

Research on Creativity Model of Creative Product Design Based on Twenty-four Solar Terms

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ABSTRACT

The exploration of creative factors in the design of twenty-four-section cultural and creative products is an important part of the design innovation of intangible cultural heritage. Combined with the design practice and model verification of five stages of design thinking, the purpose of constructing twenty-four-section cultural and creative product design ideas, improving students' creative ability and innovating the value of intangible cultural heritage design is achieved. It is concluded that in the design process of twenty-four solar terms creative products, it is necessary to cultivate the creative practice ability, product innovation ability, knowledge communication ability and technical experience of future designers, and form the creative mode of intangible cultural heritage design practice through the design thinking process.

Keywords: *Twenty-four solar terms, cultural and creative products, intangible cultural heritage innovation, creativity, design patterns.*

1. INTRODUCTION

To realize the creative transformation and innovative development of Chinese culture is a major event that our country attaches great importance to. The report of the 19th National Congress of the Communist Party of China has repeatedly stressed that 'culture is the soul of the country and the nation. The report emphasizes the importance of cultural self-confidence and cultural inheritance, especially the protection, inheritance and innovation of intangible cultural heritage. Secondly, the future of design increasingly depends on the innovation after adopting scientific tools and thinking methods. Design psychologist Norman believes that social and behavioral science research methods are not suitable for designers to solve today's complex problems^[1]. Creativity as the key to the development of design, its value innovation can not be ignored. However, there are differences in practitioners' experience, methods and problem-solving ability in the design and production process of traditional intangible cultural products with 24 solar terms. What kind of design patterns and how to make full use of design tools and strategies to find the product value of traditional intangible cultural products with 24 solar terms from the perspective of design

pattern, so as to stimulate the design creativity pattern, improve the creative ability and innovate the design value are important issues that must be discussed in design education and design innovation.

1.1. Research motivation and significance

Creativity is one of the indispensable and important abilities of today's design professionals. In practice, it is an attempt to inspire and cultivate the creativity mode of future designers' innovation, creativity and creativity and the ability to analyze and solve problems, and to continuously practice and explore design education and value innovation^[2]. Design and creativity complement each other. The essence of design learning is to provide a new way of life and value for human beings through purposeful innovation. Different times create different values. In the past, 'the value of innovation' has been advocated, and now more 'value innovation' is needed^[3].

1.2. Research methods and purposes

This study mainly discusses the connotation of future designers' creative ability and value innovation based on design pattern and creative thinking, and takes

Chinese 24- festival white porcelain cultural and creative product design works as the carrier of future designers ' creative strength measurement and evaluation. The four words of ' cultural and creative products ' are divided into ' culture + innovation ' from the surface understanding. Creativity stimulates innovation, and innovation will create cultural and creative innovative products with multi-dimensional and multi-value. The research methods used in this paper are literature review, expert questionnaire, exploratory factor analysis, experimental method, etc.

2. LITERATURE REVIEW

This study takes design patterns as the subject characteristics and development trend of scientific creation interdisciplinary. The inheritance and innovation of traditional intangible cultural products provide the necessary practical and theoretical basis for design methodology. It is necessary to seek methods, tools and principles from scientific thinking, and develop design innovation connotation in rationality and sensibility.

2.1. Cultural Innovation of Design Thinking in Design Pattern

Design thinking is a set of scientific practical methods to enhance creativity, which is widely applicable^[4]. Design thinking ' includes five stages : Empathize, Define, Ideate, Prototype and Test^[5]. It is one of the important methods to quickly enhance creativity. The protection, inheritance and innovation of intangible cultural heritage based on design thinking in design patterns are the common tasks faced by contemporary Chinese designers.

2.2. Creative mode of intangible cultural heritage creative design

Creativity itself does not mean practice, but the embodiment of thinking and the burst of sparks. Its embodiment is the ability from concrete to abstract, and the basis is the observation ability. At present, the design of cultural and creative products should not only break through the stereotype of thinking, but also need to combine ' people ' to design. For example, younger children do not like brushing their teeth, so the designer designs toothpaste with candy flavor or toothbrush with candy shape. These small designs break through the original mindset, close to people ' s lives, and these are rooted in creativity.

Creativity can promote the further development of cultural and creative products and provide more forms and styles, improve the design level of cultural and creative products, and increase the expansibility,

continuity, innovation and uniqueness of cultural and creative products.

In the process of innovative design, creativity is the ability of invention, the ability of output, the ability of divergent thinking and imagination. Its psychological characteristics include curiosity, adventure, challenge and imagination. American psychologist Guilford proposed ' governance structure model ' in 1971 that creativity includes fluency, flexibility, uniqueness, in definition, precision, problem sensitivity. Prabyl Saka believes that creativity has novelty, practicality or both functions. Creativity is the key to product design and practical innovation. Evaluating creativity helps designers to improve and enhance the creativity of products, and enables design educators to quickly evaluate the creativity of learners^[6].

Product is the ultimate medium to communicate designers and users. Creativity not only reflects the process of design thinking, but also directly and objectively reflects in the purposeful design works. Cultural and creative products are design innovation carriers with cultural codes, cultural symbols and cultural values as the core of design that emerged after the British Industrial Revolution^[7]. However, China has a long history and rich cultural content, and a large number of cultural forms and contents have entered the world ' s intangible cultural list. In 2016, China ' s ' 24 solar terms ' were included^[8]. As a unique time knowledge system of the Chinese people, the heritage project profoundly affects the way of thinking and code of conduct of the Chinese people and is an important carrier of the cultural identity of the Chinese nation^[9]. The cultural and creative products under the intangible heritage are based on creativity. Blending and combining the cultural elements of historical intangible cultural heritage not only increases the cultural connotation of the product itself, but also inherits and disseminates the traditional culture of intangible cultural heritage by relying on cultural and creative products. Secondly, it makes the newly produced cultural and creative products have a new era mark and cater to the current fast-paced urban life.

Cultural and creative products contain the material and spiritual aspects of cultural elements, the creative design model after elements extraction, style experiment selection, re-creation process (Figure 1), and the new product is the ' cultural reconstruction ' results.

The design of cultural and creative products with the theme of 24 solar terms in China ' s intangible cultural heritage is common. For example, the private custom-made 24 solar terms white porcelain tea cup, the warm and transparent ice jade white porcelain body and the different solar terms patterns created by the ingenuity, give people a sense of comfort and

exquisiteness. Jingdezhen 24 stanza exquisite porcelain tea cup, the design of the stanza text symbols do cut flowers leak bright processing, give a person with exquisite, refined elegance; and 24 solar terms hand-painted blue and white porcelain cat dishes, through the porcelain plate on the blue and white hand-painted cats and the story of the solar terms scene, bring people natural fresh solar terms life. It can be seen that the future designer creativity training and practice research can not only explore the relationship between design innovation ability and design practice value and development, but also provide new creative design ideas and scientific methods for the traditional 24 solar terms intangible cultural heritage product design innovation.

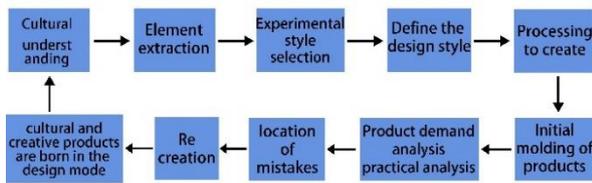


Figure 1 Twenty-four solar terms cultural creative product creativity design model process

3. THE TWENTY-FOUR SOLAR TERM CREATIVE DESIGN MECHANISM IN CREATIVE DESIGN PATTERN

Many intangible cultural contents have strong abstraction. In the design of cultural and creative products, abstract symbols and spiritual contents are displayed through specific forms and patterns, so that intangible culture is more concrete and vivid^[10]. Intangible cultural heritage products are the tangible transformation of cultural resources and the combination of culture and economy.

According to the research purpose, this paper discusses the training mode and evaluation connotation of future designers' creativity in the design of twenty-four solar terms intangible cultural heritage products based on creativity mode.

3.1. Stage 1 : (Empathize)

This stage is not only the designer needs action thinking stage, but also the stage of creativity training preparation. It is not only necessary to understand the cultural connotation of China's twenty-four solar terms traditional intangible cultural heritage, but also to have empathy with future users of cultural products, and let users find a sense of national belonging and feel cultural confidence.

The purpose of this study is to take the innovative design of Chinese intangible cultural heritage products as the practical content, and collect and sort out the

content, form, material, symbol and significance of Chinese 24 solar terms intangible cultural heritage culture. Through different practice steps of ceramic craft design workshop, the practice content is determined for the practice object, practice process, design theme, design form and implementation time.

Practice object: The experiment takes the students majoring in product design in the second grade of the university as the experimental subjects, with a total of 30 students, including 11 males and 19 females, who are creative in the form of groups. There is no difference in gender, age, class, department and other attribute backgrounds, and each group is voluntarily grouped. In addition, two professional ceramic makers, two ceramic production assistants, and three design instructors guide the completion of ceramic practical design teaching. The materials used in the experiment, the practice environment, and the production time are the same, and the production themes are consistent to improve the internal validity.

Practice process : design needs to use creative thinking to carry out creative activities in a creative environment and obtain innovative results^[11]. Intangible cultural heritage creation and cultural environment, social cognition are inseparable, through different symbols, culture, symbol and so on, which requires the early unified arrangement, one is the early research ; second, in the middle of the practice process, the kiln workshop began to design ; third, the model of practice production ; fourth, late design practice communication ; five is the summary stage, do design report, reflection and other practical steps.

Design theme: the design theme of intangible cultural heritage products to ' frugal intangible cultural heritage white porcelain products ' for the design workshop final design results. Experiential learning strategy in sustainable teaching is adopted at this stage. By entering the ' field ', immersed in the physical environment for in-depth analysis of core issues and empathy with users or stakeholders.

3.2. Stage 2 : (Definition)

Through the empathy stage of product creativity and creative collection of data analysis and definition. In this process, the value education strategy is adopted for future designers. In this study, a total of 45 valid questionnaires from 50 experts in design-related fields were issued and recovered by means of intentional sampling. After data collection, this study conducted reliability and validity analysis and index audit again. Among the original 27 indexes, the indexes that did not meet the measurement standards and overlapped expressions were deleted. Finally, 16 indexes were left. Factor analysis was used for factor extraction and

structure naming to construct the hierarchical structure of the creative value of intangible cultural heritage and creative product design. This study takes the creativity evaluation of intangible cultural heritage product design teaching as the goal, and refers to the content of each facet index after index extraction. After factor analysis, the four faces are named as " creative practice ability, " " product innovation ability, " " knowledge communication ability " and " technical experience ability " (Figure 2).

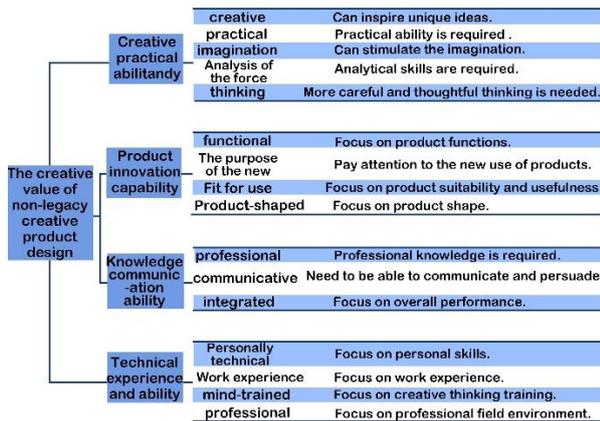


Figure 2 Creativity Evaluation Criteria for Intangible Cultural Heritage Creative Product Design

3.3. Stage 3 : (Conception)

Conception stage designers can get rid of the shackles, creativity and imagination, as much as possible to put forward new programs to create new ideas, more exchanges, cooperation. At this stage, specific design statements and design standards need to be put forward. Team members can jump out of inertial thinking and adopt creative skills such as brainstorming, focus group method and KJ method^[12].

Innovative design of Chinese twenty-four solar terms intangible cultural heritage products (table 1). Among them, through the creative mode of twenty-four solar terms creative products, not only can give birth to people ' s deep cognition and resonance of traditional culture, which will also be related to the present and future of culture. The design of Chinese artifacts emphasizes the artistic conception, the metaphysical way, and the metaphysical device. How to show the image products with the spirit of " national tide " can not only be considered from the design of product shape, color, material, structure, and function, but also new development and creation of craft products with traditional cultural characteristics from the aspects of cultural symbols, symbolic significance, emotional experience, aesthetic value, and spiritual enlightenment^[13]. The creative idea of the design workshop to ' 24 solar terms ' as the design theme of

ceramic products to startle, summer, autumn, cold four solar terms the design of the most creative.

Table 1 . '24 stanza ' as the theme of intangible cultural heritage creative design products

	Insects awoken	Summer begins	equinox	Great cold
Design work				
Work number	X-1	X-2	X-3	X-4
Design inspiration	Poetry, boat, bamboo hat, old man	Phenology, lotus root, diet, health, specialty	Kitchen, diet, stick autumn fat, reunion, farming	Health preservation, temperature, winter storage, convergence, quiet

3.4. Stage 4 : (Prototype and fabrication)

This stage is the experimental molding stage, the members try their best to make the ceramic cultural and creative products related to 24 solar terms, and consciously highlight the creativity as much as possible in the theme, content, symbol and other elements. Although innovation is an abstract and difficult to express the concept, but because of the value guidance from the empathy stage, the design content will continue to focus.

3.5. Stage 5 : (Test and Evaluation)

Prototype measurement and appropriate assessment strategies can be performed at this stage. Norman believes that testing is the best way to explore design science. Usually, the test and evaluation of 5 to 10 people can get the ' influence ' that the design wants. According to previous studies, the evaluation of creativity can be directly and objectively reflected in purposeful design works. Therefore, according to the ' Creativity Value Benchmark of Intangible Cultural Heritage Creative Product Design ', the 24 solar terms intangible cultural heritage creative design works completed by the same theme, the same environment and the same teaching background are evaluated. Seven people were selected from the expert database. According to the 16 evaluation indexes with the creativity value index of intangible cultural heritage creative products, four works were scored. The scale of equidistant scale from 1 to 10 points was used. The higher the score was, the more consistent the 24 - stanza product design was with the creativity index requirements.

Through testing and evaluation, first of all, intangible cultural heritage cultural and creative product design as a new design content, the results generated by the measured process can define new products, new ideas, new values, and the evaluation of the design results reflects the ' from scratch ' future designer design creativity training model process ; secondly, through the

above evaluation results, we can clearly get the future designers in the creativity, imagination and product form of creativity level performance score higher, indicating that creative ideas and practices in the process of design and creation, combined with the association and imagination of the design means, a good display of intangible cultural heritage creative products creative themes and creative content ; thirdly, in the future, the performance of designers ' product design creativity is weak : personal work experience, personal technology, and lack of thinking ability and weakness. Therefore, it can be analyzed that in the design of intangible cultural heritage cultural and creative products, because it is a junior design professional, the time to enter the design workshop for training and practice is short, and the accumulation of traditional craft skills and personal experience is very insufficient. Finally, through the evaluation results of “ creative value benchmark of intangible cultural heritage product design ”, feedback and improvement information on design methods of intangible cultural heritage products can be carried out.

This product creatively adopts the design method of combining the figurative character form with the environment, so that the product can better set off a good use atmosphere and national rhyme atmosphere. In the intangible cultural heritage cultural and creative design, it also better expresses the distinctive symbolic characteristics and symbolism of the ' Jingzhe ' solar term, which has cultural appeal. It can arouse the user 's sacred sense and ritual sense of the current ' Jingzhe ' time and space through the design of the use environment and use state. Good works also have story, scene and artistry. Such story artistic expression can arouse the user 's unique understanding and careful thinking of the intangible cultural heritage culture.

4. CONCLUSION

Based on the theme of twenty-four solar terms intangible cultural heritage creative product design, this study discusses the creativity model of intangible cultural heritage creative product design (Figure.3) by using the theoretical connotation of design mode and design thinking. Among them, the five-step method of Stanford Design Thinking is used to measure and evaluate the prototype of intangible cultural heritage cultural and creative design, analyze the shortcomings, find the points, and obtain new inspiration, so as to prepare for a new round of recyclable intangible cultural heritage cultural and creative product design evolution and creativity improvement.

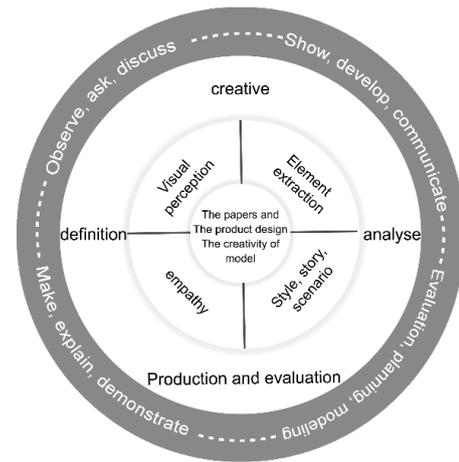


Figure 3 Creativity Model of Intangible Cultural Heritage Creative Product Design

Fund Project

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