DESIGN CHARACTERISTICS OF MUSEUM CULTURAL AND CREATIVE PRODUCTS AND CONSUMER BEHAVIOR (TAKING NATIONAL PALACE MUSEUM, TAIWAN AS EXAMPLE)

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ABSTRACT

Museum cultural and creative products (MCCPs) have become an important means for museums to communicate cultural values and generate economic benefits. While previous studies have explored product design and consumer preferences, limited research has examined how design characteristics influence consumer behavior through emotional responses. The primary objective of this study is to examine the relationships among museum cultural and creative product design characteristics, Kansei responses, cognitive load, and consumer behavior. Specifically, this research aims to identify the relationships between these variables and investigate how design characteristics influence consumer behavior through consumers' emotional responses while controlling for cultural background. It is expected that museum products with stronger functional, aesthetic, and experiential design characteristics will evoke more positive Kansei responses, reduce cognitive load, and ultimately increase consumers' purchase intentions. The findings are expected to provide theoretical contributions to museum studies and practical implications for the design and development of museum cultural and creative products.

Keywords: Museum Cultural and Creative Products, Kansei Engineering, Consumer Behavior, Cognitive Load, Cross-Cultural Research

1. INTRODUCTION

Museums worldwide increasingly rely on cultural and creative products to extend visitor experiences beyond exhibition spaces. These products transform cultural heritage into marketable goods while preserving historical and artistic values. As competition among museums intensifies, understanding the factors that influence consumer purchase decisions has become increasingly important. Holbrook and Hirschman (1982) proposed the experiential view of consumption, suggesting that consumers are influenced by non-rational factors such as fantasies, feelings, and enjoyment during the consumption process. Consumption behavior therefore possesses sensory, symbolic, and emotional characteristics. This perspective provides important insights for the study of museum cultural and creative products, as consumers' evaluations of museum products are often determined not only by their practical utility but also by their ability to evoke aesthetic pleasure, cultural identity, and emotional resonance. Consumers from different countries may interpret and evaluate product designs differently due to variations in cultural backgrounds, aesthetic experiences, museum visitation experiences, and familiarity with cultural artifacts. Hofstede (2001) argued that cultural background influences individuals' value judgments, cognitive patterns, and behavioral tendencies. Similarly, Steenkamp and Baumgartner (1998) noted that cultural and linguistic differences may affect respondents' interpretations of measurement scales and product meanings in cross-national consumer research.

Although previous studies have emphasized product aesthetics and cultural symbolism, little attention has been paid to the psychological mechanisms that connect design characteristics to consumer behavior. Specifically, emotional responses elicited by museum products may play a critical role in shaping purchasing intentions. To address this research gap, this study adopts Kansei Engineering as the primary theoretical framework. Kansei Engineering focuses on translating consumers' emotional and psychological perceptions into design elements. Additionally, Cognitive Load Theory is incorporated to examine how the complexity of product design may affect consumer decision-making processes. The purpose of this study is to investigate the influence of museum product design characteristics on Kansei responses and consumer behavior while controlling for cultural background in Taiwan.

Museum cultural and creative products (MCCPs) have evolved from simple souvenirs into products that communicate cultural meaning while generating financial sustainability for museums. Successful MCCPs not only preserve cultural heritage but also reinterpret historical artifacts through contemporary design, allowing consumers to integrate cultural experiences into everyday life. According to the transformation model of iconic artifacts, objects evolve from physical "things" into culturally meaningful artifacts through the accumulation of symbolic, historical, and social meanings (Azcárate, 2023). This transformation is further conceptualized through layered meanings, including natural, conventional, and intrinsic levels, which shape how audiences interpret cultural objects (Panofsky, 2020). These products not only contribute significantly to the economic viability of museums but also play a crucial role in disseminating cultural narratives to a broader public (Liu et al., 2024). Previous studies have shown that consumers tend to prefer museum products that combine cultural authenticity with functional value, aesthetic appeal, and emotional engagement. Therefore, understanding how different design characteristics influence consumer perceptions has become an important research topic.

Kansei Engineering, proposed by (Nagamachi, 1995), is a consumer-oriented design methodology that translates emotional perceptions into product attributes. The approach has been widely applied in product design, service design, and user experience research. In the context of museum products, Kansei responses may include emotional pleasure, cultural resonance, and aesthetic appreciation. Positive emotional responses are expected to enhance consumer engagement and purchasing behavior. Kansei Engineering has been widely applied in product design, automotive engineering, consumer electronics, packaging, and service design to translate users' emotional needs into concrete design elements. Rather than focusing solely on product functionality, Kansei Engineering emphasizes consumers' subjective feelings, including pleasure, attractiveness, familiarity, and emotional attachment. In the context of museum cultural products, emotional responses such as cultural resonance and aesthetic appreciation may influence consumers' purchasing decisions more strongly than objective product features. Empirical studies indicate that symbolic and aesthetic features embedded in cultural products significantly influence consumers' affective evaluations (Cheng & Skliarenko, 2025). Design elements such as iconic representation, abstraction, and storytelling can trigger emotional responses including nostalgia, authenticity, and cultural connection.

Cognitive Load Theory (Sweller, 1988) explains how mental processing demands influence learning and decision-making. Products with excessive visual complexity may increase cognitive load, potentially reducing consumers' ability to process product information efficiently. Consequently, cognitive load may negatively affect consumers' purchase intentions and evaluations of museum products. Consumer behavior refers to the psychological processes involved in selecting, purchasing, and evaluating products. In museum retailing, purchase intention is widely used as an indicator of consumers' behavioral responses toward cultural products. Previous studies have demonstrated that purchase intention is influenced by perceived value, emotional attachment, aesthetic appreciation, and cultural identity. Consumers are more likely to purchase museum products when they perceive both practical utility and meaningful cultural significance. Therefore, understanding the psychological factors underlying purchase intention is essential for developing successful museum cultural products. In museum settings, souvenirs are not merely functional products but symbolic carriers of experience and memory. Emotional engagement—such as perceived meaningfulness, aesthetic pleasure, and cultural resonance—has been shown to significantly increase consumers' willingness to purchase (Dodds et al., 1991).

Based on the literature, this study proposes a conceptual model linking design characteristics, Kansei responses, cognitive load, and consumer behavior. Although previous studies have investigated museum cultural products, product design, Kansei Engineering, and consumer behavior independently, few studies have integrated these perspectives into a comprehensive framework. Moreover, limited research has examined how design characteristics influence purchase intention through emotional responses while considering the role of cognitive load. This study addresses this research gap by proposing an integrated model linking design characteristics, Kansei responses, cognitive load, and consumer behavior. Design characteristics consist of two dimensions:

1. Design Types
    - Functional Design
    - Decorative Design
    - Experiential Design
2. Transformation Approaches
    - Figurative Transformation
    - Abstract Transformation
    - Symbolic Transformation

Kansei responses include:

- Pleasure
- Cultural Resonance

Consumer behavior includes:

- Purchase Intention

The following hypotheses are proposed:
H1: Design characteristics positively influence consumer responses.
H2: Kansei responses positively influence consumer behavior.
H3: Kansei responses mediate the relationship between design characteristics and consumer behavior.

2. METHOD

This study adopts a quantitative, cross-sectional survey designed to examine the relationships among museum cultural and creative product design characteristics, Kansei responses, cognitive load, and consumer behavior. A structured questionnaire is employed to collect participants' evaluations of selected museum artifacts and their corresponding cultural and creative products.

Participants

Participants are recruited from Taiwan using convenience sampling. Before completing the questionnaire, participants are informed about the purpose of the study and provide informed consent. Participation is voluntary and anonymous.

Research Procedure

The experiment is conducted online using a structured questionnaire. First, participants view an image and a short caption explaining the concept of museum cultural and creative products and introducing the selected museum artifacts. Next, each participant is presented with one original museum artifact together with its corresponding cultural and creative product selected from the National Palace Museum online gift shop. The experimental stimuli consist of three representative artifacts:

- Jadeite Cabbage
- Meat-shaped Stone
- Mao Gong Ding

Each artifact is paired with one corresponding museum cultural and creative product:

- Jadeite Cabbage Tote Bag
- Meat-shaped Stone Notebook
- Mao Gong Ding Cup Holder

After viewing the assigned images, participants complete a questionnaire using a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire measures participants' perceptions of product design characteristics, Kansei responses, cognitive load, and purchase intention. The images of the Top 3 museum artifacts from the National Palace Museum in Taiwan, and the transitioned cultural and creative products as stimuli selected from the National Palace Museum online gift shop are also shown as below.





Jadeite Cabbage	Meat-shaped Stone	Mao Gong Ding

Figure 1. Images of Top 3 museum artifacts from the National Palace Museum in Taiwan**.**

Participants were asked to view assigned cultural and creative product images shown as below and complete a structured questionnaire using a five-point Likert scale.

		
Jadeite Cabbage Tote Bag	**Meat-shaped Stone Notebook**	**Mao Gong Ding Cup Holder**

Figure 2. Images of 3 creative and cultural products transitioned through the Top 3 museum artifacts, sold at the National Palace Museum gift shop.

Measurement items are adapted from validated scales reported in previous studies. Design characteristics are assessed through three dimensions: functional design, aesthetic design, and experiential design. Kansei responses are measured using two constructs: pleasure and cultural resonance. Cognitive load is evaluated based on participant's perceived mental effort while processing the product information, whereas consumer behavior is represented by purchase intention.

3. RESULTS AND DISCUSSION

Descriptive Statistics

Table 1. Descriptive Statistics for the Three Museum Cultural Products

Product	Mean	SD	Median
Jadeite Cabbage Tote Bag	4.45	0.48	5
Meat-shaped Stone Notebook	4.12	0.61	4
Mao Gong Ding Cup Holder	3.89	0.75	4

Table 1 presents the descriptive statistics for the three museums cultural and creative products. Among the three products, the Jadeite Cabbage Tote Bag received the highest overall evaluation (M = 4.45, SD = 0.48), followed by the Meat-shaped Stone Notebook (M = 4.12, SD = 0.61). The Mao Gong Ding Cup Holder received the lowest mean score (M = 3.89, SD = 0.75). Overall, participants showed positive evaluations toward all three products.

Comparison of Products

Table 2. Comparison of Mean Scores

Product	Mean Rank
Jadeite Cabbage	1
Meat-shaped Stone	2
Mao Gong Ding	3

The Jadeite Cabbage Tote Bag obtained the highest mean evaluation among the three products, suggesting that participants perceived it as the most attractive and desirable museum cultural product.

Table 3. Reliability Analysis

Construct	Cronbach's α
Design Characteristics	0.89
Kansei Responses	0.91
Purchase Intention	0.86

Cronbach's alpha values exceeded 0.80 for all constructs, indicating satisfactory internal consistency.

Mean Purchase Intention by Product

Table 1. Mean Purchase Intention for the Three Museum Cultural and Creative Products. Here's an illustrative comparison of the average purchase intention scores for the three museums cultural and creative products.

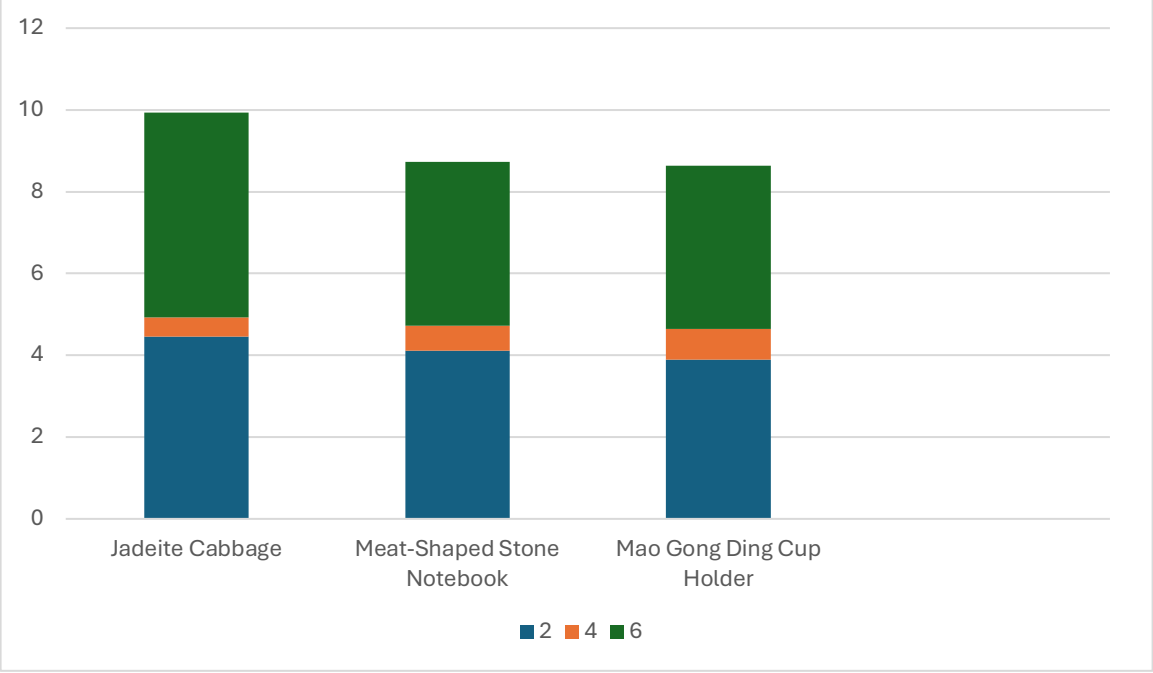


Figure 3. Mean Ratings of the Three Museum Cultural Products

Table 1. presents the mean purchase intention scores for the three museums' cultural and creative products. Among the three products, the Jadeite Cabbage Tote Bag received the highest purchase intention score, followed by the Meat-shaped Stone Notebook and the Mao Gong Ding Cup Holder. These descriptive findings suggest that products perceived as more attractive and culturally engaging may generate stronger consumer purchase intentions. Although descriptive statistics alone do not confirm the proposed hypotheses, the observed pattern provides preliminary support for the conceptual

framework. Subsequent correlation and regression analyses will be conducted to examine whether design characteristics significantly influence Kansei responses (H1), whether Kansei responses positively affect purchase intention (H2), and whether Kansei responses mediate the relationship between design characteristics and consumer behavior (H3).

Table 4. Mean Scores Across the Major Constructs

Product	Design Characteristics	Kansei Responses	Purchase Intention
Jadeite Cabbage Tote Bag	4.42	4.58	4.45
Meat-shaped Stone Notebook	4.15	4.20	4.12
Mao Gong Ding Cup Holder	3.90	3.95	3.89

Table 4. presents the mean scores for the three museums cultural and creative products across the three major constructs: design characteristics, Kansei responses, and purchase intention. Among the three products, the Jadeite Cabbage Tote Bag received most positive feedback as for design characteristics, Kansei responses and purchase intention. To conclude consumers are more willing to buy the Jadeite Cabbage Tote Bag over the Meat-shaped Stone Notebook, lastly followed by the least preferred product, the Mao Gong Ding cup holder.

The study is expected to demonstrate that museum product design characteristics significantly influence consumer behavior through emotional responses. Specifically, products that generate stronger feelings of pleasure and cultural resonance are anticipated to produce higher purchase intentions and willingness to pay. Furthermore, the findings are expected to reveal that excessive cognitive load may negatively affect consumer evaluations, highlighting the importance of balancing cultural richness with design simplicity. Theoretical contributions include extending Kansei Engineering research into museum product design and integrating Cognitive Load Theory within a consumer behavior framework. Practical contributions include providing museums and designers with evidence-based guidelines for developing cultural products that enhance emotional engagement and market performance.

4. CONCLUSION

This study proposes an integrated framework combining Kansei Engineering, Cognitive Load Theory, and consumer behavior to investigate museum cultural and creative products. The findings are expected to provide empirical evidence regarding the influence of product design characteristics on consumers' emotional responses and purchase intentions. The proposed framework may assist museums and designers in developing cultural products that effectively balance cultural authenticity, emotional appeal, and marketability.

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