

Research on the Application of Typical Visual Representation of Regional Culture in Font Design*

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Abstract—In the context of the vigorous development of the cultural industry and the constant renewal of the demand, the dissemination and development of regional culture put forward higher requirements for the quantity and quality of applied fonts with cultural connotation and aesthetic value. The aesthetic characteristics of fonts are embodied in two main aspects: the overall font structure and the characteristics of strokes. The paper will summarize the design methods for reference through combing the current situation and potential application of typical visual representation of regional culture in font design, and case analysis and theoretical background retrospection, put forward the new thinking of font design to enrich the extension of font design.

Keywords—font design; regional culture; visual representation; cultural industry

I. INTRODUCTION

Font is one of the most important elements in design activities. With the innovation and development of design concept and continuous progress of technology presentation in recent years, its design and application have gradually entered a new stage. The release of the dynamic font system on Xiaomi MIUI 11 system marks that the design and application of font on the screen has changed from the initial design configuration to adapt to the characteristics of lattice arrangement, to the need to simplify the details to adapt to the operation speed and network transmission speed of the screen display, to the fact that the technology can fully support the presentation of personalized fonts, and its focus has shifted from the adaptation of design and technology to the adaptation of personalized fonts to user experience as the core. The development of technology has given font design wider creation possibilities. At the same time, the development of cultural industry and the urgency of regional cultural communication put forward higher level requirements for font design to reflect aesthetic characteristics and cultural connotation.

II. FONT DESIGN DRIVEN BY TECHNOLOGY DEVELOPMENT AND MARKET DEMAND

At present, the cultural industry has been determined as a strategic pillar industry of national economic development

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by the State Council. As a new green industry, sunrise industry and high value-added industry, it has developed rapidly in recent years. In some areas it even exceeds the output value of traditional industries, and become an important symbol of local industry modernization. [1] In such a market background, as a basic element of plane composition, words, images and typesetting have a wide range of market demand. The application of typical visual representation of regional culture in innovative fonts cannot only meet the needs of industrial development, provide supporting solutions for the industrial development of local culture, but also become an effective boost for local cultural communication, to a certain extent, help avoid homogenization. Font design with regional and cultural characteristics has a wide range of applications. From the perspective of media, in addition to the use of the traditional guide system and written typesetting, today's optimized screen display technology and the popularity of 5G Internet make it possible to apply and disseminate font with strong personality in the new media technology carrier. Take the Fangzheng Youhei font family as an example. First of all, Fangzheng Youhei's attempt means that the Chinese screen font changes from passive adaptation to active design. Second, Fangzheng Youhei's active attempt also means that the font design of the Chinese character library has been integrated into the traditional writing culture, which has become a normal state. Third, Fangzheng Youhei's active attempt also means that the Chinese character font design begins to face up to the challenge of Western characters and its strong discourse power. The era of building the methodology of Chinese character font design is coming quietly. [2]

For the public, the use of typical visual representation of regional culture in font design expands the scope of aesthetic objects in daily life and improves the level of visual communication of words in reading activities. Screen text no longer only exists in communication activities as a signifier, its own structure and stroke characteristics can also carry more information about cultural connotation. For example, cultural activities represented by cultural tourism are becoming a popular leisure mode, which inevitably takes on the responsibility of information transmission such as the characters of characteristic blocks environment, the characters of local characteristic brands, the applicable fonts of new media terminals, and the guide manual of local culture, etc. The use of innovative characters in the field of

public art has also opened up new horizons and ideas for designers. In this context, the use of typical visual representation of regional culture in font design plays a positive role in helping the public understand and accept the connotation of traditional culture.

III. CLASSIFICATION OF TYPICAL VISUAL REPRESENTATION OF REGIONAL CULTURE

Regional culture has many forms in its connotation elements, so it can be classified from different angles. In terms of the starting point level of character design, the author starts from the typical visual representation of regional culture, and according to its relevance to the form of Chinese characters, it is subjectively divided into two categories: one is the visual representation with strong relevance to the character itself; the other covers other carriers in the cultural concept, such as architecture and clothing culture.

The visual representation forms, which are closely related to the characters themselves, include calligraphy, printing mold, ancient Chinese characters and other characters carriers in different periods, and contain the recessive characteristics in different historical periods. For example, the font of each dynasty shows the civilization and aesthetic orientation of that era. All kinds of folk fonts convey the pursuit of people's daily life. [3] Calligraphy is one of the traditional forms of Chinese characters, which has the longest history and rich styles and forms. There are five types of traditional Chinese characters, namely, running script font, cursive script font, official script font, seal script font and regular script font. In each category, it subdivides several small categories. For example, seal script is divided into big seal script and small seal script. Regular script is divided into Weibei script and Tangkai script. Cursive script is divided into Zhangcao script, Jincao script and Kuangcao script.[4] In different historical periods, Calligraphers' handwriting not only has the expression of the aesthetic characteristics of the times, but also has a strong personal style. For example, Wang Xizhi's handwriting in "Lanting Xu" is fresh and elegant with the free and easy style when he was slightly drunk, which provides a unique reference for the design and creation of calligraphy font. Printing mold also plays an important role in the inheritance and dissemination of characters. Since the invention of engraving printing technology in Tang Dynasty, printing technology has been iterative, such as the movable type printing technology produced in Song Dynasty and the prototype of modern oil printing. From 2012 to 2014, Founder Company has released a series of digital fonts based on block type reproduction, including Fangzheng Zengjinlin Thick, Fangzheng Jinling Fine, Fangzheng Longzhua and Fangzheng Yingxue. [5] The text of ancient books, which was born with printing technology, is also a rich treasure of Chinese character font design. In the historical process, there have been different dynasties and local governments in different regions of China, so the text form of this kind of ancient books is extremely rich. For example, Min block-printed type in Fujian was mostly applied in Yan style in the period from Song Dynasty to Ming Dynasty; the block-printed type of

"Guochao Minshi List" by Qing Zhengjie in the sixth Jiaqing Year of Qing Dynasty was used in Song style. In the practical application of font design, Qing block-printed Yuesong, Song block-printed Xiukai and Bozhou Xiaokai designed by Ying Yonghui are all directly derived from traditional fonts.[6] Other text carriers include inscriptions, plaques, seals, couplets, tokens and so on. Although there are some differences in the carrier shape, the font characteristics of the carriers are roughly the same as those of the same era.

Other types of visual symbol carriers in cultural concepts include architecture, clothing, traditional crafts and daily necessities. Such carriers have their own characteristics of shape and visibility, and can be interpreted in various ways according to different classification. This paper only lists some basic examples of forms which are familiar by the public, and more detailed discussion will be made in the future. From the perspective of regional characteristic architecture, its distinctive visual representation form can be divided into the overall structure, details and texture characteristics of the building. For example, the overall structure of the ancient buildings in South Fujian is affected by the geographical environment and climate, and the overall center of gravity is low; in terms of the details, it has the characteristics of "brick in stone", and the decorative details of the walls, ridges and eaves are also unique. Another example is stone house ("Fig. 1"), a typical residential building in Pingtan area of Fujian Province. Its most distinctive feature is the facade texture made of stone. As shown in "Fig. 2", "Pingtan Impression" is based on the visual representation of this special texture. From the perspective of regional characteristics of clothing, it can be divided into clothing structure and components, fabric characteristics and decorative patterns. Taking the national dress cheongsam of China as an example, the typical structural form of cheongsam is composed of vertical collar, female curve fitting cutting method and turnbuckle from the structure and components. From the fabric characteristics, the general impression of the public is generally the silk fabric used in the early upper class and the common fabric popular in the market around the period of the Republic of China. The decorative pattern is the traditional auspicious patterns and floral patterns of the Chinese nation. Compared with the textile technology of the typical fabric "Adeles" in the minority areas of China, it can be seen that there are distinct differences in the characteristics of fabric in different regional cultures. In the process of spinning, the pattern shape of the fabric Adeles is dyed to the warp first and then woven, so the visual characteristics of the uneven direction of the warp are formed. In the extraction process of design elements, such differences can be focused on to form a design vocabulary with regional style. From the perspective of traditional handicrafts, the subjects that can be used as prototypes are more abundant, such as bamboo and rattan weaving technology in different regions of China, earthenware firing technology, ceramic firing, the unique "Nigugu" production in Henan, food mold production, printing mold production, jewelry and utensils making technology. The elements that can be extracted are not limited to the shape composition of the crafts, but also can be used to dig into the production process and tools of the

corresponding crafts, as well as to harvest unexpected prototype materials.



Fig. 1. Pingtan stone house (photographed by the author).



Fig. 2. "Pingtan Impression" (by Zhou Jialing).

IV. APPLICATION OF TYPICAL VISUAL REPRESENTATION OF REGIONAL CULTURE IN FONT DESIGN

From the point of view of font design itself, its creative methods are very rich. As far as Chinese characters are concerned, because Chinese characters have ideographic functions and the phenomenon of one word with many meanings, they have rich creative sources in terms of the combination of form and semantics. At the same time, the Chinese culture circle covers a wide range of regions, there are significant cultural differences between regions, and each has its own characteristics. Therefore, in the design of Chinese character fonts, the typical visual representation of regional culture in different regions can be used as the starting point, and the fonts with different visual feelings can be created to meet the cultural atmosphere construction demands of applying Chinese characters in different regions and channels. With the development of information society, how to better convey information in font design is the main topic of contemporary font design. [7]



Fig. 3. Fangzheng Ninan Song Typeface.

In order to make the audience feel the cultural temperament which is consistent with the content and information conveyed by the form of words, it puts forward higher requirements for the exploration and extraction of elements in the design. In this field, there are many successful cases. Taking the creation of Fangzheng Ninan Song ("Fig. 3") as an example, it is an innovative font designed from the visual representation form which has strong correlation with the characters themselves. Hong Wei, the designer, introduced that the design inspiration of Fangzheng Ninan Song came from the folk bird seal script, but the bird seal script itself is exaggerated and deliberately expressed. And he hopes to express his features in the font silently, so as to design a Song typeface which is a little different from other Song typefaces. [8] This point is different, which is the interest of Fangzheng Ninan Song. Bird seal appeared in the middle of Spring and Autumn period, and it was popular in Wu, Yue, Chu, Cai and other southern (present) countries from the Warring States period. It was originally related to totem worship, mostly seen in bronze inscriptions. Since modern times, it has gradually evolved into a kind of decorative chirography form in the south of China. Fang Zheng Ninan Song mainly refers to the bird book in "Thirty-two Seal Vajra Sutra" in Chongzhen edition of the Ming Dynasty. At the beginning of the brush, there is an obvious bird head figure, and the back end of the brush is like the bird's wings as well as the fine and stretched bird's claw trace. After being refined and reshaped by the designer, it is perfectly integrated with the basic glyph structure of the Fangsong style, forming the elegant glyph which shows the characteristics of bird seal characters in the details such as the starting point of the horizontal and vertical strokes, the starting point of the short stroke and the ending point of the broken hook strokes. The highly condensed traditional writing style is like a breeze blowing on the face, gently passing through the audience's reading eyes. As in Fangzheng Ninan Song style, there are also some successful cases of the formation of the font of the Chinese character library from the visual representation form which has a strong correlation with the character itself in the traditional culture, such as Suxinshi Guyin Songjian. The difference between the creation method of the Songjian and Fangzheng Ninan Song is that Suxinshi Guyin Songjian is not only based on the shape of the traditional character, but also combined with the texture of the printing in the corresponding historical period, formed a richer visual performance. In terms of the use of typical visual representation of regional culture, font of font bank has some limitations on the overall design of font due to the adaptability requirements such as reading rate. In the fields of logo font and public art works, its application is more bold and free. For example, the logo font design of "Chang'an Palace" is based on the architectural appearance characteristics of other visual symbol carrier types in the cultural concept. The characteristics of the brushwork show the architectural features of Chang'an Goose Pagoda and houses of ancient city intuitively, and the symbolic features are distinct. The audience with the related cultural cognitive background can read out the cultural circle of its form.

The cultural atmosphere created by the application of typical visual representation of regional culture in font design is not the wishful thinking of designers. As Professor Zhang Xin said, the texture of characters can determine the existence of poetry. [9] From the perspective of design history, character design reflects and transmits the values of each society, and is in the process of continuous discovery and integration. [10] The presentation of regional culture in the text design is based on the design and deduction of the form of the text itself, so it is very important for the abstract and concise of the prototype. As E. H. Gombrich wrote in "Art and Illusion", the touchstone to test an image is not its verisimilitude, but its effect in a context of action. [11] The language of image elements in design works also needs to conform to the vocabulary rules of visual elements in different regional cultures, so as to bring effective symbol information to the audience, and thus achieve the matching of image information decoding and image projection in the appreciation process. In the process of cognition, the audience consciously connects it with the typical visual representation in the cultural context.

V. DESIGN EXAMPLES OF SONG TYPEFACE BASED ON THE CHARACTERISTICS OF TRADITIONAL BUILDINGS IN SOUTH FUJIAN



Fig. 4. Traditional residential buildings in South Fujian.



Fig. 5. Traditional residential buildings in South Fujian.

The following will take the characteristics of traditional buildings in Southern Fujian ("Fig. 4" and "Fig. 5") as an example to explore the application of regional characteristic building structure and decorative components in font design. Traditional architecture can be said to give the most intuitive impression to the audience in the typical visual representation form of regional culture. Because of its large volume, including internal structure and decorative components based on different construction techniques, it

can provide designers with multiple levels of material types. This design practice will draw lessons from the overall architectural shape characteristics of the ancient buildings in South Fujian, and build the glyph structure based on the scale of the horizontal and vertical strokes of the old Song typeface. At the same time, in the open part of the character-building components, mainly for the vertical strokes to give a certain amount of detail characteristics from the building decoration components, so as to further render the cultural flavor of the font.

The specific design process can be divided into the following four main stages: first, imitating traditional culture; second, refining and exaggerating; third, convergence and further abstraction; fourth, re-examining the prototype and deepening the font shape.

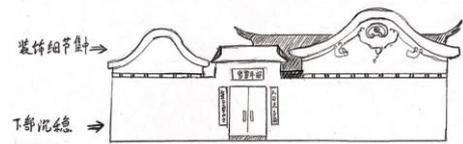


Fig. 6. Stage 1: Outline of ancient house in South Fujian.

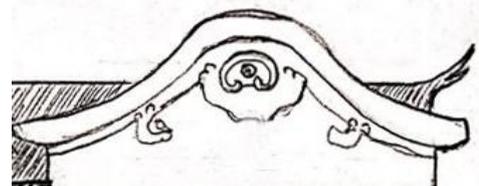


Fig. 7. Stage 1: Outline of the decoration of ancient house in South Fujian.

In the first stage, when following the typical visual representation elements of regional traditional culture and looking for the source of design elements, it is suggested to not only start from the visual form of the object itself, but also pay attention to other details related to it on the basis of fully understanding its cultural background. It is important to grasp the primary and secondary relationship, collect and summarize the elements. The element source of this design practice is the unique ancient red-brick house in South Fujian. It looks like a palace and is magnificent. It is a typical example of ancient Chinese houses. Its main features are: a vacant space setting before the house, facing south from north, three-bedroom or five-bedroom with double protective measures, red brick and white stone walls, and double cocked swallow tail ridges. [12] The overall visual feeling given by the external structure of the ancient buildings in South Fujian is that the center is low, the structure is steady and solid, and the artificial decoration part is concentrated in the plinth, roof and eaves of the upper part of the building. Therefore, the font structure presents a sinking center of gravity, and the horizontal stroke evolved from the brick line between the base and part of the wall of the eave. By increasing the thickness ratio of the horizontal and vertical

strokes, it shows the overall characteristics of the building itself. In this stage, by summarizing the overall shape of the building and focusing on the facade decoration part of the building, the paper roughly established the structural characteristics of the glyph and the element source of the characteristics of the strokes ("Fig. 6" and "Fig. 7").

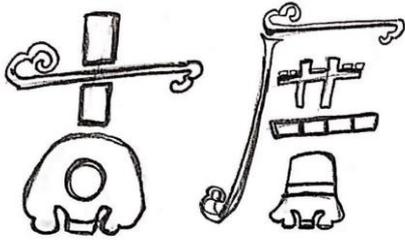


Fig. 8. Stage 2: The exaggeration of elements.

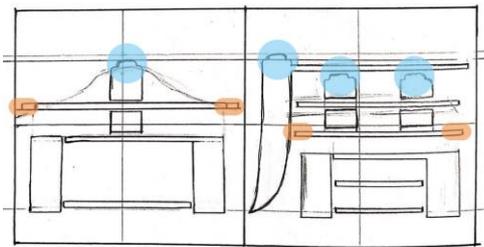


Fig. 9. Stage 3: Converging strokes and adjusting the structure.

In the second stage, it focuses on the characteristics of the strokes of the font, looks for the match point between the regional cultural elements and the strokes, unifies the decorative rules of the strokes, and exaggerates the design performance of the morphological characteristics of the visual representation of the selected regional culture. As shown in "Fig. 8", the decorative parts of the building details are re-engraved with extremely high reduction. At this stage, it is suggested to exaggerate the elements as much as possible to highlight the visual form characteristics of regional cultural elements.

In the third stage, it is necessary to focus on the adjustment of font structure, and further abstract and converge the characteristics of strokes. Based on the analysis of the characteristics of the regional cultural elements, the font structure established in the first stage is refined to make it more unified with the selected object in form and proportion. At the same time, the exaggerated stroke features in the second convergence stage, with the help of further abstraction processing, on the premise of retaining the identification degree, as shown in "Fig. 9", abstract the complex pattern shape of the vertical stroke and the long stroke to a simplified shape with double-layer arc corners. It makes the visual representation of glyphs more restrained and stable, and keeps the effect that needs to be recognized through the projection process of active cognitive behavior in the context of action.



Correct the common problems of stroke features and grab the details of adaptation to make redesign according to the prototype

Fig. 10. Stage 4: Backtracking and deepening.

The fourth stage is closely related to the application and deepening of fonts. It is necessary to return to the source of the theme itself and re-examine the cultural connotation of the object. Thus, the font is adapted to the application scenarios and media carriers. For example, in the design practice of some characters, it is found that there is a sense of incongruity caused by the common modeling features of strokes. Therefore, it is necessary to go back to the building shape itself for further analysis and grasp the appropriate details for further decoration. As shown in "Fig. 10", the point stroke feature originally shared with the vertical stroke is changed to the symbol form from the eave angle. At the same time, in the application, the deepening adjustment of font structure and stroke characteristics needs to pay attention to not only the aesthetic characteristics of the font, but also the overall reading efficiency of the audience, which can be tested with the aid of instruments. And through different content of text paragraphs, it is able to detect whether the relationship between single words is harmonious when fonts are mixed, so as to help deepen and adjust the structure of single words.

VI. CONCLUSION

Against the background of highly developed media carrier technology and constantly upgraded market demand brought by the development of cultural industry, the exploration of font design with both functional and aesthetic value and cultural connotation should be widely valued by designers. The typical visual representation system of regional culture can provide rich material sources for font design practice. The promotion of such design methods is not only conducive to the protection and development of regional culture, to meet the needs of cultural industry development, but also to enhance the aesthetic taste of the public, which has a positive role in promoting the inheritance of traditional culture itself and deepening the public's sense of identity for national culture.

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