Conceptual Framework and Case Study of China's Womanise Scripts (女書) Used in Culture Product Design

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ABSTRACT

Womanise scripts (also called Nushu 女書) has been praised as one of the Chinese special and secret languages, and a kind of unique characters used by women only. Designing traditional culture into products will be a design trend in the global market. Based on the research of cultural and creative product design, this article analyzes Womanise scripts and artifacts from three aspects to explore new cultural product designs. Combined with the Scenario approach, this article will construct a framework for turning Cultural paradigm to Cultural product design. Taking the case of Chinese Womanise scripts, the conversion of cultural products is carried out to verify the value of the research framework. Therefore, a general framework is proposed for Womanise scripts to translate culture creative industrial design that applies to a culture product design and economic model. And through three products design to verify the effectiveness of the design transformation, these products can express emotional and secret communication. It can integrate tradition into modern life and promote emotional interaction. This has a great significance to the cultural creative industry design and economic model, such as historical and cultural heritage.

Keywords: Chinese Womanise Scripts, Cultural Level, Culture Product Design, Scenario.
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1.   Introduction

In the global market-local design era, connections between culture and design have become more closely. When we think about the "globalization", we must consider "localization" for the market first (Lin, 2011). Designers need a better understanding of cross-cultural communications not only for the global market but also for the local cultural. Design and transformation local cultural features into products appears to be more and more important in the global market. Cultural features are considered to be unique characters to be embedded into a product both for the enhancement of its identity in the

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global market and for the fulfilling of the individual consumer's experiences (Hsu, Chang & Lin, 2013). Using local features in design fields as a strategy to create product identity in the global market, the designer has noted the importance of associating products with cultural features in order to enhance product value (Lin, 2009). The field of Industrial Design has played an important role in embedding cultural elements into products and in increasing cultural value in the global competitive product market.

Therefore, designing a product with local features in order to emphasize its cultural value has become a critical issue in the design process (Hsu, Lin & Lin, 2011). Further explore how to integrate the local cultural features into the product design, and try to build a conceptual framework of design transformation. This is a question worth studying in depth. The design is an important medium of communication, which is popularized in the culture of the earth so as to integrate the historical value with the modern life. In order to make some contributions to the inheritance of Chinese local cultural heritage and the economic value of cultural products.

The traditional China's Womanise scripts can be better applied to the cultural product design for modern life. Cultural products can extend the heritage and traditional values of different cultures to the consumer and increase the sense of spiritual essence in human life (Varutti, 2015). Perhaps the best way to extend a unique culture, for example when we talk about the impressions of different culture garments, crafts, decorations, utensils, furniture, ornaments, packages, etc., is to promote it to users' daily lives through product usage (Lin, 2007, 2009). The intersection of design and culture becomes a key issue making both local design and the global market worthy of further in-depth study (Lin, Lin & Shiao, 2009).

The Chinese traditional culture is abundant and unique. The importance of studying culture is shown repeatedly in several studies in all areas of product design. In product design, the goal of cultural respect can be achieved by incorporating the historical and aesthetic values (Moalosi et al. 2005). The discovery of China's Womanise scripts has a unique significance to the world, is worth exploring. It is a unique cultural phenomenon, strange and mysterious characters. There is a great lack of historical data, and there are many studies to be explored. It contains the local human history and environment, reflecting the unique local women's life (Tian, 2004). As such a precious traditional culture, but rarely in the communication and use of modern women. Discussing on Womanise scripts at present, most scholars focus on the literary value of the text itself. Seldom focus on converting it into the design of products, and the market are rarely Nushu products. There is still a blank in the study, which has the value and significance of the research. The challenge is to understand what and how cultural contents and values can be integrated into product design. The primary object is to have a better understanding of historical background and folklore, we can be translated into viable, contagious commodity design, information architecture, and design ideas.

2. Culture scenario and design transformation model

Chinese traditional culture has a distant source and a long stream. Among so many great historical writings, there were many ideas and vivid description of human life language and folk tales. Local traditional culture and folktales are important treasure-houses drawn by the modern cultural product design. Traditional social-cultural factors were selected by people extracting them from folktales. Folktales, rather than other forms of oral traditions, were selected because they contain rich data on the subject area. The importance and power of folktales lie in their ability to make sense of events, call up memories, teach lessons, inspire empathy and enthusiasm, and suspend disbelief. Therefore, folktales are powerful cultural tools. A design might be viewed as a simple conveyance of a story so that a good design is really just good at storytelling. If this is the case, it is suggested that designers are storytellers.

Moreover, there are common characteristics between the act of storytelling and the design process. Scenario approach is applied to human-computer interaction design firstly. A typical example is the UK ID TWO design and American design firm Richardson Smith, which use common scenario approach for the design method developed by Xerox photocopier panel design used. The first time application is the use of information products from the beginning of the observed situation, then extended into the design of the man-machine interface, and slowly been widely used in various product design (Kelly, 2001). Through the Scenario study, the designer can design the product well in users'

angle so that the product can meet user's use demand and the psychological demand. The content related to the scenario approach was introduced from the design requirements of "take the user as the center".

Since 1982, the female book has been recognized and researched by the academic circles, arising great international repercussions. Professor Gong (2005) proposed in his research that "Womanise" should be used as an English translation noun. However, most of the studies are focused on the language itself instead of the cultural products.

Based on previous studies (Lin, 2007, 2009, 2011; Lin & Chen, 2012; Lin & Lin, 2010; Lin et.al., 2009, 2007), a research framework combining cultural ergonomics and Scenario approach with a cultural product design model was proposed to explore the issue of turning cultural paradigm into reality as shown in Figure 1. Taking cultural paradigm as an example, the research framework consists of three main phases: cultural paradigm, design transformation model, and cultural products. The cultural paradigm concerns selecting appropriate cultural and artworks for the paradigm shift. The paradigm shifts model focuses on how to extract artistic features and spiritual culture from cultural paradigm and then transfer these art elements to design practice. The design practice is composed of three-phase: identification, translation, and implementation. And, it also includes three levels of culture: (1) the outer-level focuses on external physical forms and physical attributes；(2) the middle-level focuses on function, usability, and behavior regarding in everyday life; and (3) the inner-level focuses on cultural meaning, including ceremony, refection, and emotion (Hsu et al., 2011; Lin et al., 2007; Murovec and Prodan, 2009; Norman, 2004).
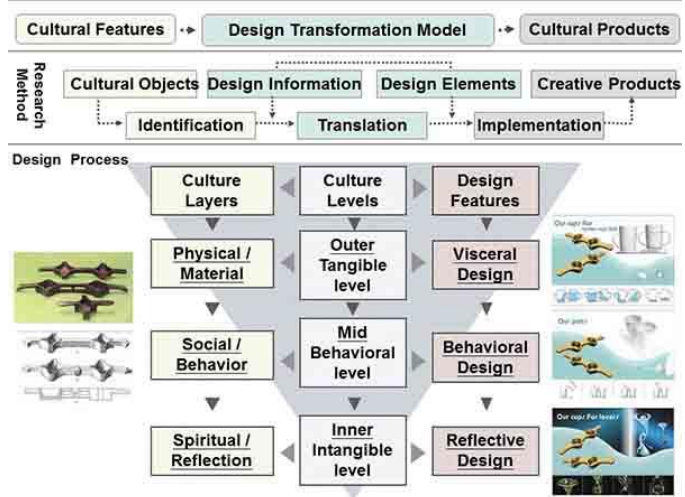
Since cultural objects can be incorporated into cultural design, three design features can be identified as follows: (1) the outer level dealing with colors, texture, form,

Figure 1: The framework for turning cultural features to a cultural product (Gao, 2018)

Figure 2: The cultural product design process (Lin,2007)

decoration, surface pattern, line quality, and details (2) the mid-level containing function, operational concerns, usability, and safety, and (3) the inner level containing special content such as stories, emotion, and cultural features (Lin,2007). Based on the cultural product design model, the cultural product is designed using scenario and story-telling approaches. In a practical design process, four steps are used to design a cultural product, namely, investigation (set a scenario), interaction (tell a story), development (write a script), and implementation (design a product) as shown in Figure 2 (Lin, 2007; Hsu et al., 2011).
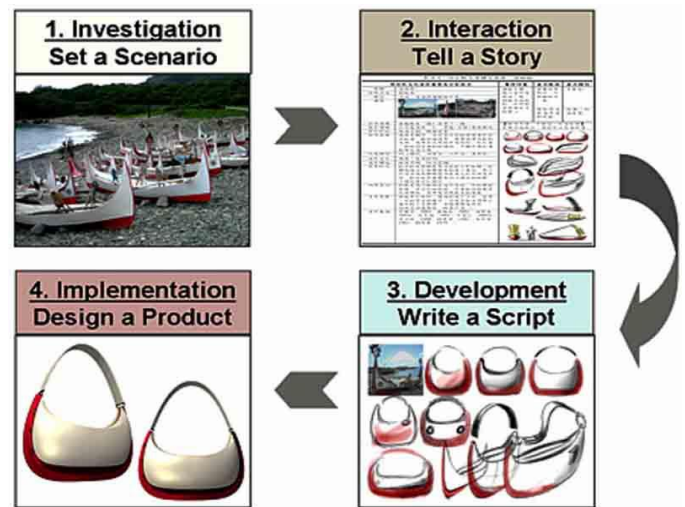
3.   Methodology

The objective of this study is to propose a framework for turning cultural features to the cultural product and to analyze the Chinese Womanise scripts used in product design as a case study with regard to the conceptual framework. A broad overview of the research process is depicted in Figure 3 (below). Based on the culture scenario and design transformation model, a framework and

research procedure for the cultural feature and cultural paradigm into product design are proposed. In addition, this study employs a systematized and scientific method to study the cultural transformation of the Chinese Womanise scripts (Nushu). Finally, the Nushu is used to demonstrate how to design cultural products.
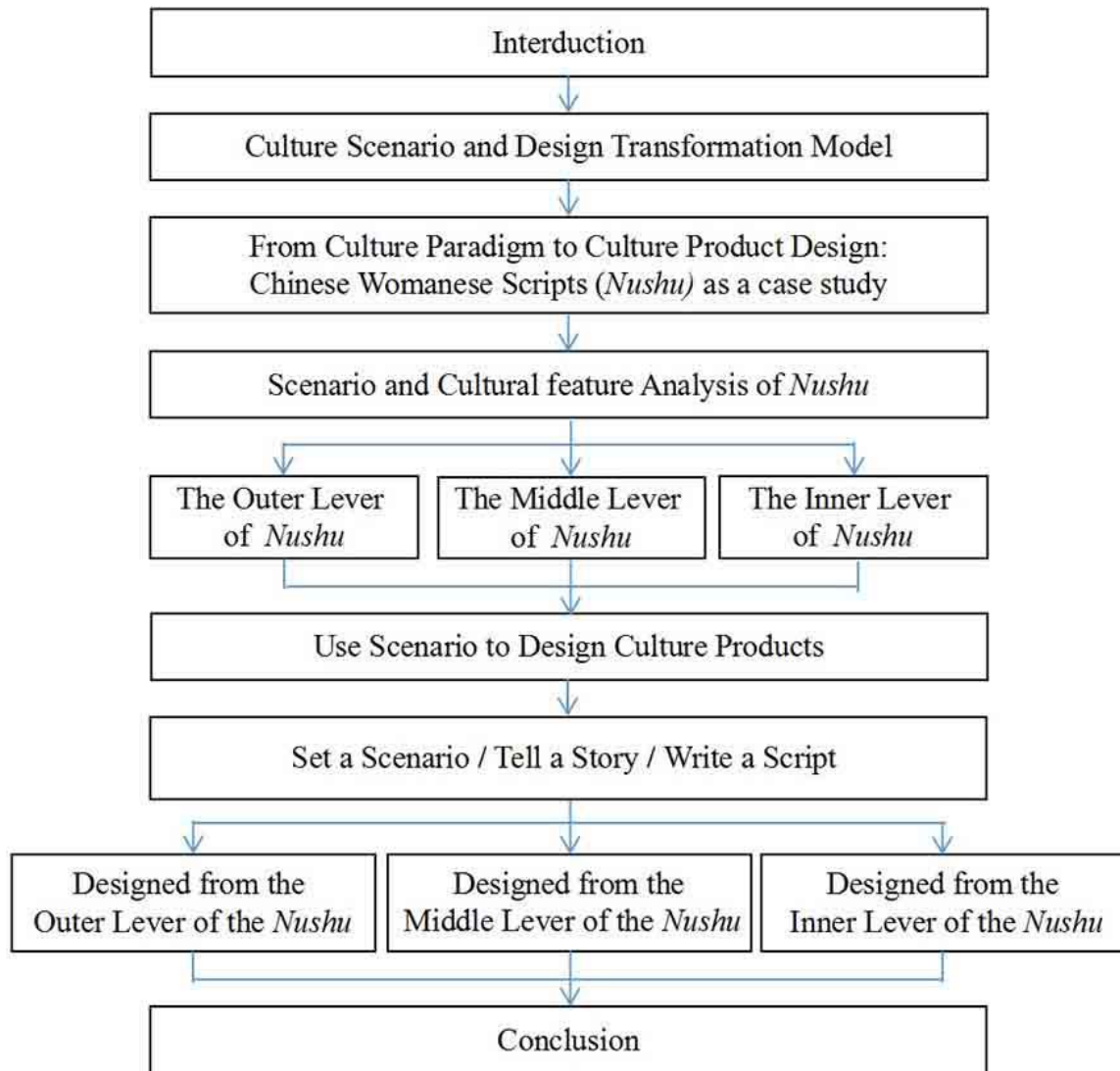

Figure 3: A broad overview of the research process

4. From culture scenario to culture product design: the case study of Chinese Womanise scripts (Nushu)

Cultural products market shows that the economic value of Chinese local culture and traditional products have not yet been fully realized due to lack of exposure, especially cultural product design for Chinese Womanise scripts. Chinese Womanise scripts is the only existing women language in the world, also called "Nushu" "Mosquito-shaped characters" or "embroidered characters". It has more than 2000 characters and mainly spreads among the women of Shangjiangxu and Xiaojian town of the Jiangyong County.

Womanise scripts has been praised as the world most special and secret language. Nushu is mainly recorded using a spoken Language with quite a few dialects and rich subject matters of literature. The Inheritor is the most important object to be protected in Nushu literature heritage as an important carrier and transmitter. The Nushu cultural objects are exhibited at the museum in Yongzhou with an embroidered handkerchief with women characters. The handkerchief is a small piece of textile, used to carry towels, facial sweat and so on. Nushu is written firstly and then embroidered on the handkerchief with lace. Often elaborately embroidering handkerchief as art collections and no longer

using towels, the rally took the time to enjoy, sing and make a gift. Gifts are exchanged among women. Design model for these products can greatly enhance consumer recognition and appreciation. Besides, it will benefit the local community and contribute to the spread of Nushu cultural and economic development.

4.1   Used to scenario for womanise cultural product design

How to integrate the culture of Chinese Womanize scripts (Nushu) into modern women's life has always been a problem. It is life products combined with text and design that can truly activate the culture of Chinese Womanise scripts. Chinese Womanise scripts is full of text, graphics, and connotation, as well as narration. This study uses Scenario Approach for Womanise Cultural product design. The script design method or the scenario description method is adopted. At the beginning of the design, scenarios of product use in the future are imaged to meet consumers' emotional needs.

Therefore, when the Scenario Approach is used for the design of Womanise scripts culture products, an application framework is constructed, so that the artifacts, stories, use, and design can be connected more clearly and integrated better. As shown in Figure 4, the cultural paradigm of product transformation is taken as the basic framework, and the Scenario Approach is divided into four steps to deduce the product design. (1) Set a Scenario. It is an expression of emotional female design products (2) Tell a Story. Require special gift among women (3) Write a Script. It becomes the modern female soul level of communication (4) Design a Product. A product to express friendship and feelings for women design.
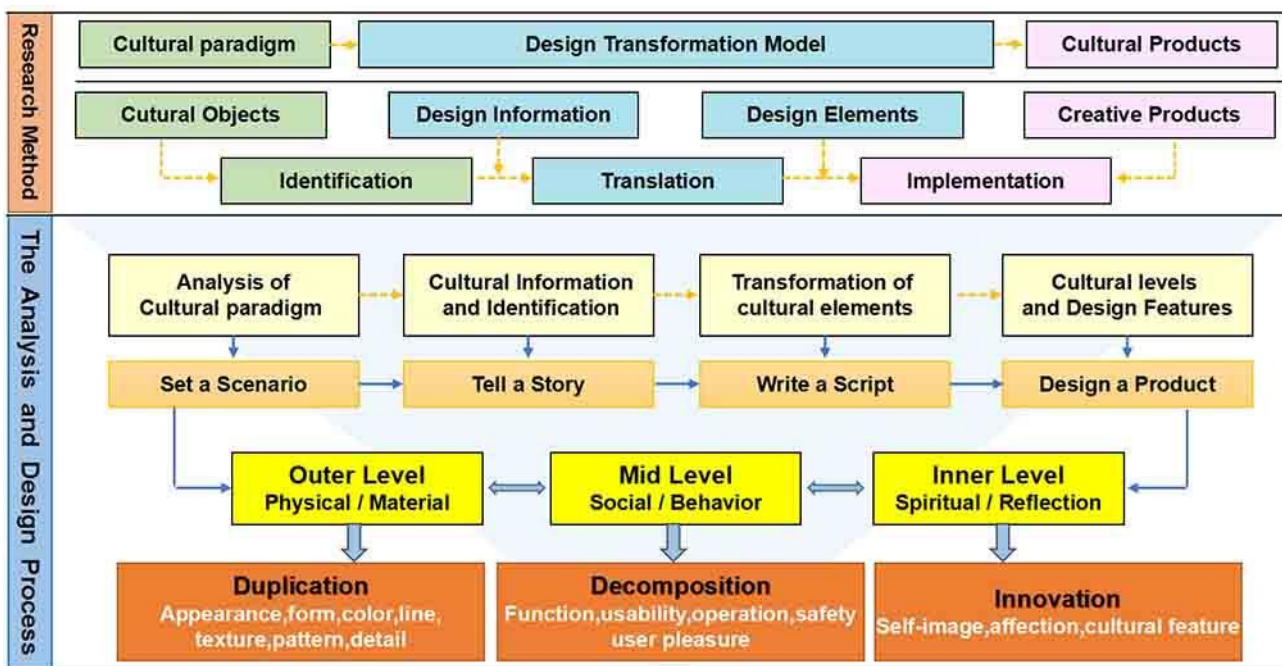

Figure 4: The framework for the transformation of cultural products

The designer of this product is a modern young woman, who comes from the hometown of Chinese Womanise scripts (Nushu). She hopes to convey sisterhood by the language symbols of their own hometown. Text and graphics are designed in the product and integrated into each other's lives. The expression of product design is mainly achieved from three levels, namely outer level, middle level and inner level. (1) Outer level is physical and material. It is the most direct and visible such as color and Figure. (2) Mid Level focuses on function and use, including safety and enjoyment for use. (3) Inner Level is to express and convey inner feelings. It is the inner spirit of the culture.

Chinese Womanise scripts is a crystallization of the interchange of many cultures such as the Jiangyong local culture. It displays the strong styles of culture in the world. In 2006, Womanise scripts is registered as the world cultural legacy. Since 1982, the Nushu has been recognized and researched by the academic circles, arsing great international repercussions. Professor Gong (2005) proposed in his research that "Womanese" should be used as an English translation noun. Up to now, the view that

Womanise is the only woman in the world has been widely accepted. However, most of the studies focus on the language itself rather than the cultural products.

Compared with other kinds of ancient Chinese characters, NuShu has several peculiarities. Firstly, only women use it; secondly, it should be passed on from elder generations to younger generations; thirdly, it is used to record the local dialect and is read or sung by dialectal language; fourthly, it is similar to seal character or inscriptions on bones or tortoise shells in style, but it owns distinct features. Finally, when the author and owner die, all the books she owes must be burned. The works in NuShu largely appear in the form handkerchiefs to read. It serves the functions of entertainment, antiphonal singing, correspondence, making an offering to Gods or ancestors, communication among sworn sisters, venting one's grievance, writing a biography, etc.

Women recorded life stories and communicated feelings with unique characters, thus forming a lot of Nushu works. These works are mainly used to felicitate Sanzhao (the third day of the wedding) and marriage, make friends with people of the same age, vent grievances, offer sacrifices, record things, write letters and autobiography, translate or rewrite traditional Chinese works (Tian, 2004). Subsequently, according to Womanise (Nushu) works creation levels, two researchers (Peng & Li, 2012) divide the works into 3 levels. (1) Record level. Characters are used to record ready-made works in spoken language, mainly including folk art, jubilant ballads, riddles, crying marriage, and legends. (2) Rewriting and translation level. Popular works in Chinese characters are rewritten by Womanise scripts. These works are the results of re-creation. (3) Original level. From the oral expression to the written record, the works are original, mainly including letters, greetings, funeral oration and biography related to sisterhood and widow's complaints.

Started with the three levels of life scenarios, product design transformation can be further made in combination with three levels of design: the outer level, the middle level, and the inner level. The outer level is concerned with the form of characters and graphic styles, which belongs to the external phenomenon of physical properties. The middle level is concerned with function and use. Nushu, as a tool of communication has a practical communication function. The inner level is concerned with intimate emotion, which presents the spiritual connotation.

4.2   The analysis and design of the outer lever

The outer level is focused on the shape and graphic style of the word itself, which is an external phenomenon of physical nature. Chinese Womanise scripts are rhomboid fonts written from left to right. Its shape is beautiful and slender and contains four kinds of strokes, such as a dot, vertical, slant, an arc, and more than two thousand characters. Professor Gong (1995) mentioned in the study that Womanise script text seems to have some connection with the female needlework, and the earliest batch of the female script may originate from the female needlework. Chinese Womanise scripts and pattern is not only the appearance of different forms but also the word and pattern together. Most of them are mainly birds and beasts and realistic natural creatures. They are not only vivid and clear in color, but also clear and changeable in composition. Women often use embroidery lace, flowers

Figure 5: Chinese womanise scripts and pattern

decorated with clothes, and these have a very strong flavor of life. The basic pattern is based on geometric Figures. The common shapes are round, diamond, octagon, star and so on. Among them, the most representative pattern is the "Illicium flower" pattern, which is the most commonly used pattern of "Letters for marriage" in the cultural paradigm, as shown in Figure 5. Pattern frame comes from the "gossip" pattern, with auspicious patterns and female books text (Zhang, 2013).
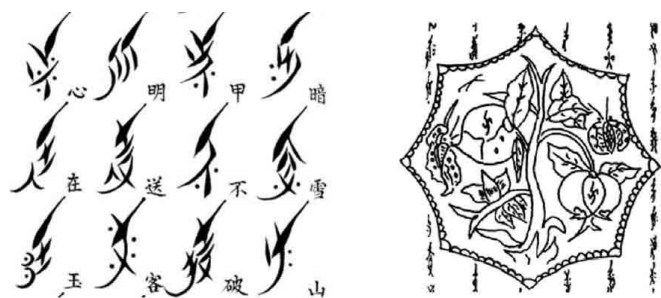
The characters and graphics are combined as decorative elements, which are used in daily necessities. This is a simple and direct way of communication. As shown at the top right corner of Figure 6(below), the expression process of design in the scenarios is as follows: (1) Set a Scenario: They grew up together, called each other "Laotong", learned Womanise scripts together, and sent each other handkerchiefs with traditional embroidery. (2) Tell a Story: modern women compiled Womanise

scripts with blessings in Chinese characters to convey blessings. (3) Write a Script: the characters are expressed directly in the way of the modern cross stitch. (4) Design a Product: pillow design is made with the combination of Womanise scripts and modern concise patterns.

4.3 The analysis and design of the middle lever

The middle level is focused on the functional use of the Womanise scripts (Nushu), with the actual communication capabilities. As shown in Figure 7, women in JiangYong district in Hunan Province of China have used Womanise scripts as a communication tool, which they use when they become sworn sisters to each other, sending wedding letter to each other, expressing personal feelings, describing

Figure 6: The process of turning Chinese womanise scenario into product design

the experiences of others and sacrificial prayers, and translating stories into Chinese characters for folk singing. Nushu is a unique tool for communication between women and is widely used to keep a record of events，autobiography, folk story, handkerchiefs, fan surface, clothes, belts, and headdresses. There are handkerchiefs, belts, and autobiographies that are now displayed in the museum as the cultural paradigm, as shown in Figure 8.
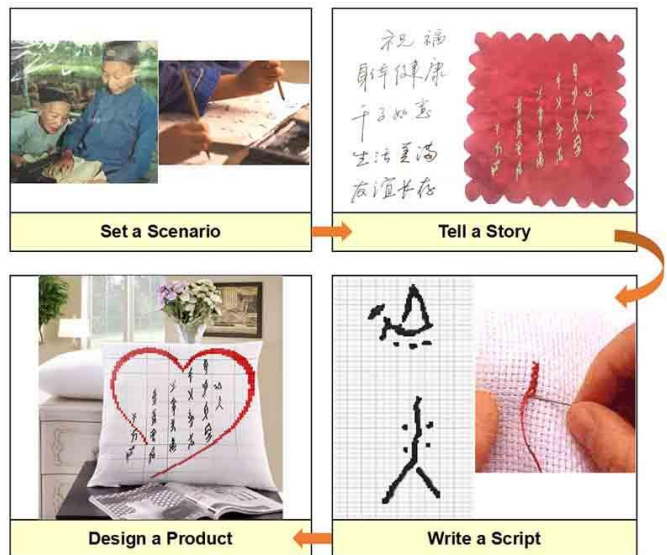

Figure 7: Use Womanise scripts (Nushu) as communication tool between woman and woman, and sing together in JiangYong county (Yongzhou Museum offers)
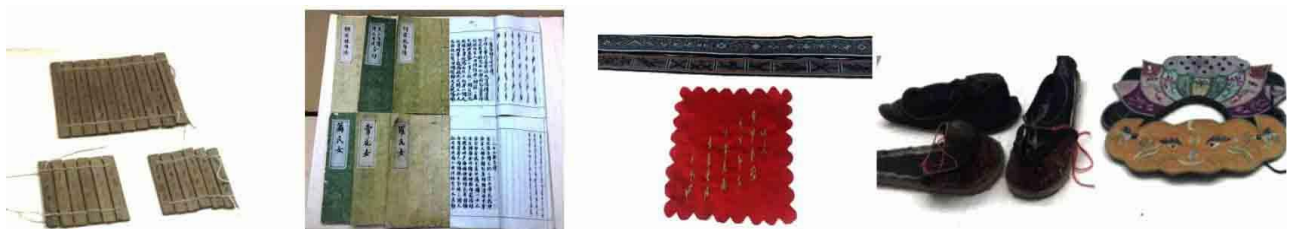

Figure 8: Autobiography was written and embroidered handkerchief with women characters (Yongzhou Museum offers)

Therefore, it can be seen that in addition to the external characters and graphics, the middle level is more concerned with use. Through the daily necessities, the content and deep connotation of the characters is conveyed. Design should also be combined with life scenarios. As shown in Figure 9(below), the expression process of design in the Scenario Approach is as follows: (1) Set a Scenario: in the scenario, more attention is paid to the daily practicability. In the previous traditional handwork era, shoes, shoulder ornaments, and belts are selected. (2) Tell a Story: in telling modern stories, they should also have the same feature of women's daily use and easy-to-carry. Modern women pursue freedom and beauty. Twinned jewelry is an important choice of their daily life. (3) Write a Script: characters are designed as jewelry in different combinations and collocations. (4) Design a Product: a

series of Womanise scripts jewelry is designed, representing different connotation. Collocation with different gemstones enriches colors and connotation. According to different needs, we choose and combine them. For example, when expressing "as one wishes", "health" and "blessing", we design the jewelry mainly made of silver and embedded with sapphires and rubies, which can highlight the value of sisterhood.

4.4 The analysis and design of the inner lever

The inner level is the intimate emotional level, the expression of the spiritual content. More specifically, Womanise scripts is a unique way to record female feelings and to share the joy and pain with each other. In childhood, women of similar ages swore to sisters, calling each other "Lao Tong", studying and writing Womanise scripts together. Until married, they will be separated and will present gifts to each other, representing many years of sister affection and each other's secrets. As showed in the expression of Womanise culture theme film "Snow Flower the Secret Fan", the folding fan is presented when they are married as a secret gift. It is a precious thing for a lifetime between two women's emotional sustenance. The friendship between "Lao Tong" is profound and long-term, until the old is still using female book exchange of emotions. Womanise works are also used for family heritage, such as the mother passed in to her daughter or granddaughter, the family story inherited from generation to generation.

In the scenario of marriage, close friends will prepare special gifts for the bride or bridegroom as a witness for precious friendship. According to the scenario, the requirements of modern women's marriage are described, and a private gift is designed. Womanise scripts as

Figure 9: The process of turning Chinese womanise scenario into product design
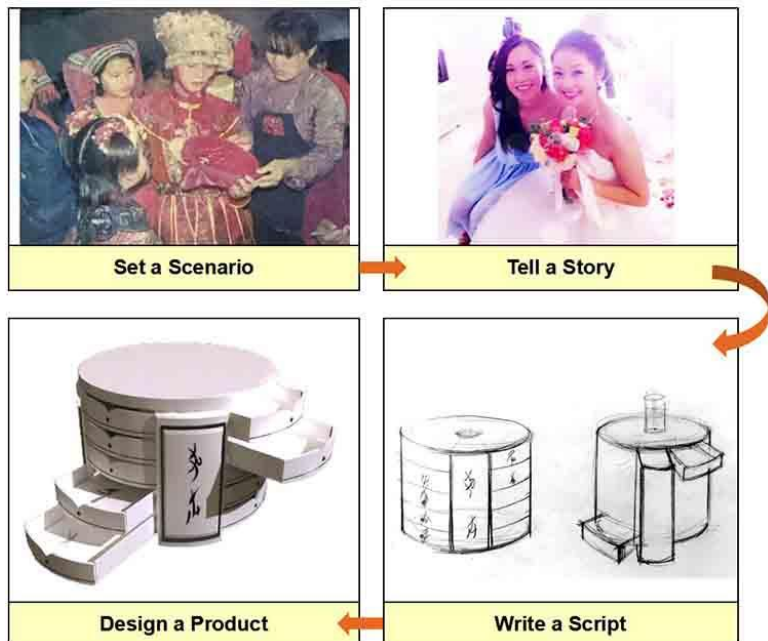
Figure 10: The process of turning Chinese womanise scenario into product design

passwords become their secrets, which can satisfy their needs for intimacy. As shown in Figure 10, the expression process of design in the Scenario Approach is as follows: (1) Set a Scenario: in the scenario, more emphasis is put on conveying friendship and each other's private information. In ancient times, women's marriage means separation. Here, a secret token symbolizes each other's friendship. (2) Tell a Story: modern women's marriage is still an important moment. People convey sisterhood by giving important gifts. (3) Write a Script: a private storage box as a marriage gift is used to store the items of the sisters. (4) Design a Product: a storage box with the password is designed to store jewelry and other valuables. The password is set in the drawer with Womanise scripts symbols. Sisters can

exchange the ways of password setting. Through different combinations of Womanise scripts symbols, the secret compartment can be opened. It is private, showing more emphasis on the intimate boudoir friendship.

5.   Conclusion

Based on the literature research method, combined with the culture scenario and design transformation model, from culture scenario to culture product design, and the case study of Chinese Womanise scripts (Nushu). The study concludes on the basis of guiding significance to the designing feasibility of the law and makes certification using the results of the design. From the outer lever, the middle lever, and the inner lever three levels of analysis of cultural levels, the use to Scenario for Womanise cultural product design.

(1) On the outer lever, the text itself as a point in the plane, graphical way to deal with external graphics. Chinese Womanise scripts are rhomboid fonts written from left to right. Its shape is beautiful and slender and contains four kinds of strokes, such as a dot, vertical, slant, an arc, and more than two thousand characters.

(2) The middle level is focused on the functional use of the Womanise scripts (Nushu), with the actual communication capabilities. They have used Womanise scripts as a communication tool, which they use when they become sworn sisters to each other. Using this story and situation, a series of modern jewellery is designed to increase the sister's emotion between modern women.

(3) The inner level is the intimate emotional level, the expression of the spiritual content. The main design is to convey the feelings of privacy. The wedding blessing story and situation, using symbols for Nushu password, jewelry box design is a private, the most secret gift.
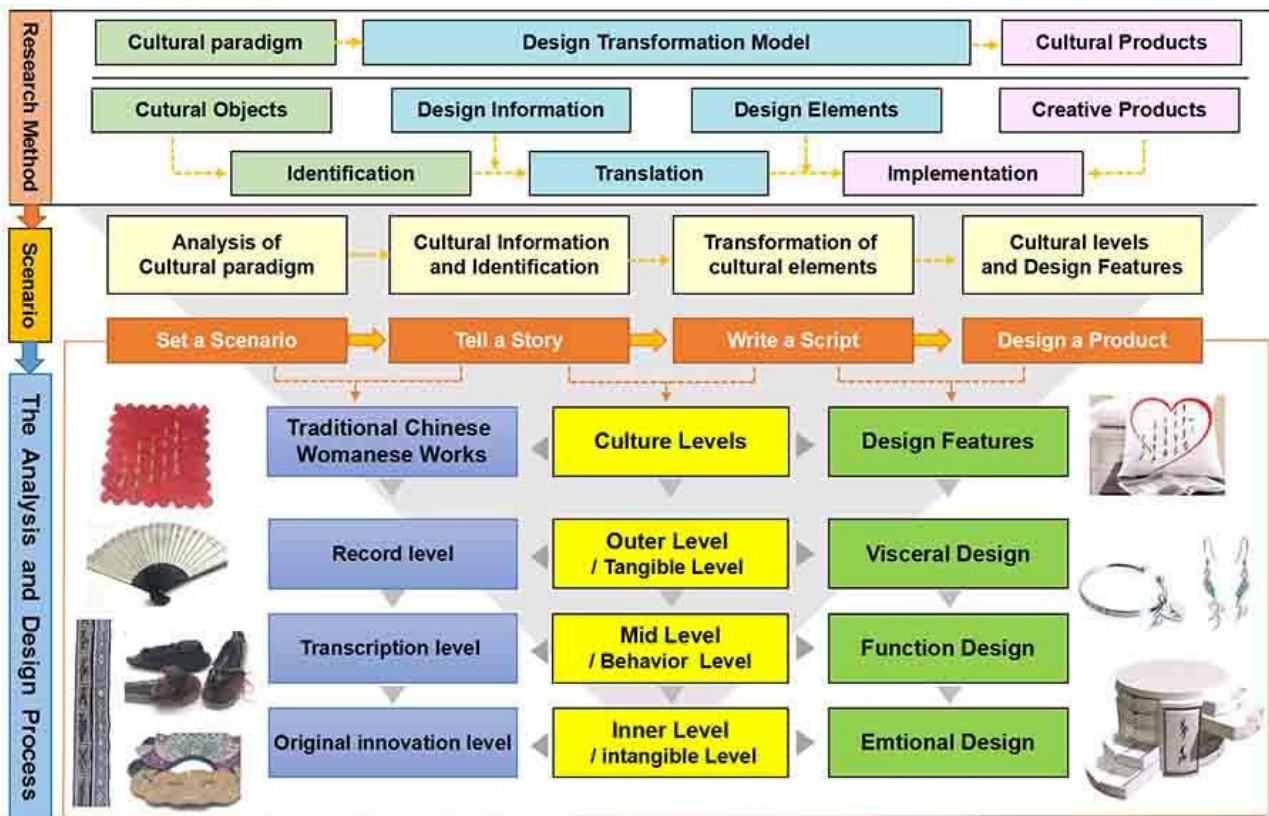

Figure 11: A conceptual framework from Chinese womanise scripts to culture product design

In the study, Womanise Scripts cultural product design converses the design methods and models by using qualitative analysis to investigate the conversion process of literary theory and case study analysis. It provides cultural background and folktale for women product design. From the context of the female story, it explores the product design method with female characteristics, forming the exclusive product of women. Through the case study, firstly, to understand the Chinese Womanise

Scripts literature and cultural object expression of cultural background, and to provide model and theory for the design; secondly, establish solid steps to convert the design to provide the actual conversion cases, which further improves the transformation of "Womanise Scripts cultural product design" into the possibilities of the business model design. Thirdly, scenario approach is used for the design of cultural products (Myerson, 2000; Mcllroy, 2003; Kelly, 2001; Lin, 2006). Design an aesthetic form is based on the perspective of the user and the use situation. It is a product that can move the mind of the consumer. Fourthly, establish "Womanise Scripts cultural product design" design conversion mode on a case-by-case basis as shown as Figure 11(above), from cultural creation to Womanise Scripts in product design, extending beyond the purposes and contexts of "Womanise Scripts cultural product" in time and space value within this research. On this basis, achieved mastery through a comprehensive study of the subject, deconstruction, reorganization, designed to contain both a rich national traditional culture of charm and with a strong sense of modern aesthetic patterns (Ju & Hu, 2017).

6.   Summary

This paper explores how the design-related cultural models from China may contribute to the development of appropriate culture-related design in China. The study is used to investigate the application of the Chinese cultural product design in the development of local Chinese Womanise scripts (Nushu 女書) for cultural product design. The results demonstrate the possibility of enhancing product and uniqueness by developing the product design of female cultural creativity modern products inspired by local cultural designs.

In modern society, people pay more attention to practicality, cultural and spiritual combination. we should be in the traditional level of culture to be in-depth research and application, based on the research of the traditional design and analysis from refining, refactoring, transforming in line with modern aesthetic standards (Ju & Hu, 2017). Using the concept and framework of design transformation, in the context of culture, from set a scenario, tell a story, write a script to design a product. Expand the scope of application, design more spiritual cultural and creative products, and enhance the intimate relationship between people and people in modern life.

It is suggested that in future research, based on the design method and conceptual framework of this study, more different designers will be designed to design creative products. To give full play to the value of crossover cooperation. The depth of excavation Chinese Womanise spiritual connotation, and the integration of life and modern women. To spread the Womanise scripts and products to the world, to form a brand culture with local characteristics, and to promote the development of regional culture to the creative industry.

7.   Acknowledgments

References

Gao, Y. J., Chang, W., Fang, W. T., & Lin, R.(2018). Acculturation in Human Culture Interaction-A Case Study of Culture Meaning in Cultural Product Design. *Ergonomics International Journal*,2(1),1-10.

Gong, B. T. (2005). It Is Recommended to Use Womanise to Translate "Nushu". *Journal of Hunan University of Science and Engineering*, 9 (26), 102-103.

Gong, Z. B. (1995). *Female Characters and Female Society.* Urumqi: Xinjiang People's Publishing House.

Hsu, C. H., Chang, S. H., & Lin, R. (2013). A Design Strategy for Turning Local Culture into Global Market Products. *International Journal of Affective Engineering,* 12, 275-283.

Hsu, C.H., Lin, C.L., & Lin, R. (2011). A Study of Framework and Process Development for Cultural Product Design. In P. L. P. Rau (Ed.), Internationalization, *Design and Global Development* (Vol. 6775, pp. 55-64): Springer Berlin Heidelberg.

Ju, F. H. &Hu, Y. (2017). Traditional Tie-dye Handicrafts and Modern Design Concept Combined. *Journal of Arts and Humanities,* 6(9), 12-15.

Kelley, T. (2001). *The Art of Innovation*. New York：Doubleday.

Lin, R. & Chen, C. T. (2012). A Discourse on the Construction of a Service Innovation Model: Focus on the Cultural and Creative Industry Park. In *E-BUSINESS – Application and Global Acceptance*, editer Princely Ifinedo, Croatia: InTech, 119-136.

Lin, R., & Lin, C. L. (2010). From digital archives to E-business: A case study on turning "art" into "business". *In e-Business (ICE-B), Proceedings of the 2010 International Conference on* (pp. 1-8). IEEE.

Lin, R. (2006). Telling Stories, Creating Scenarios - Scenarios of Cultural Creative Design. *Art Appreciation,* Vol. 2 No. 5.

Lin, R. (2007). Transforming Taiwan Aboriginal Cultural Features into Modern Product Design: A Case Study of A Cross-Cultural Product Design Model. *International Journal of Design*, 1(2): 45-53. 25.

Lin, R. (2009). *Designing Friendship into Modern Products*. In Friendships: Types, cultural, psychological and social, Nova Science; Chapter 3, 1-24.

Lin, R. (2011). From Service Innovation to Qualia Product Design. *Journal of Design Science*, Special Issue: 13-31.

Lin, R., Cheng, R., & Sun, M. X. (2007, July). Digital archive database for cultural product design. *In International Conference on Usability and Internationalization* (pp. 154-163). Springer, Berlin, Heidelberg.

Lin, R., Lin, P. H., Shiao, W. S., & Lin, S. H. (2009, July). Cultural aspect of interaction design beyond human-computer interaction. In *International Conference on Internationalization, Design and Global Development* (pp. 49-58). Springer, Berlin, Heidelberg.

Mcllroy, A. (2003). Culture industry funding: Sponsorship or investment? Opportunities and case studies in the promotion of cultural industries. In *International Forum* (Vol. 3, No. 5, pp. 1-8).

Moalosi, R., Popovic, V., Hickling-Hudson, A. R., & Kumar, K. L. (2005). Integration of Culture within Botswana Product Design. In *Proceedings 2005 International Design Congress*, National Yunlin University of Science and TechnologyYunlin,Taiwan.

Murovec, N., & Prodan, I. (2009). Absorptive Capacity, its Determinants, and Influence on Innovation Output: Cross-cultural Validation of the Structural Model. *Technovation,* 29(12), 859-872.

Myerson, J. (2000). *Masters of Innovation*. New York：Laurence King Publishing.

Norman, D. A. (2004). *Emotional Design–Why We Love or Hate Everyday Things*. New York: Basic Books.

Peng, Z. R. & Li, R. Q. (2012). Womanise Works in Jiangyong, Hunan. *Journal of Shaoyang University* (Social Science Edition). 11(2).pp.55-63.

Tian, L. J. (2004). Jiangyong Womanise scripts (Nushu) and its Female Culture Color. *Journal of China Women's College*, (4), 25.

Varutti, M. (2015). Crafting Heritage: Artisans and the Making of Indigenous Heritage in Contemporary Taiwan. *International Journal of Heritage Studies*, 21(10), 1036-1049.

Zhang, X. (2013). Patterning Art of Jiangyong Womanise Scripts. *Hunan Folk Art Research*, Volume 117.