



Neurocognitive Science and Design: Influence of Cognitive Theory on the Design Process of Featured Towns' Cultural and Creative Product

Chi Xu*, Yang Wu

ABSTRACT

Under the guidance of cognitive theory, this paper combines cognitive theory with the design process of the cultural and creative product in featured towns to probe into the effective practical activity design and reflection, explore the mutually promoting and complementing effect between the cultural and creative product of featured towns and cognitive theory, and then to design the products featuring Miao nationality culture, with guidance from the analysis of Maslow's hierarchy of needs theory.

Key Words: Neurocognitive Science, Cultural and Creative, Design Process, Cognitive Theory

DOI Number: 10.14704/nq.2018.16.5.1365

NeuroQuantology 2018; 16(5):517-522

Introduction

The development of cultural and creative industries is an important means and path adopted by many countries in economic restructuring. Because of its high added value and its ability to maintain sustainable development, more and more countries and regions attach great importance to it. The industry develop much faster than the general national economy. Obviously, it has become a new impetus for global economic growth and the direction of industrial development, leading the development of the overall economy in the future.

Brief introduction of related concepts

The cultural and creative product features creativity and a design sense. A good cultural and creative product can not only meet the functional needs of consumers, but also meet their spiritual needs. Such product shall reflect the cultural heritage and innovation and meet the cultural and spiritual needs of consumers, with its creative

design, processing and production based on cultural elements. Therefore, creativity in the cultural and creative product does not mean a copy and reproduction of traditional culture and spiritual culture, but a re-creation of traditional culture and spiritual culture on this basis. For example, some products designed by combining the small details of cultural elements with the daily necessities of people's lives are deeply loved by the masses (Liu and Zhang, 2018). Once a company designed a U disk (Figure 1), which was a high-quality cultural and creative product that carries and inherits the capital culture, culture of a flourishing city, and folk culture.

At the same time, the creative design of the cultural and creative product is different from that of other common product, as it pays more attention to how to make the products more interesting with cultural introduction, so as to adapt to modern people's spice of life. The featured town is an industry with double special characteristics, special industry and special

517

Corresponding author: Chi Xu

Address: Jiangxi University of Technology, Nanchang 330098, China

e-mail ✉ yangyan930@163.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Received: 29 March 2018; **Accepted:** 4 May 2018



tourism, with its core functions lying in the “production” or “service” based on the industry. As a new urbanization mode of urban-rural integration, the featured town should have its own special grace, style and view, as shown in Figure 2 (Cavallerio *et al.*, 2016).

The emerging cultural and creative industry provides a new direction for the development of small towns with Chinese characteristics: To take the cultural and creative product as their new material carrier, so that the design of featured small towns is no longer isolated, and the distance between people and products is shortened, and the products have more than just utilization value but also unique cultural values (Wu *et al.*, 2013). At the same time, the industry's positioning of featured towns mostly originates from traditional classic cultural industries, which also lays a strong cultural foundations for featured towns. Its main functions lie in carrying on industry development, and also bearing the important task of improving human settlement and environment, in other words, the characteristic function of environmental protection.

Cognition is the most basic psychological changing process of human beings, which receives and processes the information of external objects through the sensory and perceptual organs of human beings, so as to understand external objects. It has a broad and a narrow sense. The former refers to the individual's understanding and grasping of the objective world, which is mainly achieved through the individual's feelings, imagination, memory and other forms. The latter refers to the way and process of individual processing and converting information obtained from the outside world (Cucuzzella, 2016). Cognition is an activity for individuals to grasp the rules of objective objects. Thus as to the design of the cultural and creative product for a featured

town, the designer shall design products that conform to the rules of cognitive psychology based on their knowledge about the characteristics of cognitive psychology, so as to better realize their market value.



Figure 1. National cultural creative U disk

Analysis of Maslow's hierarchy of needs in the cultural and creative product

Maslow's hierarchy of needs is a theory proposed by Abraham Maslow (1918-1970) in his paper *A Theory of Human Motivation*. He ranked five human needs in an descending order with the most fundamental needs at the bottom, including physiological needs, safety needs, belonging and love, esteem, self-actualization, and self-transcendence. For cultural and creative product design, Maslow's hierarchy of needs is an embodiment of the essence of design, as consumers' demand for products is increased from the simple and practical function to the spiritual level. Modern cultural and creative product design has transitioned from functional design to emotional design with material and spiritual attributes (Ma, 2016) Therefore, the integration of characteristic town culture is essential for the design of the cultural and creative product. Figure 3 shows the analysis of five needs.

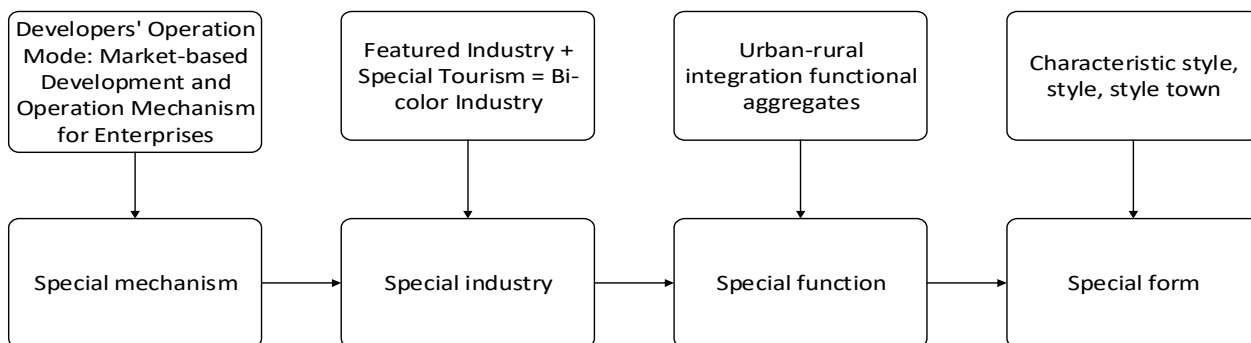


Figure 2. The connotation of the featured town

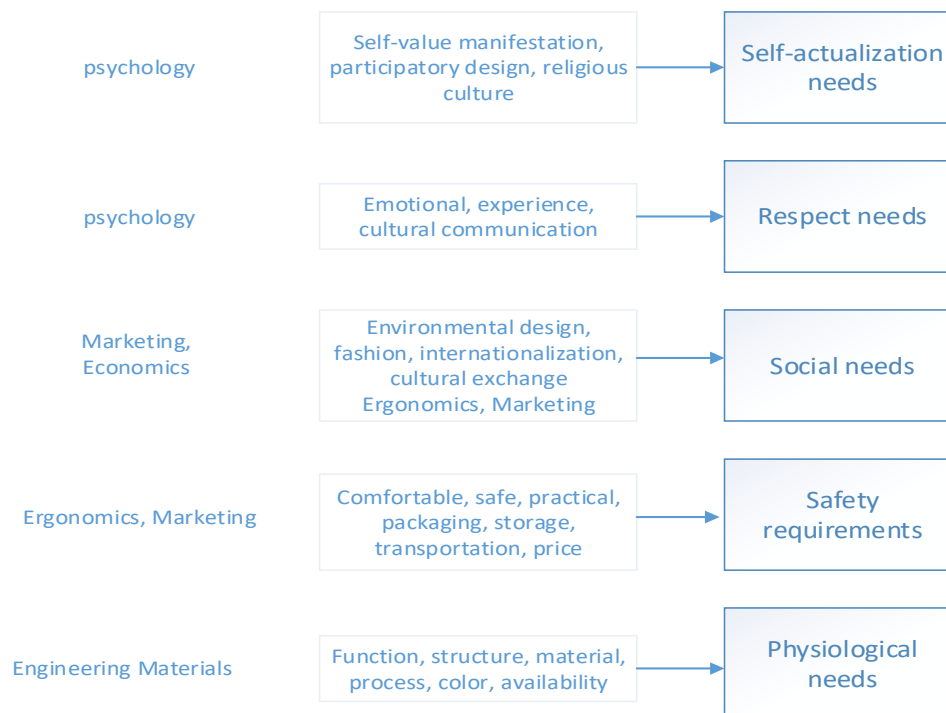


Figure 3. An analysis of Maslow's hierarchy of needs theory in cultural and creative products

Design principles of the cultural and creative product of featured towns

To take consumer demand as objective. The essence of design is to serve the audience and the product is designed for human use. The reason why modern cultural and creative product can always exist is that it is designed to serve the consumers, recognized by the consumers, and it can bring the satisfaction to consumers at both the material and spiritual levels. The product takes the culture of the featured town as the core. Culture is its core embodiment, and the product is the carrier of the culture dissemination. The two are integrated with each other uniformly and harmoniously. The culture of the featured town can be recalled and remembered by people. To take the originality as the guideline. Original design as the target of modern product design, breaks the inherent form of the product. It is not the exaggeration and variation of the modern design concept, but rather, a design concept and method used for the original classic product or work so that it can meet the needs of modern life, and can exhibit an experience that is overlooked in the original product or work. To take innovation as the starting point. The innovation of the cultural creative product is mainly reflected in its novelty, creativity and practicality. Starting from the people-oriented and cost-reducing design concept, the product integrates science and

technology, cultural connotation, artistic technique and material technology into the design. At the same time, the design integrates with the aesthetic needs of modern society and gives old products new functions and new emotions (Xu, 2010).

Therefore, under the guidance of cognitive theory, this paper combines cognitive theory with the design process of the cultural and creative product in featured towns to probe into the effective practical activity design and reflection, explore the mutually promoting and complementing effect between the cultural and creative product of featured towns and cognitive theory, and then to design the products featuring Miao nationality culture, with guidance from the analysis of Maslow's hierarchy of needs theory.

The influence of cognitive theory on the design process of characteristic towns' cultural and creative products

Through the investigation and analysis of cognitive theory and methods, we can fully master the human needs, psychological conditions and behaviors in the environment as well as the interaction between people and the environment, so as to guide the planning and design of the cultural and creative product (Ren *et al.*, 2015). This "bottom-up" design approach places human perception and behavior at the heart of the



design. The design procedures of the cultural and creative product based on the cognitive theory of featured small towns is as shown in Figure 4.

Influence of vision on the design process of featured towns' cultural and creative product

The economy of the information age has the tendency of the eyeball economy to a large extent, and vision plays an important role in realizing the market value of the cultural and creative product. Consumers' visual cognition of the cultural and creative product is mainly achieved through its shape and color, as well as the color of the materials themselves (Yang, 2015). According to the theory of perceptual psychology, the way people understand things is to first perceive the object as a whole and then to understand the details. The overall perception shows the characteristics of fuzziness and generality. Consumers often make decisions based on their feelings in purchasing activities. The overall perception is a simple cognitive model of perceived emotions, and this cognitive style allows the cultural and creative product to show a fast performance in realizing market value (McCarthy and Wright, 2007). For the town featuring Red Army culture, the design of cultural and crockery tableware will show the visual effect as the white ceramic red cap plate in Figure 5.

First, sensory cognition. The tableware is white, which is the most intuitive feeling that is captured visually. So the product information

enters the human vision-eye. Second, from attention to observation. The consumer will have further understanding of the cultural and creative product as he stops to observe it after his attention being aroused. Then he will have an overall perception of the product, noticing that it is white and near-circular. Third, from senses to perception then to cognitive knowledge.

The customer's knowledge about the red cap shape of the product is transformed to the knowledge that the tableware is designed to be the shape of a red cap. At this time, the consumer enters into the understanding of the product's functional aesthetics (Chen, 2010). Fourth, good functions. The bionic design of the cup for a cap can well play the role of activating atmosphere and enhancing emotion in the communications between the older generations. Moreover, using white ceramics with its pureness helps to realize the aesthetic pleasure of the product. From sensations to perception, from cognition to aesthetic pleasure, the product has experienced a dynamic information processing process. In this process, the third step is the most important, as the positioning on the product shape and function is clarified during this step. It is the sublimation of the first step and the second step, and the prerequisite for the generation of aesthetic euphoria in the fourth step. Therefore, cognitive psychology plays an important role in guiding the design of ceramic products.

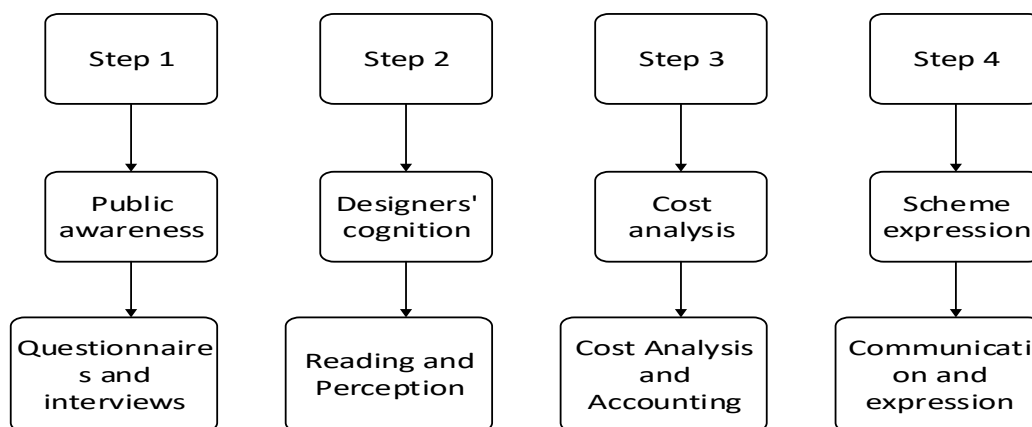


Figure 4. Design procedures for designing cultural and creative products in characteristic towns based on cognitive theory





Figure 5. White ceramic red cap plate

Influence of tactile sensation on the design process of featured towns' cultural and creative product

Once the consumer is interested in a cultural and creative product, he will be tempted to touch it by hands, thus he moves from visual cognition to tactile cognition. The tactile sensation will give the consumer a more direct experience, which will enable him to develop a sense of trust towards the product. As a very subtle experience, tactile cognition can compensate for the limitations of visual cognition, as it can not only enable the consumer to feel the overall characteristics of the product's shape, but also feel the shape and characteristics of every detail (Bai, 2015). According to the new views on the purpose of design proposed by American design theorist, Victor Papanac, in his book *Design for the Real World*, design shall serve most people, serve the disabled, and serve the limited resources of the earth (Craig, 2013).

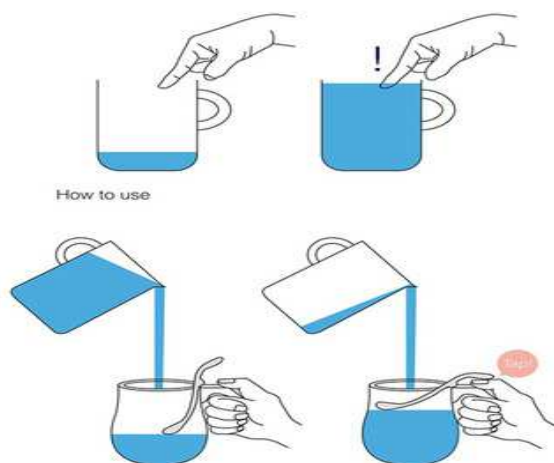


Figure 6. The blind cup design of 'qiaoqiaobang'

Therefore, we can see the relationship between tactile sensation and function from the perspective of the morphological cognition of the design of the cultural and creative product of

featured towns. The design of some products considers serving people with physiological defects, which is not only the expression of essential language of design, but also has the value of design ethics, and also enriches the diversification of featured town's the cultural and creative product to face more consumer groups. As shown in Figure 6, the unique culture of the featured town can be added to the cup body with the inspiration from the design of the blind cup with the seesaw bar, so that the disabled can realize the unique value of the design by touching it.

Cognitive theory based characteristic cultural product design

The previous section has briefly introduced the impact of cognitive theory on the design of the cultural and creative product in featured towns. The present section will describe the design process of the cultural and creative product featuring Miao nationality culture based on the cognitive theory.

Abstraction and refinement of design elements

The innovative design of the cultural and creative product of featured towns includes three kinds of innovations: antique innovation, appearance innovation and package innovation, which have become a major trend in the field of cultural and creative product design with the increasing emphasis on featured town culture in today's society, and also have become key points for people's aesthetics. In the design of the work, first of all, costumes and apparels are integrated into the cultural and creative product through the summarization and refinement of their cartoon image. The Miao costume's shape, color and pattern have been redesigned to get a new cartoon image, which has more of a modern sense compared with the original clothing style. The image keeps the essences of the costumes, which are also the features of Miao costumes. To integrate these features into the cultural and creative product, we shall not only retain its own characteristics, but also ensure that it meets the needs of the market, which is the key in design elements refinement.

Cultural and creative product with Miao nationality features

The Nanjing Museum designed a series of the cultural and creative products based on the elements of six dynasties with Nanjing as capital.

The Nanjing salted duck is a famous specialty in Nanjing, based on which a series of cultural and creative products are designed. For example, the pin which is designed with the inspiration from the real shape of Nanjing salted duck, has won the love of many young people. With the simple shape of the salted duck and coupled with unique style, the pin is very memorable. Therefore, we shall design a product using simplified pattern from costumes which only keeps the essential elements, with bold use of colors and integration of the traditional elements and modern craft. For example, the mobile phone shell uses a matte transparent material that highlights the texture. Mobile phone is an indispensable item in our daily life, which makes our lives more convenient and enjoyable. A unique and customized decoration for our mobile phone will not only bring us a joy in life, but also convenience in use. Embroidery is a feature of the Miao-nationality inhabited region. Its application to modern cultural and creative product design is the perfect combination of classical beauty and modern beauty (Figure 7).



Figure 7. Mobile phone shell with Miao characteristics

Conclusions

The morphological cognition of cultural and creative product of the featured town essentially shows the relationship between people and things. Issues as how to better realize the functions of the cultural and creative product, satisfy consumers' demands for practical and spiritual functions of the cultural and creative product, and realize a better communication between product and people, are exactly what the

Institute for Researches in Product Morphological Cognition shall focus on. This paper explains the design of the cultural and creative product of featured towns from the cognitive perspective of psychology, subdivides the concepts and procedures of perceptual knowledge and inspire the designer's design thinking to satisfy consumers' different sensibility requirements for ceramic products, thus providing a scientific basis for the design of the cultural and creative product of featured towns.

Acknowledgments

This work is supported by the social science planning project of "the 13th five-year plan" in Nanchang city: Promoting the development of featured towns through cultural and creative towns - a case study of cultural and creative product design in Wengang town, Jinxian county (Project No. Jj201745).

References

- Bai X. Design Art School from the Perspective of Intangible Cultural Heritage Protection and Heritage: On Birch Bark Skills as an Example. *Zhuangshi* 2015; 3: 103-05.
- Cavallerio F, Wadey R, Wagstaff CR. Understanding overuse injuries in rhythmic gymnastics: A 12-month ethnographic study. *Psychology of Sport and Exercise* 2016; 25:100-09.
- Chen C. Study on the Design and packaging strategy of regional culture and tourism souvenirs. *Packaging Engineering* 2010; 31(20): 107-10.
- Craig CS. Creating cultural products: Cities, context and technology. *City, Culture and Society* 2013; 4(4):195-202.
- Cucuzzella C. Creativity, sustainable design and risk management. *Journal of Cleaner Production* 2016; 135:1548-58.
- Liu JH, Zhang HR. Constraints and ways to improve the international competitiveness of China's cultural and creative industries. *Journal of the Fujian Provincial Party School of the Chinese Communist Party* 2018; 1: 1-7.
- Ma B. Characteristics of small towns: Zhejiang economic transformation and upgrading of the big strategy. *Zhejiang Social Sciences* 2016; 3: 39-42.
- McCarthy JJ, Wright P. *Echnology as Experience*. US: MIT Press, 2007.
- Ren Y, Zhang Y, Hu Q. Study and design of ceramic products psychology cognitive style ceramics. *China Ceramic* 2015; 10: 107-11.
- Wu Q, Zhang Y, Sun B. Research on the development and design process of cultural deriva-tive products based on the theory of product system design. *Hundred Schools in Arts* 2013; 3: 211-14.
- Xu L. Design functional and emotional alternation of design. *Art and Design* 2010; 8: 21-23.
- Yang D. Key Issues of Product Design of. *Packaging Engineering* 2015; 36(10): 133-36.