A Study on the Color Expression and Artistic Conception Creation of Packaging Design Empowered by the Spirit of Literati Painting

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ABSTRACT This paper explores the integration of literati painting spirit into packaging design through color expression and artistic conception creation. Using literature analysis, case study, and experimental verification, the study first identifies the spiritual connotations of literati painting, including refinement, ethereality, and imagery, and extracts its typical color-expression patterns. It then integrates consumer psychology and visual communication theory to construct a color-expression model for packaging design inspired by literati painting. Tea packaging is selected as the research object, and optimized design schemes are compared with conventional design schemes through group experiments. User perception tests show that the optimized design increases cultural recognition by 23.5% and aesthetic satisfaction by 18.7%, verifying the effectiveness and feasibility of the proposed model. The study provides a systematic method for transforming traditional artistic conception into contemporary packaging design language, supporting cultural expression, visual differentiation, and aesthetic communication in product packaging.

INDEX TERMS literati painting, packaging design, color expression, artistic conception, cultural recognition

I. INTRODUCTION

LITERATI painting, characterized by its spiritual essence of refinement and ethereal imagery, serves as both a symbolic pillar of traditional Chinese art and a profound cultural transmitter through its historical integration with artistry and silk-based medium expressions. This artistic legacy informs the tactile logic of modern design, where fiber structures and weaving patterns echo the rhythmic brushwork and philosophical depth of classical masterpieces. The philosophical connotations and its artistic peculiarities are evidence of the deep thoughts of the Chinese people concerning nature, life, and the spiritual world. As a form of art that is highly culturally regarded art, it has a tremendous potential in the current design, particularly in packaging design. With the mixture of color and artistic conception, it can add the products with more cultural connotation and aesthetic value. Nevertheless, the existing packaging layout is mostly characterized by the lack of transformation of cultural elements, homogeneity of the color application, and superficiality of expression of artistic conception that cause the absence of cultural depth and commercial attractiveness of the design works [1]. Thus, the concept of incorporating the spirit of literati painting in the design of the packaging so that it could become a harmonious blend between the cultural heritage and the design innovation has become an acute matter that had to be resolved.

It is very difficult to transfer the spirituality of literati painting to the modern packing design language. On the one hand, one of the research questions is how to articulate the distinct spiritual content of the literati painting into the elements of operational and expressive designs. Conversely, the packaging design being a visual representation of the market, must juggle the two requirements of maintaining cultural heritage and also appealing to the current fashion. Moreover, there is a great variation between the degree of knowledge and acceptance of the traditional culture by various consumer groups, which puts greater pressure upon the communicative effectiveness of the design. Thus, there is a need to build a scientific design approach in order to change the spirit of the spirit of the literati painting into the tangible language of colors and the expressive strategies that will give theoretical backing and practical directions to the design.

The paper gives a colour expression model of packaging design based on the spirit of literati painting by analysing

the literature to explain the rules of connotation, colour expression of the literature painting tradition. The proposed study is not only a systematic design technique, but also proves the efficiency of the model in special cases since it offers a solution to deep integration of traditional art and modern design [2,3]. With the help of this model, the packaging design can be more effective, the way to strengthen the cultural identity, and the aesthetic experience. This paper demonstrates the versatile application of the literati spirit across various design contexts, extending the innovative reach of traditional art through the integration of material innovation and sophisticated weaving structures. By embedding classical philosophical imagery into fabric-based tactile surfaces, the research opens new aesthetic dimensions for contemporary design.

II. RELATED WORK

The literati painting, which was typified by its elevated elegance, celestial nature, and imagery, has rich cultural overtones, and the expression of culture is by the use of art. The qualities of refined elegance reflect a simple elegant style, ethereal quality is the creation of a wide imaginative space via the fusion of blank space and interaction of reality and illusion, and imagery is the expression of philosophical contemplation and transmission of emotion by creating a blend of scene and emotion. Literati painting is characterized by the color expression in low saturation, high brightness with the ink wash in the background and supported with light and natural colors to produce a gentle and harmonious effect on the eye [4,5]. The painting is made to look more in-depth and artistic concept with the use of techniques like layering, gradation, and blank space which informs a lot culturally in the design of a modern packaging design. These rules do not only prove the aestheticism of traditional art, but also offer reasonable ground on how cultural connotations can be applied in designing to establish the groundwork towards increasing visual attractiveness and cultural transmission. Despite the fact that most of the packaging designs are trying to add a touch of conventional culture, there are many issues that arise when it comes to actual practice. Other designs are symbolic and superficial and do not go into cultural connotations and thus not very deep and unique. At the same time, color usage is harshly homogenized and cannot represent the cultural background or attributes of the product, therefore, cannot satisfy the aesthetic needs of consumers and market differentiation requirements [6,7]. Moreover, although consumer psychology and design are addressed in some of the studies, there are no systematic studies regarding the amalgamation of traditional art and modern design especially in the exploration of the blend of color and artistic conception. These issues only suggest that there is a research direction towards exploring further the innovative use of the spirit of literati painting in packaging design and also pose new challenges to the integration of culture and design.

During recent years, color expression and development of artistic conception have turned out to be major fields of research design, particularly within the spheres of consumer psychology and visual communication. The available literature demonstrates that the intensity, intensity, and mix of colors have both a direct impact on the emotional reaction of consumers and visual likes. As an example, low-saturation and soft tones tend to be more likely to create the feeling of comfort, whereas the high-contrast colors may help to improve the visual appeal of a design. In the case of international design, Japan expresses the peaceful loveliness of the culture of harmony with natural tones and basic forms, whereas the west applies bright contrasting colors to emphasize the modernity. But the bulk of the research is on the functionality of color and the visual impact, whereas little systematic work has examined how the traditional cultural color could be incorporated with the modern design [8,9]. Thus, the integration of the color expression principles of the literati painting with the formation of the artistic conception in the packaging design will give the new research directions and practical opportunities in the modern transforming of the traditional culture.

III. METHODS

A. LITERATURE RESEARCH AND EXTRACTION OF CULTURAL CONTEXT

A total of 132 articles published in 2000-2023, related to the artistic traits, color studies, and artistic concept of literati painting were retrieved by searching databases, including CNKI and Web of science. Among them, 45 articles relevant to the theme were selected to be analyzed in-depth. The research paper is devoted to the history of the evolution of literati painting, its aesthetic ideas, and the use of color, and interdisciplinary literature of the sphere of art and design is used to extract the possible application in modern design. The common features of color representation in literati painting were determined through frequency analysis of the words in literature and the construction of semantic network graphs, and most of them are low saturation, natural color, and clear color overlay relationships. According to the results of the analysis, the connection between the spirit of the refined, ethereal and elegant spirit of the literati painting and color harmony was also studied. The traditional paintings were discovered to utilize ink and light colour to create the dominant colour palette to create better rhythm in the image and emotional release. In addition, the research digitally sampled painting colors of Song and Yuan dynasties, V, 36 color schemes were extracted, which were summarised into five major patterns of colour matching, each of which represented various requirements to render artistic conception.

Having analyzed the uses of literati painting colors in the detail, we went to the next stage of examining its effects on cultural competence and aesthetic quality of the packaging design. Table 1 presents an analysis of color sampling and color mixing modes of classic literati paintings.

TABLE 1. Analysis of Color Sampling and Toning Modes in Classic Literati Paintings

Color mode number	Main color	Secondary color tone	Harmony method	Typical artistic conception expression
1	Light gray	ink painting	Gradient overlay	Tranquility, serenity
2	Light blue	Light brown	Harmony of adjacent colors	Fresh and natural
3	off-white	Light blue	Contrast weakening	Ethereal and timeless
4	light ink	warm yellow	Layered rendering	Warm and elegant
5	Light green	light purple	Color rhythm control	Elegant and lively

B. CONSTRUCTION OF THE COLOR EXPRESSION MODEL

Based on the color characteristics extracted from previous literature analysis, this study clarifies the color expression rules such as low saturation, natural tones, and soft gradations. Combining consumer visual psychology, it links the color characteristics of literati painting with human visual preferences, investigating the role of color in emotional arousal, cultural identification, and the transmission of artistic conception. The model design is organized in a three-layer structure. The input layer includes basic data of literati painting colors, including main color, auxiliary color and blending method. The data comes from the sampling analysis results of literati painting colors. The middle layer is based on visual psychology to construct a color emotion mapping relationship and associate the color characteristics of literati painting with the emotional dimensions of consumers (such as tranquility, elegance and naturalness) [10]. The output layer generates specific solutions for packaging design through color combination strategies, covering color matching, brightness contrast and gradient processing.

The model employs a hierarchical approach, integrating the emotional attributes of a single color with the overall artistic conception of combined colors. This ensures that the output design not only embodies the spirit of literati painting but also meets the visual aesthetic needs of modern packaging design. The model validates the design, optimizing the practicality and communicative effect of literati painting colors in packaging design scenarios.

C. EXPERIMENTAL DESIGN AND VERIFICATION

The experimental design and validation employed a grouped comparison method, using tea packaging design as the research object to simulate real-world market application scenarios. The experiment selected design elements with literati painting color characteristics as the basis for the optimized design group, generating optimized solutions based on a constructed color expression model. A control group was established using commonly seen tea packaging solutions employing traditional design methods. The experimental sample consisted of three packaging types: single-item packaging, series packaging, and gift box packaging, with six samples in each type. The optimized design group and the control group each comprised half, ensuring a balance between sample size and design type. One hundred participants were invited, including design professionals and ordinary consumers, to ensure the representativeness and diversity of the experimental results. The experimental components included a color perception test and a cultural connotation assessment, validating the results from two dimensions: consumers' intuitive perception of color and their understanding of the cultural connotations conveyed by the packaging design. The test was conducted through questionnaires and interviews, using a five-point scale to record participants' evaluations of the design solutions, while also collecting verbal feedback to supplement qualitative analysis. The entire experiment strictly controlled variables to ensure that the optimized design group and the control group were consistent in terms of materials, patterns, and text, and only differentiated in terms of color scheme, thereby ensuring that the experiment could accurately verify the role of the color expression model in the packaging design of literati painting spirit.

D. DATA COLLECTION AND ANALYSIS

A combination of questionnaires and interviews were used in collecting data. Informed consent was obtained from all participants. The questionnaire was designed with a five-point scale to evaluate the design in which the data were measured in three aspects; color perception, cultural identity, and aesthetic satisfaction. Five specific indicators were used in each dimension adding up to 15 assessment items. The results of questionnaires of 100 people were summarized, and the invalid questionnaires were excluded after which a result of 92 valid samples was obtained. The interviews were based on one-on-one discussions with 20 representative participants, who were interviewed and documented their subjective feelings and propose ways of improvement on the design scheme. These records will be used as supplementary evidence in qualitative analysis as they were about 20,000 words in length. The analysis of data was done in SPSS software. In the case of the quantitative data, independent samples t-tests were to determine the significant difference between the optimized design group and the control group in each dimension and correlation analysis was to be conducted to investigate the relationship between the feeling of color perception and cultural identity. NVivo software was used to combine text coding and thematic analysis of the interview records to derive prevalent feedback on color use and cultural connotation among the participants, which was used to support the quantitative data. Lastly, both the quantitative and qualitative findings were combined to confirm the quality of the color expression model in expressing the spirit of the literati painting and its utility in the packaging design.

IV. RESULTS AND DISCUSSION

A. VERIFICATION OF THE EFFECT OF MODEL OPTIMIZATION DESIGN

The optimized design was tested and confirmed effective by user perception testing and analysis of data. The design group and the control group were optimized and juxtaposed and tested in three dimensions, i.e. cultural identity, aesthetic satisfaction and color perception. A total of 92 respondents were represented in a questionnaire where a five-point scale was used to note the scores. Two independent samples t-test was then performed between the two groups. The perception of the literati painting spirit through the design was used in the cultural identity test; aesthetic satisfaction was used to evaluate the visual appeal and harmonious beauty of the design; and the color perception test was used to evaluate the acceptability and precision of color expression. The optimized design group significantly outperformed the control group in all dimensions, with an average increase of 23.5% in cultural identity, 18.7% in aesthetic satisfaction, and 12.3% in color perception. The data validated the effectiveness and practicality of the model in conveying the spirit of literati painting and improving packaging design effectiveness, as detailed in Table 2.

TABLE 2. User Cognition Test Results (Optimized Design Group and Control Group)

Evaluation Dimensions	Optimized design group mean	Control group mean	Difference value	Increase percentage	Significance (p-value)
Color perception	4.32	3.85	0.47	12.3%	< 0.01
Cultural identity	4.28	3.47	0.81	23.5%	< 0.01
Aesthetic satisfaction	4.15	3.49	0.66	18.7%	< 0.01
Overall Design Evaluation	4.20	3.60	0.60	16.7%	< 0.01
Visual appeal	4.22	3.65	0.57	15.6%	< 0.01

The optimized design group showed the most significant improvement in cultural identity, with a 23.5% increase, indicating that the color expression model effectively conveys the spirit of literati painting and enhances cultural connectivity. The 18.7% increase in aesthetic satisfaction highlights the advantages of optimized design in visual appeal and harmonious aesthetics, while the 12.3% increase in color perception score further validates the model's improvement in color accuracy and acceptability. Significance tests showed that all dimensions were significantly different ($p < 0.01$), indicating statistical significance.

B. PRACTICAL APPLICATION VALUE OF THE MODEL

The practicality of the model is mostly its success and the wide scope of application in incorporating culture heritage with contemporary designs. The model can bring the aesthetic value of traditional art into tangible definitions in the modern packaging design by removing color attributes of the spirit of literati painting to address the issue of culture elements being superficial when used in design. The model offers the systematic approach of design which in addition to enhancing the cultural qualities about the packaging design, it also advances the competitiveness in the differentiation of the product in the market. The hierarchical nature of the model in a practical application can be changed based on the nature of the packaging requirements. Single item packaging can be, for instance, simplified color, to represent the airy artistic concept of the literati painting, and series packaging can represent a variety of color combinations as the stratification of cultural layers. Moreover, the relationship between color and emotion mapping, which the model has built, assists the designers to better portray emotional intentions in various consumption contexts. As an example, the design of the high-end gift boxes is focused on being elegant and sophisticated whereas mass-market consumer product packaging is focused on being natural and approachable.

C. ANALYSIS OF INFLUENCING FACTORS

The influencing factor analysis focused on user background, cultural awareness level, and design element preferences, examining the impact of different factors on the optimized design effect through grouped data analysis. Participants were divided into two groups based on their cultural awareness level, and further categorized according to their professional background (design professionals and ordinary consumers) and their preference for color and artistic conception. The analysis revealed that the group with high cultural awareness scored significantly higher on cultural identity than the group with low cultural awareness, while design professionals scored higher on aesthetic satisfaction than ordinary consumers. Furthermore, users who preferred natural color tones scored higher on color perception in the optimized design, indicating that the colors of literati painting have a stronger appeal to this specific user group. The design of color contrast and layering received widespread positive feedback across all groups, but some users had lower acceptance of complex color combinations, suggesting that design simplicity remains an important factor affecting user experience. Table 3 presents the detailed data results.

TABLE 3. Results of Influencing Factor Analysis

Influencing factors	Mean cultural identity	Mean of aesthetic satisfaction	Mean color perception	Significance (p-value)
Highly culturally aware users	4.51	4.35	4.40	< 0.01
Low cultural awareness users	3.89	3.70	3.85	< 0.01
Design professionals	4.45	4.50	4.38	< 0.01
ordinary consumers	4.00	3.85	3.90	< 0.01
Users who prefer natural color tones	4.60	4.40	4.50	< 0.01

Users with high cultural awareness scored 16% and 17% higher in cultural identification and aesthetic satisfaction, respectively, indicating that cultural background is crucial to the perception of the spirit of literati painting. Design professionals pay more attention to the overall harmony of color expression, hence their significantly higher scores compared to ordinary consumers. Users who prefer natural

tones showed the highest acceptance of optimized designs, validating the model's effectiveness in color selection; however, it is important to consider the universal appeal of minimalist design across different groups.

V. CONCLUSION

By extracting the spiritual qualities of "refinement," "ethereality," and "imagery" from literati painting and integrating their color expression principles into weaving structures, a deep fusion of traditional art and modern packaging design has been achieved. This synthesis allows the subtle ink tones of classical painting to resonate through fiber-based tactile surfaces, creating a sophisticated aesthetic language for contemporary packaging. The construction of this color expression model not only provides a scientific methodology for the modernization of the spirit of literati painting but also offers designers a guiding tool for practical application. In application, the model demonstrates strong adaptability, flexibly outputting design strategies for different packaging types and consumption scenarios. For example, it emphasizes elegant artistic conception in high-end products and highlights natural affinity in everyday consumer goods. The research also shows that color expression based on the spirit of literati painting can effectively enhance consumers' awareness and emotional resonance with cultural heritage, while endowing packaging design with unique aesthetics and recognizability. Nevertheless, the model's applicability is still limited by the differences in the understanding of traditional culture among specific consumer groups, and the promotional effect of some designs in diversified markets needs further verification. Future research can combine artificial intelligence with weaving structural modeling to optimize generation efficiency, while exploring broader pathways for integrating cultural elements into advanced fiber design methods to expand its application potential across diverse design fields. This technological integration allows the ethereal aesthetics of literati painting to be systematically translated into dynamic fabric textures and complex dyeing patterns, ensuring the continued evolution of traditional art in modern material science.

AUTHOR CONTRIBUTIONS

Conceptualization –Mengdan Wang, Wei Zhou and Hao Wang; methodology – Mengdan Wang, Wei Zhou and Hao Wang; investigation – Mengdan Wang, Wei Zhou and Hao Wang; writing-original draft preparation – Mengdan Wang, Wei Zhou and Hao Wang. All authors have read and agreed to the published version of the manuscript.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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