

INNOVATIVE APPLICATION OF CERAMIC ART IN MODERN PRODUCT DESIGN IN CHINA

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Abstract

With the passage of times, modern product design are getting increased importance to respective cultural connotation. Only products with unique cultural connotation can occupy a place in the market, and ceramic culture is the treasure of traditional culture. Therefore, ceramic materials are used as the carrier of product design, and fashionable elements such as ceramic culture, modelling and decorative patterns are embellished in product design. So it can not only reflect the profound cultural connotation of the product, but also have unique aesthetic characteristics. With the product as the medium, the essence of Chinese tradition continues to the field of modern people's life, gives the product a new connotation, and better reflects The Times, so that the ceramic culture not only has the connotation of national culture and art, but also has the emotion and charm of modern design.

Keywords: *Ceramic culture, Modern product design, Innovative application*

INTRODUCTION

In the process of modern product design, the innovative application of ceramic art can not only effectively beautify the shape and appearance design of products, but also effectively enhance the practicality and personality value of product design, which plays an important role in inheriting China's ceramic art culture and promoting the innovative development of modern product design (Shen Yana, et al., 2022). Under the background of modern culture, the

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application of ceramic art to modern handicraft design can not only promote the inheritance and development of craft art, but also realize the innovative development of modern product design, which has certain reference significance for the innovation and improvement of modern product design concept. In particular, the ceramic materials and decorative patterns used in ceramic processes are essential to optimize the development and innovation of modern product design (Xia Xinhua, 2022). Since the development of ceramic art, ceramic tea sets and ceramic art ornaments have occupied the main form of ceramic art products, and their craft and aesthetic value have high humanistic and economic value, which not only reflects the thought expression of the unity of heaven and man, but also inherits the spirit of the craft craftsman of ceramic art, promoting the design innovation and development of ceramic art (Wu Han, 2022). Modern ceramic decorative art itself contains many beneficial cultural elements for the design and development of China's modern ceramic products have important reference value and worthy of reference research significance, especially the structural characteristics and patterns of modern ceramic decorative materials, can be perfectly integrated with China's modern art product design, in order to gradually improve the traditional cultural aesthetic connotation and artistic quality of modern product design (Huang Xianjing, 2021).

In the process of historical development and evolution, China's pottery technology continues to develop the exquisite degree of ceramic art, and the use value is also constantly improving. With the continuous improvement of people's living standards, the pursuit of ceramic art has also changed to a certain extent. Based on this, designers must master the principles and requirements of modern product design, analysis of ceramic art processes, colours, materials, etc., skilfully applied in the design, should also learn from and refer to successful modern product design cases, according to the design requirements and themes for optimization and innovation, in order to comprehensively enhance the practicality, comprehensiveness, appreciation of design products (Chen Lizhong, 2021).

As an important carrier of traditional cultural inheritance and innovation, ceramic art plays an important role in modern product design, which includes elements such as modelling design, colour design, pattern design, structural design and process design. Meanwhile, ceramic art has high artistic connotation and aesthetic value in terms of material properties and patterns. Its innovative application in modern product design highlights the artfulness and standardization, which effectively reduces the abruptness of modern product design while inherits and protects Chinese culture, and then works together with modern product design and art to form an organic whole. At this stage, the deep integration of modern product design and art gives the two new creativity and vitality, especially the continuous update and iteration of Internet information technology, ceramic art design properly caters to the modern product design concept, and effectively enhances the integration between the two (Zhao Jinjie, 2021). In short, ceramics as an important carrier of Chinese culture inheritance and protection, its effective integration with modern product design, more highlights the cultural characteristics of the new era.

THE NECESSITY OF USING CERAMIC ART IN MODERN PRODUCT DESIGN

Ceramics, as handicrafts with unique artistic charm in Chinese traditional culture, carry very strong cultural value behind them. However, the homogenization of product design in modern society is very serious, which cannot fully reflect the cultural connotation and innovative value. The application of ceramic art in modern product design is very important for inheriting and developing ceramic culture. Improving the cultural connotation of modern product design has important influence (Xia Xinhua, 2022).

It is beneficial to Promote the Inheritance and Development of Ceramic Art

The art of ceramics originated in china, British children have long been familiar with the word "china", meaning the cup or plate with which they eat their daily meals, the academic world often uses the word "China" to refer to pottery, ware or porcelain, the Chinese people in different times with these three materials to make a variety of vessels. As we all know, the English expression of the country of origin of ceramics is also "China". Although the Egyptians, Persians, and Greeks had been making porcelain long before the Chinese, the Chinese were still considered the world's best porcelain makers, and their craftsmanship continued to inspire artisans elsewhere. The patience and diligence with which the Chinese were known enabled China to quickly surpass all rivals, and its dominance remained virtually unchallenged until the 19th century.

In the article "Innovative Application of Ceramic Art in Modern Product Design", scholar Xia Xinhua systematically elaborated the great significance of ceramic art into modern product design: With the continuous innovation and development of cultural history in modern society, ceramic art has gradually been applied to modern product design in the process of inheritance, which not only meets People's Daily increasing material and cultural needs, but also gets comprehensive innovation in modern product design through the application of art and the embodiment of style. The application of ceramic art in modern product design can not only realize the innovative design of modern products in the process of art integration, but also fully draw on the colour matching of ceramic art in the shape design and other aspects of modern products, so as to promote the charm of modern product design. Through the effective integration of modern technology and ceramic materials, the Oriental cultural characteristics of ceramic art can be presented to the maximum extent, and it can be organically integrated with the Western aesthetic in modern product design, which fully promotes

the inheritance and development of ceramic art (Xia Xinhua, 2022). According to foreign historical records, in the 2nd century AD, Chinese potters made daily utensils. However, scholars Shen Yana, Li Shicang and Wang Xingyuan believe in the article "Innovative Application of Ceramic Art in Modern Product Design" that ceramic art has drawn rich aesthetic cultural resources and colour artistic styles in the development process of China's culture and manufacturing industry.

At the same time, in the continuous inheritance process of later generations, it has formed a unique historical, cultural and artistic value, and under the impetus of the growing artistic and cultural needs of the broad masses of the people, the pursuit of practicality has been transformed into a craft form that takes into account aesthetic value and practical value (Shen Yanna, et al., 2022). Since then, ceramic crafts have not only been used as utensils in daily life, but also have aesthetic and cultural value. The ceramic art is applied to modern product design, making full use of modern product design as a medium, and displaying the cultural values of colour, shape, production, craft and aesthetics of ceramic art. With the continuous progress of human civilization, the inheritance of ceramic art can not be conformism, must be constantly innovative, in order to form a unique artistic style, in order to meet people's spiritual and cultural needs.

The integration of ceramic art and product design can introduce the characteristics of product design into ceramic art, including all aspects of ceramic design, material selection and process structure, so that ceramic art can be modern in both shape and decoration, naturally more in line with modern aesthetic concepts and needs, and can meet the needs of the modern market. And in the process of integration, it will certainly involve new processes, new materials and new shapes, which will also enrich the cultural heritage and aesthetic characteristics of ceramic works, and greatly promote the rapid development of ceramic art (Huang Xiaojing, 2021).

It is Conducive to the Continuous Innovation of Modern Product Design

It is possible to apply the diverse creative techniques and creative methods of ceramic technology in modern product design to promote the innovative development of modern product design. As we all know, the structure of the ceramic itself and the unity of the elements contained in it have been unable to meet the needs of modern people, so the organic combination of modern product design and ceramic art has formed a variety of intelligent ceramic equipment at this stage. As the scholar Xia Xin Hua emphasizes. The integration of ceramic art into modern product design not only ADAPTS to the trend of the times and meets the cultural needs of People's Daily life, but also innovates the modern product design concept through the application of ceramic art, realizes the effective integration of cultural traditions and excellent culture in modern product design, promotes the artistic connotation and cultural charm of modern products, and promotes the innovative development of ceramic art.

It can not only form a comprehensive design inspiration through scientific and effective design methods and ceramic technology, but also continuously broaden the market space of modern products in the process of artistic innovation and development, so as to form more innovative ideas and intelligent products, providing innovative design ideas for the design and development of modern products. Scholar Wei Lun emphasized in the article "Research on Ceramic Art Design Innovation under Modern Lifestyle" that in the process of modern product design, the application of ceramic art can make modern crafts become products with new aesthetic value and practical functions, such as intelligent ceramic POTS, automatic ceramic tea sets and ceramic lighting, etc. This kind of modern products designed with ceramic art elements are often more popular with modern people, and there are qualitative breakthroughs in color matching, modeling design, process methods and performance, which fully shows that ceramic art can drive the inspiration of

modern product design and creation, so that the design of modern products has more creative ideas and design possibilities. It has gradually become a rich artistic source of innovative modern product design concepts and production processes (Wei lun, 2021). Scholar Huang Xiaojing believes that the integration of ceramic art and product design has spawned many new products. Through this integration, it can bring new market space for the development of product design. Moreover, from the design point of view, ceramic art belongs to the art form of continuous exploration, which must have more uncertainty, so as to design more products and promote the continuous innovation of modern product design (Haung Xiaojing, 2021).

ART CERAMIC DESIGN AND MODERN PRODUCT DESIGN EFFECTIVE INTEGRATION

At this stage, with the development of The Times and the progress of society, especially the key stage of the vigorous development of the digital economy and the dominant market to regulate the economy, the deep integration of modern product design and art, giving both new creativity and vitality, is the choice of The Times, ceramic art design properly caters to the modern product design concept, increasing the matching degree of the two.

The Material Properties of Ceramic Art are Applied to Product Design

"When the heavens are good, the earth is good, the materials are beautiful, and the workers are skilful, those who combine these four things can then be good (Li Shan, 2020)." It was during this period, from 206 BC to 220 AD, that glaze was first used in China. This view has also been questioned, suggesting that the first use of glaze by the Chinese was in the 5th or 6th century BC. In any case, the present high temperature feldspar enamel fine porcelain is proof that the Tang Dynasty of China has such porcelain sold abroad, adding a layer of glaze on the pottery, thereby enhancing the overall beauty. The

resulting ceramic art culture corresponds to the physical characteristics and psychological perception of modern product design.

Physical Features and Modern Product Design

The effective integration of the physical characteristics of ceramic materials and modern product design is ultimately due to the significant advantages of ceramic materials such as high hardness, high temperature resistance and easy cleaning. At this stage, the use of ceramic high-temperature characteristics to design a lot of modern products, such as ceramic stew pot, ceramic inner pot, etc., can not only ensure the nutritional value of ingredients from the source, but also effectively stimulate the aroma of food. Ceramic material has high temperature resistance, the design of the product is not easy to deformation, non-toxic and harmless, so as to meet the diversified needs of the public (Xiong Ximu & Wang Peixuan, 2020). According to the smooth surface of the ceramic material and the characteristics of easy to wear and easy to make a pen holder, decorative vases, but also used in knives, POTS, sinks, teapot and other home improvement products (Zhao Jinjie, 2021). Ceramic materials have strong heat resistance and good plasticity and decoration, so ceramic materials have been widely used in the field of lighting design (Dong Ruihu, 2018).

The hardness of the ceramic material itself is particularly high, but the ceramic material can effectively improve the hardness of modern products through the precision ratio, and this feature can be applied in modern product design to promote the design of high-tech products, which is of great value for improving the quality of products (Xia Xinhua, 2022). For example, the Japanese industry developed ceramic knives at the end of the 20th century, which are widely used in industry and daily life, and have been developed in the long run due to their practicality. Ceramic products themselves are fired in a high temperature environment, therefore, the use of this easy feature can be made such as some kitchen utensils, can withstand

a long time high temperature stew food, and retain the nutrition of the food itself, high temperature environment with ceramic microwave oven, induction stove fired food non-toxic and tasteless. The easy-to-clean characteristics of ceramic products can be used to make luxury goods, bathroom kitchenware, knives, sinks, cutlery, tea POTS, etc., radar company according to the characteristics of no rust, easy to clean made the world's earliest ceramic watch, Chanel company also launched ceramic watch J12 series at the end of the last century, The high hardness, high temperature resistance and easy cleaning characteristics of ceramic products themselves enable them to optimize modern product design.

Psychological Perception and Modern Product Design

At the beginning, ceramic products serve People's Daily life. With the rapid development of society, it contains aesthetic value and cultural value. The psychological perception and emotional appeal of the audience come from the humanistic connotation, historical connotation and value orientation contained in ceramic crafts. The natural landscape, cultural landscape and other diverse elements contained in ceramic crafts bring inspiration to the design concept of modern products, and the emergence of 3D printing technology, virtual simulation technology, etc. shows the "modern sense" and "scientific and technological sense", which is the result of the effective combination of ceramic materials and modern product design. Secondly, the colour of pure white, smooth surface of ceramic used in high-end catering tableware gives people a clean, white, assured dining experience. Third, the colour of pure white, smooth surface of the ceramic will generally contain warm colour, which makes people natural, warm ancient times have a certain degree of association. Using this feeling, if done correctly, will make its products more suitable for users (Li Shan, 2019). In a word, the texture of materials and the various cultural and historical elements reflected behind them are not small differences, and the materials used can often "resonate" with the user's psychology.

The Decorative Patterns of Ceramic Art are Applied to Modern Product Design

With the development of The Times, modern product design attaches more and more importance to cultural connotation. Only products with unique cultural connotation can occupy a place in the market, and ceramic culture is the treasure of traditional culture. Therefore, ceramic materials are used as the carrier of product design, and fashionable elements such as ceramic culture, modelling and decorative patterns are embellished in product design. So it can not only reflect the profound cultural connotation of the product, but also have unique aesthetic characteristics (Dong Ruihu, 2018). Scholar Zhao Jinjie has also discussed this topic, that since ancient times, decorative patterns on ceramics have always been the focus of people's attention, and it is also the main measurement standard of ceramic artistic expression, which can cater to the aesthetic standards and visual expression of the audience in essence, and more reflects the new concept and new technology of modern product design. How to realize the synergistic effect between ceramic decorative patterns and modern products is the focus of current attention.

Geometric Patterns and Modern Product Design

The decorative pattern of ceramic art carries a very heavy artistic value, and the high "appearance rate" of ceramic geometric pattern is mainly eight treasure pattern and back pattern (Wang Junliang, 2018). Eight treasure patterns generally represent good luck, meaning inspiration mainly comes from the shape of eight kinds of objects in Taoism and Buddhism around each other 360 degrees, the overall pattern is relatively complex, so some designers mainly adopt "simplification, shape, copying, extending meaning" and other creative methods when using ceramic patterns, through which the original patterns can be "processed". Effectively ensure that the theme and content of modern product design complement each other and integrate with each other, at the same time, the innovative application of ceramic geometric patterns in modern product design fully

enriches the form of artistic expression, effectively shows the classical beauty of the product, and on this basis, fully presents the sense of The Times of modern products (Zhao Jinjie, 2021). Essentially a line (polyline) drawn out a text pattern similar to the "back" font (Deng long& Li hongle, 2018), In modern product design, the application of ceramic pattern in the product can not only enhance the artistic connotation of the product as a decorative pattern on the surface of the product, but also optimize the product design concept through the expression of moral (Xia Xinhua, 2022). In short, the cultural connotation contained in the geometric patterns of ceramic art is very meaningful to optimize the modern product design concept.

Plant Pattern and Modern Product Design

The plant pattern of ceramic decorative pattern mainly uses Tangcao curve, which is the presentation of natural art. The design mechanism comes from the natural shaping of the vine of plant growth in accordance with the desired curve shape to form the final pattern. The selection of plant pattern is in line with the public's perceptual psychology of being close to nature, so as to meet the audience's emotional demands and psychological feelings on ceramic products. This pattern is applied in modern product design, such as the design of home decoration to enhance the overall grade of the product and increase the beauty.

The Colour Matching of Ceramic Art is Applied to Product Design

The integration of ceramic art design and modern product art design rarely appears in the academic world. The colour matching of ceramic art is very lacking in modern product design, either there are few colours to choose from, or it is sealed as a classic. Designers can match these classic colours to reflect the positive interaction between The Times and modern products. For example, the early coloured pottery and black pottery, the Tang Dynasty's three-color blue, red and green combination, the Song dynasty's green imperial kiln porcelain, the Yuan Dynasty's blue and white porcelain combination, these classic

colour combinations of ceramics have not lost their artistic connotation due to the passage of time, but still exhaled their charm.

INNOVATIVE APPLICATION STRATEGIES OF CERAMIC ART IN MODERN PRODUCT DESIGN

With the advent of the era of artificial intelligence, deindustrialization has caused the stagnation of the development of manufacturing industry; Mass layoffs in manufacturing. The inheritors of ceramic handicrafts are only limited to the production of ceramic handicrafts for daily use, which can no longer meet people's spiritual pursuit. In order to meet the spiritual needs of the public, the requirements for ceramic handicrafts are established on the basis that they not only have the connotation of traditional Chinese culture, spiritual quality and characteristic skills, but also can be integrated with The Times and technology.

Deepen Product Design Ideas

Ceramic art products should be personalized design, localization design and humanized design. Ceramic art products are both practical and decorative, covering both material and spiritual functions. Therefore, the dual experience of product entity and cultural connotation, product entity and artistic conception is taken into account in product modelling, technology, production process, production environment and colour. Localization of ceramic crafts refers to the integration and innovation of ceramic art and local intangible cultural heritage, and humanized design refers to the implementation of the concept of harmonious coexistence between man and nature. Taking into account the economic benefits created by ceramic crafts and the combination of environmental protection, not at the cost of sacrificing the environment, adhere to the unity of aesthetic and practical.

Rational use of Modern Technology

The development of the information age makes modern product design more integrated with some information technology, and the modern product art spawned by these technologies can achieve mass production as far as possible. According to the hardness and use of ceramics itself, product functions and aesthetics are strengthened. By using its high-strength hardness properties, ceramic watches, ceramic sinks, ceramic kitchenware, ceramic knives, etc., are made. Using its high temperature resistance to make induction cooker, ceramic pot liner, tea set will not release toxic gas under high temperature calcination. According to the beautiful shape of the ceramic itself, the decoration is made, and the process technology level and performance of modern products are effectively improved.

Precise Input and Application of Ceramic Art Elements

In the daily design process of modern products, most of the product design can be flexibly applied and integrated into ceramic art elements, and different ceramic art elements can be applied to product design with different design requirements. Therefore, designers now have to decide how to accurately invest and apply ceramic art elements in the process of product design. According to the style category of ceramic art elements, material texture and colour modelling and other elements to accurately apply it, and effectively promote the development and progress of modern product design aesthetic style (Chen lizhong, 2021).

Ceramic is the essence of Chinese traditional culture, many brands will choose the traditional vase shape to make wine bottles, the product and the quintessence of the combination, so as to highlight the quality of the product and cultural connotation. Such as Fenjiu boutique packaging container is a blue and white wine bottle; In the packaging design of Luzhou quintessence wine container, Peking Opera masks and Chinese red were used; "Lang Wine", "Wuliangye" and "Shui Jing Fang" integrate the elements of ceramic modelling,

turning the abstract into the concrete, highlighting the rich historical and cultural heritage of Chinese quintessence wine, and making the elements of ceramic plastic art appear vibrant in the design of wine products (Dong Ruihu, 2018). In the modern product design system, the products with more application of ceramic art elements belong to the architectural product design, including the product design of building facade and soft decoration and other aspects. Different ceramic art elements play different decorative and functional roles in the design process. In the design of clothing products, designers can extract the patterns and shapes in ceramic art to design products, and combine the blue and white water patterns and cloud thunder patterns of ceramic art with embroidery and printing and dyeing methods to design clothing patterns.

CONCLUSION

Ceramic technology has a history of thousands of years, ceramic art constitutes an important part of traditional history and culture, which has both practical functions and unique artistic inheritance value. The combination of ceramic technology and modern products is conducive to promoting the inheritance and development of ceramic art and promoting the continuous innovation of modern product design, driving the overall development of product design. It has realized the fine formation of product design, injected fresh vitality into the innovative development of modern product design concept, made modern product design more Oriental characteristics, and realized the integration and development of Eastern and Western cultures. In the future development, ceramic art and modern product art should be deeply integrated and innovative development, laying a good foundation for the comprehensive inheritance of ceramic art in China.

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