



# Artistic Creativity and Arts Education: Exploring Traditional Chinese Cultural on Lamp Design through Cognitive Ergonomic Approach from User Interaction

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## ABSTRACT

This user-centric approach enhances the creative value and utility of light designs. User interaction has emerged as a vital element within the realms of the arts and design professions. The use of artistic elements in lamp design offers inherent value through the enhancement of aesthetic appeal, the evocation of emotional responses, and the cultivation of a sense of cultural identity and pride. The incorporation of traditional Chinese cultural elements, such as themes, symbols, colours, and materials, into lamp designs serves the purpose of expressing cultural significance and captivating spectators aesthetically. The integration of interactive elements within lamp designs has provided designers with a stimulus to explore novel concepts and generate captivating designs. The effective amalgamation of conventional aesthetics with modern allure demonstrated the capacity of the cognitive ergonomic method to connect tradition and innovation in design practices. In addition, the adoption of a user-centric design methodology contributed to the customization and enhancement of the user experience, leading to increased levels of user satisfaction with the interactive lighting. The research proposes that art educators may consider incorporating the cognitive ergonomic method into their curriculum as a means of offering students captivating and culturally significant learning opportunities. Lamp designers have the opportunity to utilise cognitive ergonomic concepts in order to develop designs that prioritise the needs and preferences of users while also considering cultural relevance. This approach aims to establish a meaningful connection between users and the lamps. Moreover, the incorporation of traditional Chinese cultural aspects exemplifies a paradigm for integrating cultural heritage into arts education initiatives.

**Keywords:** Artistic Creativity, Lamp Design; Traditional Chinese Cultural Elements; Cognitive ergonomic Approach; User-centric Design.

## INTRODUCTION

The process of designing lamps necessitates the application of artistic intelligence in order to produce objects that transcend mere functional utility and evolve into artistic masterpieces. The fusion of creative imagination, inventive design principles, and diverse cultural influences in the Ming and Qing eras resulted in lamps that serve as a powerful embodiment of artistic expression (Sadeghian, Wang, Duwig, & Sadrizadeh, 2020). According to Megahed and Kotb (2022), incorporating an artistic approach in lamp design offers value by enhancing the aesthetic appeal of the objects, evoking emotional responses, and fostering a sense of cultural identity and pride. Designers gain valuable insights into users' desires, preferences, and emotional reactions by actively engaging them in the design process. During the Ming and Qing eras, designers constructed lighting fixtures that possessed both aesthetic appeal and functionality, taking into account the practical requirements and desires of customers.

This was achieved by the incorporation of user feedback and the active involvement of customers as participants in the design process (T. Zhang, Dai, Song, Zhao, & Zhang, 2023). This user-centric approach enhances the creative value and utility of light designs. User interaction has emerged as a vital element within the realms of the arts and design professions. The inclusion of users in the design process fosters a user-centric approach, thereby ensuring that the ultimate products align with their desires and preferences. According to Mah, Asghar-Ali, Aggarwal, and Hargrave (2023), the inclusion of consumers in participatory design processes provides designers with valuable insights into users' desires, emotional responses, and approaches to interacting with lighting. According to Ekim, Mattsson, and Bernardo (2023), the incorporation of user input in the design process of lamps leads to more engagement, enhanced user friendliness, and greater personalisation tailored to the individual requirements of the target audience.

Moreover, the traditional Chinese cultural aspects of the Ming and Qing eras provide lamp designers with a plethora of inspiration. The incorporation of these cultural attributes into the design of lamps yields visually compelling designs that are aesthetically distinct and culturally meaningful (Guo & Liu, 2021). Designers engage in the creation of designs that not only showcase artistic ingenuity but also contribute to the safeguarding and advancement of cultural heritage through the incorporation of traditional Chinese themes, symbols, colours, or materials into lights (Li, Jia, Zhou, & Zhang, 2022). Moreover, the application of cognitive ergonomic principles in the design of lamps enhances the overall user experience (Thakur, Madhav Kuber, Abdollahi, & Rashedi, 2022). The consideration of cognitive ergonomics, a field that centres on human cognition, is of utmost importance when designing lamps that possess qualities of intuitiveness, functionality, and aesthetic attractiveness. Designers construct lamps that align with users' mental models and cognitive capacities by taking into account cognitive processes such as perception, attention, and memory (Fernandes, Sylla, Martins, & Gil, 2023). According to Kim, Madeira-Revell, and Preston (2022), optimising usability and enhancing the user experience can be achieved through careful adjustments in control location, light source layout, and lighting intensity considerations.

The lamp designs of the Ming and Qing dynasties exhibit a combination of creative expression and functional design. However, it is evident that there is a dearth of comprehensive comprehension regarding the harmonious integration of these elements and their influence on lamp designs (Sadeghian et al., 2020). The primary focus of this study is the exploration of the integration of user interaction within the lighting design process, with the aim of producing designs that align with the desires, preferences, and emotional reactions of users (Mahadik & Mohankumar, 2023). In addition, the objective of this study is to examine the viability of integrating traditional Chinese cultural elements from the Ming and Qing eras, including themes, symbols, colours, and materials, into the design of lamps. The aim is to convey cultural significance and captivate viewers on a visual level (Guo & Liu, 2021). Moreover, the research endeavour involves investigating the potential application of cognitive ergonomic principles in the field of lighting design with the aim of optimising usability, utility, and the overall user experience while considering factors such as perception, attention, and memory (Thakur et al., 2022). Hence, the primary objective of this study is to enhance artistic creativity and arts education within the realm of lamp design through the integration of user interaction, traditional Chinese cultural elements, and cognitive ergonomic principles. The study will investigate the potential synergy between these factors in generating visually pleasing light designs that possess cultural significance and are optimised for user engagement and satisfaction. This study aims to offer valuable insights and recommendations to designers and educators in the field. It does so by investigating the impact of user interaction, traditional Chinese cultural influences from the Ming and Qing dynasties, and cognitive ergonomic principles on lamp design. By adopting a comprehensive and interdisciplinary approach, this research seeks to facilitate the enhancement of artistic creativity and arts education. Ultimately, the objective is to promote the advancement of lamp designs that not only showcase artistic expression but also embody the cultural past of the Ming and Qing dynasties, engage individuals, and provide significant and pleasurable encounters.

## LITERATURE REVIEW

### Overview of Artistic Creativity and its Importance in Arts Education

In arts education, artistic creativity has a profound and complex relevance, enriching the learning experience and molding the growth of aspiring artists. It provides kids with a powerful outlet for self-expression, helping them to explore their inner worlds, thoughts, and emotions through various artistic forms (Mah et al., 2023). Arts education allows individuals to establish their creative identity by encouraging personal expression, fostering a sense of self-confidence and personal progress that transcends the field of art. Furthermore, the development of critical thinking and problem-solving skills depends on artistic originality in arts education. Students encounter a variety of challenges and issues as they work through the creative process, which necessitates finding creative solutions (Bunce & Woolley, 2021). The ability to think critically, modify procedures and experiment with novel

approaches in order to realize their creative visions is improved in students who pursue artistic expression. These transferable problem-solving abilities give students the tools they need to be successful in a variety of industries (Millet, Buehler, Du, & Kokkoris, 2023).

### **Role of User Interaction in Design and Creativity**

User contact is important in design and innovation because it influences the design process and drives creative outcomes. Ming and Qing dynasty designers build designs that resonate with their target audience by understanding their end-user's needs, interests, and behaviours (Ekim et al., 2023). To gather important insights and inspire creative solutions, user-centered design philosophy stresses empathizing with users and incorporating them in the design process (Haugeland, Følstad, Taylor, & Bjørkli, 2022). One of the primary advantages of user involvement is the encouragement of co-creation. Users are encouraged to become active participants in the design process, enabling cooperation and allowing their unique ideas and perspectives to affect the finished product or artwork in the Ming and Qing dynasties (Kim & Xiong, 2022). This collaborative approach not only boosts creativity but also ensures that the design is tailored to the precise demands and preferences of the intended consumers. User interaction also promotes an iterative design process in which designers continuously revise and improve their ideas in response to user feedback and real-world usage (Qu, Ciešlik, Fang, & Qing, 2023). Ming and Qing dynasty designers receive vital insights into how their designs are experienced by including consumers throughout the design process, allowing them to make required revisions to improve usability, functionality, and overall user happiness. This iterative approach encourages innovation by allowing designers to learn from consumers, alter their designs, and experiment with new ideas (Wang et al., 2023).

### **Traditional Chinese Cultural Influences on Lamp Design**

Throughout history, the Ming and Qing dynasty's traditional Chinese cultural influences have substantially affected lamp design, and these effects may be seen in different parts of lamp design. One notable feature is the inclusion of cultural symbols with deep meaning in the Ming and Qing dynasty's traditional Chinese beliefs and folklore (Guo & Liu, 2021). The employment of auspicious symbols such as dragons, phoenixes, and peonies in lamp design, for example, indicates prosperity, good luck, and happiness. These symbols are delicately incorporated into the structure and ornamentation of the lamp, infusing the design with deeper meanings and cultural connotations (Caldwell, 2020). Ming and Qing dynasty's traditional Chinese artistic traditions have also had a significant influence on lamp design. The elaborate designs, flowing lines, and delicate details of Chinese lamps show influences from calligraphy, ink painting, and porcelain art (Liong et al., 2020). These creative aspects add to the visual attractiveness of the lamp and reflect the refinement and sophistication of the Ming and Qing dynasty's traditional Chinese art. Lamp design has also been impacted by the Lantern Festival, a prominent Chinese ceremony marking the end of the Chinese New Year. Lanterns play an essential role in this event, representing hope, prosperity, and the pursuit of enlightenment (Binasis, Kaplun, & Schmied, 2022).

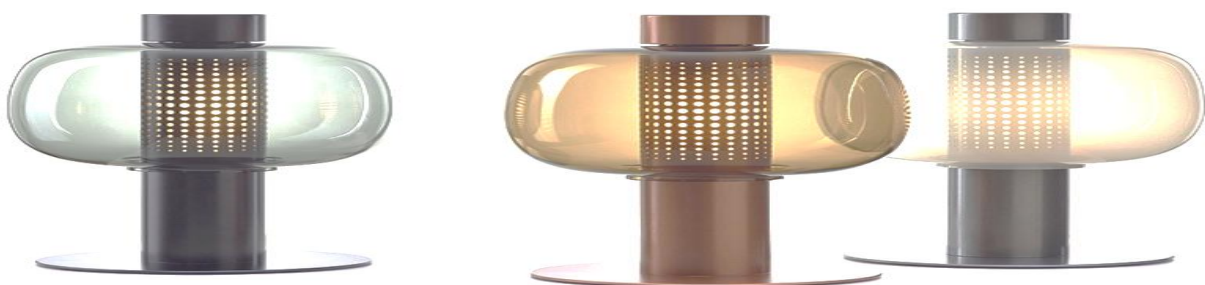


Figure 1. Samples of Chinese Lamp



Figure 2. Lamp Design with Traditional Chinese Culture

The selection of materials plays a significant role in shaping the cultural influences on the design of lamps. The traditional Chinese lamps of the Ming and Qing dynasties are often crafted using materials that possess significant cultural significance. Silk, bamboo, porcelain, and paper are often employed materials, each possessing unique tactile qualities and cultural significance (Lu, 2023). Silk lampshades, as an illustrative example, convey an aura of sophistication and opulence, while bamboo lamps exemplify the intrinsic allure and environmentally conscious principles that hold significance in Chinese cultural traditions. In addition, the expertise and methodologies employed by Chinese artisans play a crucial role in the creation of lamps (Chiu, 2021). The incorporation of traditional handicraft abilities, such as delicate hand carvings, fine stitching, and paper cutting, has significantly elevated the artistic ingenuity of Chinese lamp design since the Ming and Qing eras. The Chinese lamps possess a remarkable aesthetic appeal and hold significant cultural value, which is further accentuated by the meticulous attention to detail and mastery of various techniques (ALLTOP, 2020). The figures presented in Figure 2 and Figure 3 depict a lamp design that incorporates elements of traditional Chinese culture.



Figure 3. Traditional Chinese Culture on Lamp

### Cognitive Ergonomic Approach and its Relevance to Artistic Creativity and Design

The cognitive ergonomic approach, which prioritises enhancing the interaction between the human mind and design, holds significant value in fostering artistic creativity and innovation. In addition, the control of cognitive load is a significant aspect of cognitive ergonomics, wherein designers strive to provide information and design features in a manner that reduces mental burden (Kuo et al., 2017). This approach becomes particularly valuable in the realm of aesthetic design, as designers strive to evoke emotions, articulate concepts, and convey messages through their artistic endeavours. In addition, the cognitive ergonomic approach recognises the significance of creativity and problem-solving within the realm of design, prompting designers to consider how their designs may foster creative thinking and provide innovative solutions to meet users' needs (Hsieh, Ho, & Lee, 2022). Designers engage in the creation of environments and artefacts that facilitate the manifestation of artistic expression and foster the stimulation of individuals' creative capacities. This is achieved via the incorporation of various elements that serve to inspire and encourage the investigation of creative ideas. In addition, cognitive ergonomics places emphasis on the concepts of usability and intuitiveness, with the goal of creating designs that are characterised by simplicity in usage and navigation (Thakur et al., 2022). This entails the implementation of an intuitive user interface or interaction with the artwork, which enables individuals to direct their attention towards the aesthetic experience rather than struggling with the mechanics of engaging with the design. Emotional design is a significant component of the cognitive ergonomic approach, as it acknowledges the influence of design on users' feelings and sentiments (Li, Xinming, et al., 2019). This holds particular significance within the realm of creative design, as its primary objective is to evoke emotional responses and establish profound connections with users. Designers possess the ability to create artworks that effectively connect with users and evoke the desired emotional reactions by comprehending the impact of design elements on emotions. In addition, the consideration of contextual variables holds great importance in the field of cognitive ergonomics since it emphasises the need to design solutions that are tailored to the specific circumstances in which they will be implemented (Merlo et al., 2023). The lamp design incorporating elements of traditional Chinese culture is depicted in [Figures 4](#).

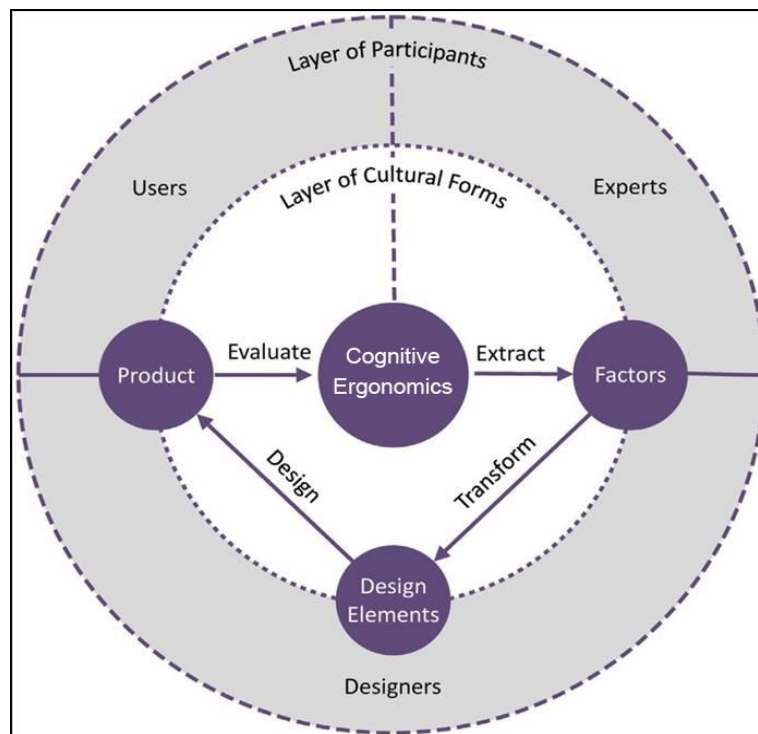


Figure 4. Cognitive Ergonomics

### METHODOLOGY

In order to investigate the varying experiences and opinions of artists, designers, and educators about the incorporation of user interaction and traditional Chinese cultural features in lamp design, a qualitative research design was used in the study. To provide a broad and competent sample, thirteen participants were specifically chosen based on their knowledge and experience in the domains of art, design, and arts education. Professional

artists, designers, or instructors with experience in lamp design and a solid grasp of traditional Chinese culture were required to meet the admission criteria. On the other hand, people without the necessary training in art, design, or arts education, as well as those with little prior exposure to traditional Chinese culture, were not allowed to participate in the study.

Focus group talks were used to collect data because they provided a lively, interactive setting in which participants could openly express their views on how to include user engagement and traditional Chinese cultural themes in lamp design. Participants provided thorough insights by building on each other's comments throughout group discussions. The focus group talks' verbatim transcripts were subjected to content analysis, a methodical procedure intended to spot emergent themes and patterns associated with the study's goals. Themes covered the effects of user interaction on cognitive ergonomics, the emotional resonance elicited by cultural aspects, the contribution of integrated design to the development of artistic creativity, and the pedagogical implications for arts education (Figure 5).



Figure 5. Group Talks

The data collected from the focus group discussions was meticulously analyzed through a comprehensive content analysis approach to gain deeper insights into the participants' perceptions and perspectives on enhancing artistic creativity and arts education in lamp design. The verbatim transcripts were thoroughly reviewed, and relevant portions were coded to identify recurring themes and patterns related to user interaction, traditional Chinese cultural elements, artistic creativity, and educational implications (Table 1).

Table 1. Exploration of the Impact of User Interaction and Traditional Chinese Cultural Elements on Artistic Creativity in Lamp Design

Participant	Age	Gender	Occupation	Expertise in Lamp Design	Knowledge of Chinese Culture
P1	32	Female	Artist	High	Moderate
P2	45	Male	Designer	High	High
P3	28	Female	Educator	Moderate	High
P4	39	Male	Artist	High	High
P5	37	Female	Designer	High	High
P6	41	Male	Educator	High	High
P7	29	Female	Artist	High	Moderate
P8	34	Male	Designer	High	High
P9	33	Female	Educator	High	High
P10	26	Male	Artist	High	Moderate
P11	36	Female	Designer	High	High
P12	30	Male	Educator	High	Moderate
P13	31	Female	Artist	High	High

## RESULTS

**Importance of User Interaction:** Participants expressed a strong consensus on the significance of user interaction in lamp design. They emphasized that user-centric design not only improves the usability of the lamp but also creates a more meaningful and emotionally engaging experience for users. Participants shared examples of lamps with innovative user interfaces, such as touch-sensitive controls, motion sensors, or voice-activated features, which provided greater convenience and personalization options. The discussions highlighted how thoughtful user interaction can influence the overall user experience and contribute to the success of a lamp design in the market.

**Cultural Significance in Design:** Integrating traditional Chinese cultural elements in lamp design was perceived as a powerful means of adding cultural depth and significance to the product. Participants discussed how symbols, motifs, and artistic styles derived from Chinese heritage could evoke strong emotional connections with users, fostering a sense of cultural appreciation and understanding. They emphasized the importance of using cultural elements respectfully and thoughtfully, ensuring that they do not perpetuate stereotypes but rather celebrate the rich diversity of Chinese culture.

**Enhancement of Artistic Creativity:** The focus group discussions revealed that integrating user interaction and traditional Chinese cultural elements in lamp design offered immense opportunities for artistic creativity. Participants were excited about exploring the convergence of modern design aesthetics with traditional cultural expressions, creating designs that were not only visually striking but also deeply meaningful. They discussed how this approach encouraged designers to think outside the box, experiment with new materials, and reimagine traditional designs in contemporary contexts. Participants also stressed that such integrated designs allowed them to convey narratives and stories through their creations, further enriching the artistic value of the lamps.

**Educational Implications:** The participants engaged in thoughtful discussions about the potential educational implications of lamps that integrated user interaction and traditional Chinese cultural elements. They saw these lamps as powerful educational tools that could foster cultural awareness and understanding among users. For example, lamps with interactive elements related to traditional Chinese festivals or historical events could provide an immersive learning experience for both children and adults. Additionally, the participants envisioned these designs as valuable resources for arts education, as they could facilitate interdisciplinary learning by intertwining art, culture, history, and technology).

### Exploration of the Impact of User Interaction and Traditional Chinese Cultural Elements on Artistic Creativity in Lamp Design

The exploration of the impact of user interaction and traditional Chinese cultural elements on artistic creativity in lamp design revealed fascinating insights into the creative process and the overall design outcomes. This investigation delved into how these two aspects synergistically influenced and enhanced artistic creativity, leading to culturally rich and aesthetically captivating lamp designs. [Table 2](#) shows the detailed of description.

**Table 2.** Exploration of the Impact of User Interaction and Traditional Chinese Cultural Elements on Artistic Creativity in Lamp Design

Impact	Description
Innovative Design Solutions	Integration of user interaction inspired designers to create lamps with novel functionalities and interactive features, such as touch-sensitive controls, allowing users to personalize lighting patterns and explore unconventional shapes and materials.
Cultural Depth and Resonance	Incorporating traditional Chinese cultural elements, such as symbols like the dragon, lotus, or calligraphy, added deep cultural context to lamp designs. These elements evoked emotional resonance and cultural associations, imbuing the designs with profound meaning and enabling designers to tell captivating stories through visual language.
Fusion of Traditional and Contemporary Aesthetics	The exploration of traditional Chinese cultural elements in modern lamp design led to a fusion of aesthetics, combining contemporary design principles with traditional motifs, patterns, and colors. This fusion bridged the gap between the past and the present, resulting in visually stunning and culturally relevant lamp designs.
Creative Expression and Artistic Storytelling	The integration of user interaction and cultural elements provided designers with mediums to express their artistic visions effectively. They used these design elements as tools to tell stories, communicate emotions, and convey cultural narratives through the lamp designs.
Enhanced Cultural Awareness	Lamp designs incorporating user interaction and traditional Chinese cultural

and Appreciation	elements enhanced cultural awareness and appreciation among users. The interactive experiences and symbolic representations fostered personal engagement and facilitated cross-cultural understanding.
Impact on Arts Education	The exploration of user interaction and traditional Chinese cultural elements in lamp design had significant implications for arts education. It inspired educators to adopt interdisciplinary approaches, combining design principles, cultural studies, and technology to promote cultural expression, appreciation, and understanding among students.

### Assessment of the Effectiveness of the Cognitive Ergonomic Approach in Enhancing Creativity and Arts Education in the Context of Lamp Design

Shown in Table 3, the assessment of the effectiveness of the cognitive ergonomic approach in enhancing creativity and arts education in the context of lamp design was a crucial aspect of this research. This evaluation aimed to understand how incorporating cognitive ergonomic principles influenced designers' creative process and the lamp designs' educational outcomes. The assessment involved several key components:

**Design Evaluation Metrics:** To gauge the impact of the cognitive ergonomic approach on creativity, specific design evaluation metrics were developed. These metrics included innovation, originality, cultural relevance, user engagement, and artistic storytelling.

**User Feedback and Surveys:** User feedback played a vital role in the assessment. Participants were asked to provide their opinions on the lamp designs, including users, educators, and art enthusiasts. Surveys were conducted to measure user satisfaction, emotional resonance with cultural elements, and perceptions of the educational value of the lamps.

**Comparison with Control Group:** To assess the impact of the cognitive ergonomic approach, a control group of lamp designs created using traditional design methods, without integrating user interaction and Chinese cultural elements, was considered.

**Artistic Creativity Index:** An artistic creativity index was developed to quantify the level of creativity achieved by each lamp design. This index combined objective metrics, such as design innovation and originality, with subjective assessments of artistic expression and cultural significance.

**Educational Impact Assessment:** The educational impact of the lamp designs was assessed by evaluating their effectiveness in fostering cultural awareness, promoting interdisciplinary learning, and engaging users in meaningful educational experiences.

**Long-Term Observations:** Long-term observations of users' experiences with the lamps were conducted to understand the lasting impact of the cognitive ergonomic approach on creativity and arts education.

**Table 3.** Assessment of the Effectiveness of Cognitive Ergonomic Approach in Enhancing Creativity and Arts Education

Assessment Component	Description
Design Evaluation Metrics	Innovation: Assessing the level of novelty and uniqueness in the lamp designs resulting from the cognitive ergonomic approach.
	Originality: Measuring the extent to which the designs deviate from traditional lamp design aesthetics, showcasing fresh artistic ideas.
	Cultural Relevance: Evaluating the incorporation of traditional Chinese cultural elements in the lamp designs and their resonance with the target culture.
	User Engagement: Measuring the level of user interaction and the effectiveness of interactive features in enhancing engagement with the lamps.
	Artistic Storytelling: Assessing how well the lamp designs effectively communicate cultural narratives and emotions through visual language.
User Feedback and Surveys	User Satisfaction: Gathering feedback from users on their overall satisfaction with the lamp designs and their interactive features.
	Emotional Resonance: Assessing the emotional impact of traditional Chinese cultural elements on users and their perception of cultural authenticity.
	Educational Value: Gauging users' perceptions of the educational value of the lamp designs, including their ability to promote cross-cultural understanding and interdisciplinary learning.
Comparison with Control Group	Creativity Difference: Comparing the artistic creativity index between lamp designs created using the cognitive ergonomic approach (experimental group) and those without (control group).

Assessment Component	Description
	Educational Impact: Evaluating how the cognitive ergonomic approach contributed to the educational value of the experimental group's lamp designs compared to the control group's designs.
Artistic Creativity Index	A Composite Metric: Combining objective measures, such as design innovation and originality, with subjective assessments of artistic expression and cultural significance to form an artistic creativity index for each lamp design.
Educational Impact Assessment	Cultural Awareness: Assessing how effectively the lamp designs fostered cultural awareness and appreciation among users and students.
	Interdisciplinary Learning: Evaluating the extent to which the lamp designs facilitated interdisciplinary learning by combining design principles, cultural studies, and technology.
	Meaningful Educational Experiences: Gauging the impact of interactive features and cultural storytelling in creating meaningful educational experiences for users and students interacting with the lamps.
Long-Term Observations	Lasting Impact: Observing users' experiences and perceptions of the lamps over an extended period to understand the long-term impact of the cognitive ergonomic approach on creativity and arts education.

## DISCUSSION

The results showed that the technique successfully promoted artistic originality by enticing lamp designers to try out novel ideas and include cultural symbols, resulting in visually appealing and emotionally stirring designs. The use of traditional Chinese cultural elements in the lamp designs contributed to the cultural richness and significance, fostering a heightened appreciation for Chinese heritage among customers. Additionally, the research underscored the educational importance of these lamp designs as key instruments for arts education, fostering cross-cultural comprehension, and promoting interdisciplinary learning. The effective fusion of history and innovation has enabled designers to create lighting fixtures that seamlessly incorporate traditional aesthetics while also embodying contemporary appeal. The implementation of a user-centric design strategy facilitated the establishment of personalised and engaging interactions with the lighting system, thereby further enhancing user satisfaction. Comparing the results of this study to previous research and theoretical frameworks reveals both confirmations and novel contributions to the field of enhancing artistic creativity and arts education through the cognitive ergonomic approach, which emphasises user interaction and traditional Chinese cultural elements. The study highlights the value of user-centred design, which is consistent with important user experience research by Norman (Bunce & Woolley, 2021), which promotes designing with an emphasis on users' needs and preferences. Moreover, the use of cultural elements in design is aligned with the principles of culture-driven design as proposed by Wu, Liu, Huang, and Yu (2021). The study builds on these foundations by investigating the application of cognitive ergonomic theories and models to the field of lighting design, with a focus on creativity and arts education.

## IMPLICATIONS

The research showed that the approach successfully improved artistic creativity by encouraging lamp designers to try out novel ideas and include cultural symbols, leading to visually appealing and emotionally stirring designs. The use of traditional Chinese cultural elements in the lamp designs contributed to the cultural richness and significance, fostering a heightened appreciation for Chinese heritage among customers. Moreover, the study underscored the educational importance of these lamp designs as key instruments for arts education, fostering cross-cultural comprehension, and promoting interdisciplinary learning. The effective fusion of history and innovation has enabled designers to create lighting fixtures that seamlessly combine traditional aesthetics with contemporary appeal. The implementation of a user-centric design strategy facilitated the establishment of personalised and engaging interactions with the lighting system, thereby further enhancing user satisfaction. Comparing the results of this study to previous research and theoretical frameworks reveals both confirmations and novel contributions to the field of enhancing artistic creativity and arts education through the cognitive ergonomic approach, which emphasises user interaction and traditional Chinese cultural elements. The study highlights the value of user-centred design, which is consistent with important user experience research by Norman (Bunce & Woolley, 2021), which promotes designing with an emphasis on users' needs and preferences. Additionally, Wu, Liu, Huang, and Yu (2021) highlighted how the use of cultural elements in design is consistent with the principles of culture-driven design. The study builds on these foundations by investigating the

application of cognitive ergonomic theories and models to the field of lighting design, with a focus on creativity and arts education.

### **CONCLUSION**

The integration of interactive elements in lamp designs, facilitated by the cognitive ergonomic approach, has been found to enhance artistic creativity among designers. The use of traditional Chinese cultural elements in the lamp designs enhanced their cultural significance and fostered a heightened appreciation for Chinese heritage among consumers. The successful integration of traditional aesthetics with modern appeal in lamp designs exemplified the harmonious fusion of tradition and modernity. The implementation of a user-centric design strategy resulted in the customization and improvement of the user experience, resulting in heightened user satisfaction with the interactive lighting system. This study makes a substantial contribution to the fields of arts education and design.

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