Application of Element Symbol of Beijing Opera Facial Painting (Lianpu) in Smart Phone Theme Design

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Abstract. Peking opera Lianpu is an important part of Chinese traditional culture. Its beautiful colors, varied lines and vivid patterns are deeply loved by the Chinese people. This time, the most representative colors and graphics of the Beijing opera Lianpu element symbols are analyzed, deconstructed and reconstructed, and the fusion and recreation design is carried out according to the characteristics of the mobile phone screen and the mobile phone theme. It is hoped that by creating this Beijing opera Lianpu mobile phone theme product with traditional characteristics and rich cultural connotation, it will enrich the mobile phone theme content, promote traditional culture and enhance the cultural confidence of the nation.

1. Introduction
At present, there are two kinds of mobile phones in the market: touch screen and keyboard phone, and touch-screen mobile phone is also the smart phone. In 1993, IBM launched Simon, the world's first smart phone, laying the foundation for Smart phone processors. In July 2008, Apple Inc launched the iPhone 3G, starting the new era for smart phone and becoming the benchmarking in the industry. According to the 41st Statistical Report on Internet Development in China published by China Internet Network Information Center (CNNIC), as of December 2017, the number of mobile Internet users in China reached 753 million, and mobile instant messaging users were 694 million.

With the development of smart phones, the operating speed, functions, memory and other hardware devices of the mobile phone have fully met people's daily needs. After the mobile phone has been given a variety of attributes, people have more demands for the beautiful interface, interactive pleasure, content stories, especially the design of personality. However, the current mobile phone theme design can be said to be too similar. The specific contents are: the content lacks the novelty feeling, and the interface design seems to follow the trend, and there is no thought and story emotion actually. The content lacks connotation, the interface design can't stand the scrutiny, and there has no full expression to the view of users; the interface lacks features, the interface design is homogenized seriously, and there is no innovation.

2. Element Symbol Features of Beijing Opera Lianpu
Peking Opera is the quintessence of China. Its dazzling costumes, beautiful tunes, exquisite props, and especially delicate makeup are deeply loved by the audience. Peking Opera Lianpu is a special makeup method with Chinese cultural characteristics. The current drama is defined as: "In order to play the characters in the play, the Jing, Chou and some Sheng and Dan actors, according to their respective
relatively fixed musical forms, draw various colorful pictures on their faces, which are collectively called facial makeup (Lianpu)." The term "semiotics" is derived from the Greek isemeiottikos through the Middle Ages and refers to the observer of the sign, the person who interprets or speculates its meaning.

2.1. Distinctive color symbols
The color of Peking Opera's Lianpu is extremely rich, including red, yellow, blue, white, black, green, purple, reddish brown, pink, gold, silver and other more than ten colors. Among them, the main colors of black, white and red are used in each character's Lianpu, but the difference in the role makes the application area somewhat different. The use of these colors is an exaggeration of the natural complexion of the character's face and an expression of the character's personality. In the Peking Opera Lianpu, the red face symbolizes the loyalty and bravery of Guan Yu; the black face symbolizes the serious Bao Zheng and the obtrusive Zhang Fei; the white face symbolizes the ferocious and tyrannical Gao Qiu, and suspicious Cao Cao.

Peking opera is a kind of stage art. In order to make the audience watch more clearly, the Peking opera Lianpu basically adopt high-purity color application and strong color contrast. The high-purity color and strong contrast make the face feel strong and colorful, which makes people have a strong and rich visual impact.

2.2. Profound Graphic Symbol
Peking opera Lianpu are mainly composed of a large number of graphic symbols, which are mainly divided into figurative graphics and abstract graphical symbols. Most of the figurative graphic symbols are prominent parts of animal and plant features, like plants, such as peaches, fire squashes, lotuses, etc.; animals such as butterflies, lion's beaks, peacocks, etc.; natural categories such as lightning, the Big Dipper, crescent moon, etc.; humanities such as Eight Diagrams, "Wang" character, ophryon wrinkles and so on.

The abstract symbols in Peking Opera are represented by non-image or geometric figures, which are also the differences between different schools. For example, triangular eye can indicate the treacherousness of the character, ophryon wrinkles can indicate the character's adept at scheming, and the straight eyebrow shows the straightforwardness of the character. Through simple geometric figures and different types of lines, we can pinpoint the emotions of the characters and enrich the aesthetics of the characters.

3. Mobile Phone Theme Concept and Design Process
The mobile phone has been endowed with the attributes of electronic wallet, portable game console, walkman, real-time news broadcaster and so on, which was firstly used as communication tool. It has become one of the indispensable tools for social people from office, trade to entertainment. When technology develops to a certain stage, the real core competitiveness lies in the matching of contents. How about trying to imagine two mobile phones with similar configurations and appearances? What attracts you is the mobile phone theme that is presented in front of the user with beautiful interface, comfortable operation, pleasant experience and storytelling.

3.1. Mobile Phone Theme and Icon Concept
The mobile theme is an application for the smart phone interface, which consists of an application icon, an operation interface, an unlocking method, and a Widget application. Mobile phone theme design is the overall design of human-computer interaction, operation logic and beautiful interface of mobile phone software. At present, it is based on Android, IOS, and Windows Phone operating systems.

In a broad sense, icon is to study how human beings use symbols to convey meaning, including words, passwords, totems, sign language, and so on, called "symbol". In this paper, it refers to the system icon in a narrow sense of the mobile phone screen to express commands, symbols, functions, images, etc., and we call it icon.
3.2. Content of Mobile Phone Theme
The mobile phone theme interface is composed of five areas: status area, title area, functional operation area and public navigation area. Generally, it has a fixed mode and can be adjusted according to the design content. The design of regional location is relatively flexible, and the resolution is usually 72 or 150.

Mobile phone theme production content is probably composed of desktop wallpaper (background picture), lock screen (boot animation), system icon (Icon) and widget (small application).

Wallpaper is also the background picture of the interface. Assuming a mainstream 1080 x 1920 pixel (width x height) screen, in order to reflect the integrity of the interface wallpaper when sliding system icons, the wallpaper size is set to at least 2160 x 1920 pixels (width x height) or more than twice the screen width.

The lock screen is equivalent to a boot animation, which can be a simple sliding boot, or a story-based mini-game. The size depends on the screen of the mobile phone.

System icons also refer to the basic functional programs that mobile phones need to carry when they leave the factory, such as dialing, message, contacts, calendars, system settings, file management, calculators, etc. In general, the system icon is about 20 in number. The size is set in multiples of 4, and the more common ones are 72*72, 96*96, 172*172, and so on.

Widgets (such as small applications) such as time information, weather forecasts and other content, usually placed in the upper middle third of the screen, the width of which is about 30 pixels on both sides of the screen.

3.3. Mobile Phone Theme Design Process
The design process of the mobile phone theme is usually divided into four stages: pre-research, sketch planning, visual design, and terminal testing. The first is to search for materials to determine the style. The preliminary research can be divided into user market survey, network feedback of the theme store, and analysis of sales volume of mobile phone manufacturers, and multi-faceted understanding of user needs from multiple perspectives. Sketch planning is based on the collected information to conduct a summary study, determine the style, find the material and make schematic drawing, and make the bottom guarantee model. The visual design is based on the determined low-fidelity model to further deepen the picture effect for high-fidelity model production. In a unified style, the color and graphic elements should be fully coordinated and reflect the highlights to avoid dull images. Identification is the first element for system icons. The terminal test uses the developer's mobile theme editor to produce the mobile phone theme, run it on the real machine, and then modify it after viewing the effect.

4. Practical Application of Beijing Opera Lianpu Element Symbol in Mobile Phone Theme
The artistic forms of Peking opera Lianpu and the expressions of mobile phone themes all have strong humanistic ideas and profound ideas. With the actor’s voice and body language, Peking opera Lianpu will show the character's character vividly. The mobile phone theme is the beautification of the design and layout of the system interface, accompanying our daily life through artistic expression. The two are only expressed on different stages. They all want to convey a pleasant impression to the viewer. The wonderful experience reflects the user's thoughts and concepts. The difference is that the mobile phone theme is more practical.

4.1. Principle Design of the Mobile Phone Theme of Beijing Opera Lianpu
Peking Opera Lianpu is a highly symbolic make-up art, the most notable of which is the color and shape of the face. At the beginning of the design, the principle that the Beijing Opera Lianpu element symbol followed to be incorporated into the mobile phone theme is determined. The first is a simple visual presentation, emphasizing the simplification of the design language, selecting only representative element symbols in the choice of shape and color, avoiding cumbersome forms and complex color expressions, thus enhancing the communication of information. The second point is the unified style, expressed in hue, status quo, space, structure and interactive behavior, which is conducive to shaping
the character of the mobile phone theme. Exquisite details appeal is the third point. Fourth, the convenient interactive experience can eliminate the barriers and obstacles between the interface and the interface, between the icons and interface, and between the icon and the icon, to enhance the user's recognition of the product.

4.2. Peking Opera Lianpu Mobile Phone Theme Style Setting

Style is the inherent character of the relative stability, internality, reflection of the times, national or artist's thoughts, aesthetics, etc. There is a unique combination of content and form. The theme of mobile phone themes is also diverse, including interface layout, layout, color and graphic design. The difference in style is mainly reflected in the form of expression, which is 3D stereo, pseudo-materialized, flattening, and geometric, etc. The market mainly has two major directions: skeuomorphism and flattening.

Skeuomorphism is the process of reproduction, which presents the elements in the theme in a realistic form, simulates the texture and shape of the object through light, texture, material modeling, etc., and simplifies the reproduction process of the object. The advantage is that the difficulty of learning new things and new products for users can be reduced according to the user's cognitive experience. The disadvantage is that the visual effects of the graphics are complicated, which is not conducive to the expression of the content.

As the name suggests, flattening uses a flat design approach to deliver content and features direct with simple graphics, text, and color combinations. No visual effects are added to all design elements. Reduction of imaginary visual effects such as gradients, shadows, and highlights reduce the interference with the user's line of sight, which can optimize the user's visual experience. At the same time, as the amount of information carried by mobile phones increases, the content of the interface becomes increasingly large. The straightforward minimalist style allows users to focus more on the content and reduce the visual burden. Since the launch of the flat design style by IOS7 in 2013, this minimalist design style has quickly become the trend of mobile phone themes and various APP design sessions. This set of themes absorbs the essence of Beijing opera Lianpu in color and shape, and adopts a flat form to design and elaborate the theme of mobile phones.

4.3. The Color Design of Beijing Opera Lianpu Mobile Phone Theme

The flat design requires extremely high color, and the color matching of the mobile phone theme needs to be both eye-catching and harmonious, both natural and harmonious. Rudolf Arnheim said: "If all the colors of a composition are to be related, they must be combined in a unified whole." Painting is still so demanding in the world of mobile phone theme design, and color is the most intuitive and emotional artistic expression. The whole set of mobile phone themes are mainly blue, with black, red and white as the auxiliary colors appearing on every Peking opera Lianpu. The color symbols of Peking opera Lianpu are used to create a comfortable and eye-catching visual effect.

The three attributes of color are brightness, purity and hue. Brightness refers to the brightness of the color, purity refers to the saturation of the color, and hue refers to the original appearance of the color. Peking opera Lianpu shows its artistic style on the stage, and the distance from the viewer is far, so the purity of the face is higher, the hue is purer, and the brightness is slightly weaker. The theme of the mobile phone is close-up viewing, and the screen of the mobile phone is brighter. Therefore, when the color attribute is selected, the overall brightness and saturation are slightly higher, and the purity is slightly weaker, but the three are lower than the color on the Peking opera Lianpu, enabling phones to keep the bright and beautiful face of Peking opera and make the viewer feel the soft visual effect.

The wallpaper of the mobile phone theme is also the background image of the interface, which occupies a large proportion of space in the interface, plays a role in setting off and deepening the theme, and is also one of the keys to maintain the consistency of the overall style. Calm and low-key type colors are chosen to avoid a counter-effect. From the perspective of color psychology, both blue and green can give people a calm and safe feeling. These two colors are also common colors in Peking
opera Lianpu. Therefore, a light blue with a little green is used as the base with a slightly deeper color as graphics to make the interface simple and rich.

The system icon of the mobile theme is matched with black, white, red, blue, green, yellow and other colors. The representative colors in the Peking Opera Lianpu are selected, and the use categories of colors in mobile phone theme design should be as small as possible. A complete set of mobile phone theme icon is around thirty in number, and an icon is generally controlled within three colors. In order to maintain the consistency and coordination of the interface, dark blue and dark green are adopted as the icon shape with similar dark blue, dark green, contrast black and white as supplement. The color grayscale of the whole set of icons is basically the same. On the one hand, the overall coordination is considered. On the other hand, the icons and wallpapers open the gap and enhance the eye-catching recognition of the icon function.

4.4. Graphic Design of Peking Opera Lianpu Mobile Phone Theme

Graphics is the carrier of color, and color is presented by graphics. If color is perceptual, then shape is rational. The most difficult thing to grasp in the mobile phone theme is the shape problem. This paper transforms the form elements of Peking opera Lianpu into the elements of mobile phone theme, deconstructs and reconstructs the patterns of Peking opera Lianpu elements, and determines the direction of the theme by visual graphic design language from concrete to abstract and then to mobile phone theme.

The wallpaper is dominated by auspicious clouds, with curved lines to outline the pattern, and a faint display on the base map. The novelty can be seen from this simple but profound design. The lock screen uses a cartoon Peking opera character to enrich the picture, and the lock is directly unlocked from left to right with a simple slide bar, which is straightforward.

Icon is a computer graphic with a clear meaning, which is very recognizable, quick to spread, easy to remember, and highly concentrated with a wide range of applications. The icon in the mobile phone theme interface is the function identifier, which is also the most difficult to represent. It is a very important element in the theme of mobile phones. It is necessary to maintain a high degree of recognition and connotation, which is particularly difficult and important in flat design.

Under the guiding ideology of the unified style, this set of icons adopts a uniform shape, and is modified into a circle by the shape of Lianpu to avoid the bluntness of the icon. Under the premise that the icon is identified as the first element, 1-2 elements of Peking Opera Lianpu are selected for combination. The combination of two elements also includes the primary and secondary, size discrimination or color distinction, so as to avoid confusion in recognition. For example, the dial and calendar icons select the eyes in the Lianpu as elements to design. Alarm clocks, music, and weather icons are deconstructed and re-reconstructed with facial expressions and material in Lianpu, using exaggerated techniques. The overall interface effect is shown in “Fig. 1”:

![Figure 1. Overall Effect](image-url)
5. Conclusion

Based on the creative process of the theme design of Beijing opera Lianpu symbol fusion, this paper attempts to integrate the essence of traditional elements into the design of contemporary works. Of course, there are also many inadequacies in the design process. It is expected that under the background of cultural self-consciousness and cultural self-confidence, traditional culture can get more and more new development in various fields, especially in the field of design.

References

[1] Luan Guanhua. Character symbol: Chinese opera Lianpu [M]. Beijing: Life, Reading, and New Knowledge Sanlian Bookstore, 2005.

[2] Wang Zhong & Zhang Xiaohua. Design of "Exploration of Peking Opera Lianpu Applied in Modern Advertising Design"[J]; 2014.9

[3] Lin Xiaoliang. Smartphone UI Theme Interface Interaction Design. Master's thesis of Nanchang University [D]; 2016.05.31

[4] [United States] D. S. Clark. The History of Semiotics [J]. Translated by Sun Weiping. Journal of Xiangtan Normal University (Social Science Edition). 2005.