affects people's behavior [9]. Behavior habit is a natural action in people's subconscious, such as the way people read words, the habit of greeting, etc. The mobile end interaction design focuses on the possible behavior and operation of the user, and how the product should cooperate with and respond to the user behavior [10].

The behavior level culture translation interprets people's natural behavior habits into the design of interactive gestures, animation effects, and operation feedback in the app interface through simulation and guidance, and takes people's habitual behaviors and actions as elements to guide users to recognize the interface. App interaction design after behavior translation refers to how users operate the interface, which can generate familiar psychological feelings, and then trigger behavior memory and association related to the interface. The results of user perception association can guide them to carry out a series of interactive operations. According to the familiar and natural behavior habits of users, the interface interaction design is carried out to bring users a natural and smooth operation experience, so as to achieve the goal of improving product consistency, ease of use, and ease of learning. The behavioral translation of traditional culture is shown in Figure 4.

In the Songjin production app, the interface interaction and interface feedback of the Songjin production process come from the deduction of people's behavior in using tools in daily life. Give full play to the advantages of mobile devices, make the whole process of popularizing traditional techniques full of interactivity and rich in Chinese elements, and translate the user's behavior habits into the operation gestures, interface feedback and interface dynamic effects of interactive design, which can reduce the user's understanding obstacles and misoperations to the interface. The loading page in the song brocade production app is that the whole game uses relatively simple and elegant color matching, and is equipped with sound effect elements with Chinese traditional cultural charm so that players can calm down and experience the production process of the song brocade production. In the silk factory link, players need to protect the food of silkworm babies, interact with other insects in the game by clicking, and different insects need different driving methods. In the soaking phase,

after the baby silkworm forms a silkworm chrysalis, click the upper part of the screen to soak the silkworm chrysalis in water. After putting enough pupae, press and hold the screen to bring the water to a boil. Winding-drying is to use the acceleration sensor and gyroscope in the mobile phone. Players can simulate the steps of drying silkworm chrysalis by shaking the mobile phone interactively. Winding. At this stage, players need to thread silk into the spinning machine for winding. Using the acceleration sensor and gyroscope in the mobile phone, players can wind the wire while turning the mobile phone. Pattern design: in the drawing stage, players can draw and design their favorite graphics by themselves. The system generates the most consistent graphics in the database through machine learning algorithm matching. In this stage, players need to select two different characters for the next part of the game. In the matchmaking board, players need to select the corresponding line according to the required color line. Each successful click will have relative sound feedback. The faster the speed is, the more difficult it will be with the passage of time. Weaving, using the acceleration sensor and gyroscope in the mobile phone, the player simulates the motion process of the loom by shaking the mobile phone up and down. At the same time, the player also needs to control the lock shuttle to weave. After completing the song brocade, players can choose to save it after making it at full cost. In subsequent iterations, AR technology can be integrated to integrate song brocade works made by players with clothes in the real world, so as to obtain more immersion. (App icon design, Figure 5)

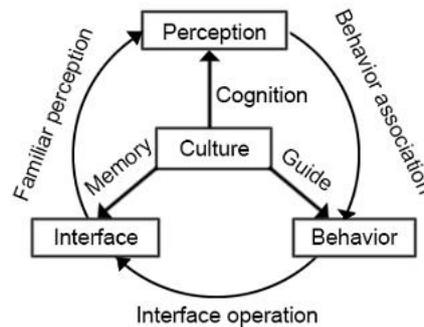


Figure 4. Behavioral layer translation of traditional culture.



Figure 5. App icon design.

### 4.3. Spiritual Translation of Traditional Culture

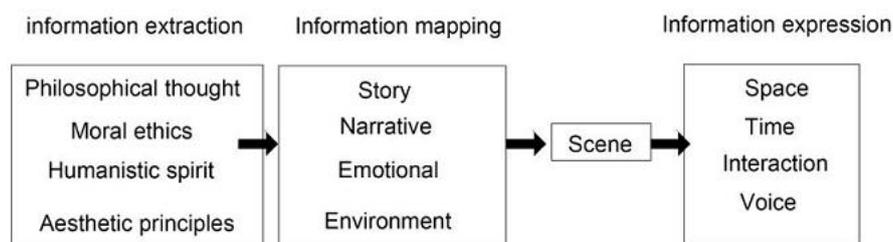
Deep culture is the philosophical thoughts, aesthetic preferences, humanistic ideas, etc. that have been inherited from traditional culture. The translation of the cultural spirit level has promoted the public experience from the visual aesthetics and

interactive behavior level to the cultural connotation level. Cultural spirit has no concrete formal expression. It is abstract, recessive, and introverted. It needs to rely on personal experience and association to feel the spiritual core of traditional culture. Apps in the application market seldom involve the design of the spiritual layer of traditional culture. The reason may be that traditional culture is beautiful in form

It is difficult to express the beauty of artistic conception. In the mobile app design, the spiritual translation is to integrate the traditional cultural connotation into the scene image of the app. Firstly, from the traditional culture of letting a hundred flowers bloom, the most representative and subjective traditional cultural spirit is selected to extract the translation information. Then, through the methods of story, narration, emotion, and environment shaping, the scene meaning is conceived

For example, the spirit of traditional culture is translated into the sense of space, time, interactive effect, light, sound and other sensory experiences in the scene design, so as to enhance the sense of integration in the public experience. In the process of building the scene, the visual and interactive design level also affects the perception and interaction between users and the spiritual level. The combination of the three levels has realized the integration of scene and form and spirit. The spiritual translation of traditional culture is shown in Figure 6.

Take the “boguzhai” app as an example to see how the spirit of traditional culture is translated. Boguzhai is an app with the theme of Qingming porcelain exhibition, which provides a comprehensive view of the scene map of the museum and quickly locates the museum. The user can switch the intelligent recognition mode. It restores the porcelain to the historical scene and creates a concrete space for the user. The porcelain story is translated into a flat space map, the space-time of the alternation of the sun and the moon, and the game interaction of scientific research to guide the user. Through the symbolic features or stories in the interface, it can arouse users’ memory and understanding of the historical scenes of porcelain making and the activities of characters.



*Figure 6. Conceptual layer translation of traditional culture.*

## 5. Conclusions

With the development of the mobile Internet, users have increasingly complex requirements for product user experience, cultural connotation, and artistic aesthetics. More and more traditional cultural elements will be translated into APP design, and the translation forms will be more abundant. The simple visual translation of cultural elements can no longer be completed. It fully meets the needs of users. The material, behavioral and spiritual layers of traditional culture can be translated into APP interface visual design, interaction design, and scene imagery, and then traditional culture can be translated from the shallower to the deeper, from the outside to the inside. In mobile Internet products, the user experience, artistic value and commercial value of the products are maximized.

## Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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