DESIGNING FOR ENRICHING LEISURE EXPERIENCE WITH A CRAFTED TEA SET OF EMBODIED CULTURAL STORIES

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ABSTRACT

In today's fast-paced lifestyle, people increasingly prioritize the quality of leisure time with family and friends for emotional restoration. Research indicates that low-effort activities during non-work hours help reduce burnout; however, such activities often lack sensory depth and interpersonal interaction. This study focuses on "weekend gatherings" moments and proposes a tea set design that utilizes craftsmanship and cultural elements to enrich users' emotional experiences and social connections. Our design process combined both quantitative and qualitative methods. Firstly, we applied Kansei Engineering Type I approach to investigate users' perceptions towards 15 existing tea set products. 33 participants completed a survey of 10 semantic differential scales. Factor analysis identified three key Kansei factors: "Ritual," "Innovation/Interest," and "Decoration." Informed by those insights, we integrated cultural elements into the ritual of tea time design and create a ceramic tea set that offers rich sensorial experiences. In the post-test, we invited 5 participants to try out our prototype in a social gathering setup to understand their user experiences through observation and semi-structured interviews. The results show that: (1) the puzzle game of the ritual design successfully triggered surprise and curiosity; (2) the integration of multisensory elements throughout the tea-making process enhanced participants' engagement, relaxation, and emotional restoration; (3) the combination of craftsmanship, cultural elements, and ritualized interaction strengthened participants' emotional connection and social engagement during weekend tea gatherings.

Keywords: *Kansei Engineering, Multi-sensory Experience, Craftmanship, Emotional Restoration, Tea Set Design.*

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1 INTRODUCTION

1.1 Research Background and Motivation

Under the high-pressure lifestyle of the modern era, weekends serve as a critical "recovery" period. Engaging in voluntary leisure activities helps restore depleted psychological and physical resources (Jeong et al., 2020). Weekend gatherings, categorized as "joint leisure," provide a space for social support and emotional sharing (Rimé, 2007). In such contexts, craft objects act as essential mediators that shape the atmosphere and collective memory.

However, in traditional craft practice, the evaluation is often skewed toward technical precision and material mastery, frequently neglecting the "Kansei intention" of the creator and the actual "perceived experience" of the user. This gap results in objects that are technically refined but emotionally disconnected. Therefore, this study introduces Kansei Engineering Type I to systematically map physical attributes to psychological perceptions, ensuring that craft materials—through touch, weight, and texture—effectively drive emotional restoration.

1.2 Research Objectives

The primary objective of this study is to establish a systematic development model for craft design that bridges the gap between creator intention and user perception. Specifically:

1. To identify key Kansei factors for tea sets in social contexts using the SD method.

2. To translate Kansei factors into concrete formal, sensory, and interaction design parameters for the development of the tea set.

3. To validate the effectiveness of the proposed tea set design in enhancing relaxation and emotional connection during weekend tea gatherings.

2 LITERATURE REVIEW

2.1 Multi-sensory Experience and Holistic Perception

In contemporary design research, multisensory experience has emerged as a pivotal theoretical lens for deciphering the emotional nexus between users and objects. Unlike analytical frameworks centered on isolated sensory modalities, multisensory design posits that human perception is an integrated experiential process; the simultaneous engagement of multiple senses shapes the holistic cognition and emotional response toward an object (Yin, Zhu & Yuan, 2024).

According to the Kansei Potential Thinking Method (Murata, 2014), humans do not process external stimuli through discrete sensory channels; instead, they form a "holistic perception" through sensory integration. This concept suggests that information from visual, tactile, and olfactory channels converges at the cognitive level to construct a comprehensive understanding and Kansei judgment of the object. Within the context of craft and product design, the formal language, material properties, and interaction sequences serve as critical design parameters that modulate this holistic perception.

Extant research underscores that Kansei value is a decisive factor in stimulating user interest, cultivating preferences, and driving decision-making, thereby facilitating emotional resonance among the designer, the object, and the user (Norman, 2004).

From the perspective of User Experience (UX), vision typically functions as the primary sensory receptor, responsible for the rapid appraisal of form, material, proportion, and aesthetic composition. However, compared to the immediate impressions provided by vision, tactile perception is regarded as the most fundamental pathway to perceiving the essence of materials. Through feedback from the skin and musculature, users discern physical attributes such as weight, temperature, dimensions, and texture (smoothness vs. roughness), thereby establishing a profound understanding of material and craft quality (Tiest, 2010). Consequently, Kansei value is not merely generated through observation but must be accumulated and internalized through physical engagement, manipulation, and iterative use—a process rooted in embodied experience. In this context, multisensory design not only enriches the experiential depth but also transforms mundane daily rituals—such as tea tasting—into collective experiences characterized by emotional gravity and memorability.

2.2 Kansei Craft and Emotional Value

The term "craft" can be traced back to the Arts and Crafts Movement. In the era of mass production following the Industrial Revolution, most products relied on mechanized manufacturing, causing objects to lose the delicate and warm texture inherent in handmade work—often critiqued as design lacking "soul" or emotional resonance. Consequently, craft design integrates manual practice into the design process, endowing objects with formal warmth and diversity. In his study on "craft consumption," Bell (2021) posits that consumers pursue craft objects not merely for the manual process or the identity of the maker, but because the consumption process involves a synthesis of craft judgment, emotional investment, passion, and the intrinsic allure of the object. These elements constitute a conscious practice through which consumers express self-identity and create value. Thus, through the praxis of materials, craft ensures that a work functions not only as a utilitarian tool but also as a vital medium for shaping form and meaning while responding to life and contemporary experiences.

Among the five senses, vision is often regarded as the primary intuition for appraising an object's aesthetics, whereas tactile perception is considered the most fundamental pathway to experiencing the material itself. Through cutaneous feedback, individuals can discern characteristics such as size, weight, and surface texture (smoothness vs. roughness), thereby absorbing extensive information regarding the object (Tiest, 2010). Similarly, Yanagi (2002) noted in his theory of folk art (Mingei) that "to understand the beauty of an object, one must first touch its materials and textures with their own hands" (p. 182). Therefore, it is only through the physical proximity to materials—accumulating perceptual experience through contact and use—that the distance between human and object is bridged, allowing the Kansei value embedded in craft to truly manifest.

3 METHODOLOGY

This research aims to address the potential perceptual discrepancy between the Kansei intentions conveyed by designers and the actual perceived experiences of users within the practice of craft design. Using the design of a tea set for 'weekend gatherings' as a primary case study, this paper employs a systematic methodology to establish a mapping relationship between product formal attributes and user Kansei values. The findings serve as a robust theoretical framework for informed design decision-making in subsequent development processes.

The first phase aimed to establish the Kansei positioning of the target product and apply Kansei Engineering to translate users' subjective emotional responses into analyzable design parameters. The research procedure consisted of competitive product analysis, Kansei word construction, a Semantic Differential (SD) survey, and Kansei space construction.

First, approximately 30 tea sets, tableware products, and craft artworks were collected from the market. Based on differences in product style, usage context, and formal characteristics, together with the six dimensions of Kansei value proposed by Murata (2020), a qualitative analysis was conducted to select 15 representative samples for further evaluation. These samples were chosen to represent the major design languages and emotional characteristics found in the current market.

Next, a Semantic Differential (SD) scale was developed using ten pairs of Kansei adjective scales to evaluate users' perceptions of the products in terms of visual impression, usage context, and emotional atmosphere. Representative adjective pairs included Soft–Vivid, Practical–Decorative, Interesting–Serious, and Ritualistic–Everyday, among others

An online questionnaire survey was then conducted, yielding 33 valid responses. Participants evaluated each representative product using a seven-point Likert scale based on the ten Semantic Differential adjective pairs. The collected data were analyzed using factor analysis to extract the principal Kansei dimensions, construct the Kansei space, and perform product positioning analysis. As shown in Table 1 and Table 2.

The results identified three primary Kansei factors underlying users' perceptions of the representative products: Decoration, Innovation/Modernity, and Ritual. These factors subsequently served as the foundation for translating users' emotional expectations into the formal, visual, and interaction design parameters of the proposed tea set.

Table 1. Total Variance Explained

Total Variance Explained						
Initial Eigenvalues				Extraction Sums of Squared Loadings		
Component	Total	Variance%	Cumulative %	Total	Variance %	Cumulative %
1	5.270	52.701	52.701	5.270	52.701	52.701
2	2.289	22.893	75.594	2.289	22.893	75.594

3	1.311	13.110	88.704	1.311	1.311	88.704
4	.513	5.129	93.833			
5	.317	3.169	97.002			
6	.129	1.286	98.287			
7	.085	.846	99.134			
8	.049	.492	99.625			
9	.036	.360	99.986			
10	.001	.014	100.000			
Extraction Method: Principal Component Analysis						

Table 2. Component Matrix

Component Matrix[a]			
Component			
	1	**2**	**3**
Refined – Rustic	-.877	-.299	-.007
Minimal – Elaborate	.814	.470	-.064
Simple – Ornate	.811	.503	.129
Practical – Decorative	.745	.002	-.552
Natural – Artificial	.725	-.071	.539
Soft – Bright	.702	.066	.625
Sense of ritual-Everday	-.696	-.378	.508
Traditional – Modern	.685	-.674	.021
Novel – Vintage	-.563	.800	.025
Fun – Serious	-.578	.692	.212
Extraction Method: Principal Component Analysis a.3 components extracted.			

3.1 Phase I: Quantitative Analysis (Pre-test)

- Sample Selection: 15 representative tea set designs were selected.
- SD Scale: 10 pairs of bipolar Kansei words (e.g., Ritualistic–Everyday, Innovative–Traditional).
- Subjects: 33 participants (N=33) evaluated samples using a 7-point Likert scale.
- Data Analysis: Factor analysis was performed to construct a Kansei imagery space.

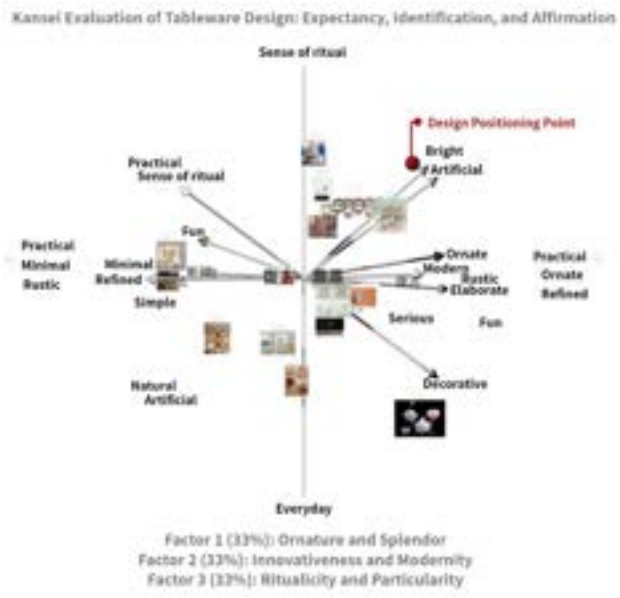

Figure 1. Design Position within the Affective Space

3.2 P Phase II: Design Implementation and Qualitative Evaluation (Post-test)

Based on the factor analysis, a "Floral Language" tea set was developed focusing on high "Ritual" and "Innovation."

- User Testing: 5 subjects participated in a simulated "weekend gathering."
- Evaluation Tools: Behavioral observation and semi-structured interviews.
- Analysis: Affinity Diagram (KJ Method) was used to categorize user feedback into Visual/Psychological, Sensory, and Ergonomic dimensions.

Based on the results of the Semantic Differential evaluation, three major Kansei dimensions were identified: Ritual, Innovation/Interest, and Decoration. These Kansei factors guided the translation of users' emotional expectations into specific design decisions. Ritual was reflected through the sequential tea-making process and concealed interactive mechanisms; Innovation/Interest was represented by hidden decorative surprises beneath the cup and saucer; Decoration was expressed through hand-painted illustrations and visual details. The optional wood chips were introduced only to complement the overall experiential atmosphere and were not directly derived from any individual Kansei factor.

4 RESULTS AND DISCUSSION

4.1 User Experience Observation

To further understand users' experiences with the ceramic tea set in a social gathering setup, this study employed scenario simulation combined with qualitative methods. Five participants were invited to try out the prototype within a pre-defined "weekend gathering" scenario. Their experiences were examined through non-participatory observation and semi-structured interviews, with particular attention given to their sensory reactions, emotional responses, and the fluidity of the operational process.

During the observation process, the researchers focused on participants' initial responses when interacting with the tea set, as well as how they operated and perceived the overall tea-time ritual. The results showed that when participants lifted the teacups and discovered the hidden patterns and wood chips beneath the saucers, most of them immediately showed surprise and curiosity. This indicates that the puzzle game of the ritual design successfully triggered the "Innovation/Interest" Kansei factor identified in the previous quantitative analysis.

Furthermore, during the tea-tasting process, several participants actively smelled the wood chips and showed relaxed body language, such as deep breathing and slower movements. This suggests that the integration of olfactory elements, especially the aroma from wood chips, could enhance relaxation and support emotional restoration. The findings also indicate that rich sensorial experiences, including visual, tactile, and olfactory stimuli, can deepen users' emotional experiences beyond visual appreciation alone.

At the same time, when participants operated the ceramic heating base and candlelight apparatus, their actions became slower, more careful, and more focused. This suggests that the combination of craftsmanship, heat, and cultural elements helped transform tea drinking from a simple daily activity into a meaningful tea-time ritual. In this way, the ceramic tea set not only enriched sensory depth but also encouraged interpersonal interaction and social connection within the weekend gathering context.

4.2 Qualitative Synthesis of Semi-Structured Interviews via Affinity Diagram

Following the interaction experience, semi-structured interviews were conducted to understand participants' feelings and feedback. The interview data were analyzed using the Affinity Diagram, also known as the KJ Method, to organize the feedback into different levels and identify the main parts of users' Kansei experiences. The results categorized user feedback into the following two main dimensions:

1. Visual and Psychological Dimension: Imagery Translation and Exploratory Surprise Participants generally perceived that the concealed design elements and meticulous detailing successfully translated the designer's intended imagery, significantly enhancing the product's sense of surprise and explorability. Concurrently, the hand-painted motifs of lavender, chrysanthemum, and osmanthus allowed participants to perceive the intricacy of the craftsmanship, thereby elevating their appraisal of the product's perceived refinement.

2. Sensory Dimension: Therapeutic Experience through Cross-Media Integration The therapeutic experience derived from cross-media integration emerged as a focal point of consensus among participants. It was unanimously noted that the fragrance emitted by the heated wood chips—and its associated symbolic meaning—effectively mitigated stress and cultivated a relaxed, intimate atmosphere within the social setting. Furthermore, the moderate thermal conductivity of the ceramic vessels provided supportive tactile feedback, imbuing the overall experience with a sense of warmth and comfort.

Summary of Empirical Findings By synthesizing the results of behavioral observations and the Affinity Diagram analysis, this study further developed a hierarchical tree structure of the user's

Kansei experience. This construct serves as a critical theoretical reference for the subsequent optimization of craft design and the strategic calibration of multi-sensory design interventions.

5 RESULTS AND DISCUSSION

5.1 Summary and Future Recommendations

The results confirmed that the three Kansei factors identified through factor analysis—Ritual, Innovation/Interest, and Decoration—could be further translated into corresponding design elements of the tea set. Specifically, the heating base and candlelight apparatus jointly created a sense of ritual during the tea-serving experience. The concealed structure containing wood chips and the thoughtful concept of using the tea set as a gift enhanced users' perceptions of innovation and interest. Meanwhile, the hand-painted illustrations further strengthened the tea set's decorative qualities.

The findings also demonstrated that Kansei Engineering Type I can assist designers in translating users' emotional semantics into concrete form, structural, and interaction design features, thereby reducing the gap between the designer's intended emotional expression and the users' actual perceptual experience. Therefore, Kansei Engineering serves not only as a systematic method for translating Kansei semantics into design elements but also as a structured framework for supporting the development of craft design.

Furthermore, the integration of multisensory elements enriched the sensory and emotional experience of the ceramic tea set. The subtle aroma released from the wood chips contributed primarily to relaxation and emotional restoration, while the candlelight, warmth, and heating apparatus collectively created a contextual atmosphere that reinforced the sense of ritual during the tea gathering. These findings suggest that, compared with designs focusing solely on visual aesthetics, a multisensory design approach can more effectively enhance users' engagement and emotional connection throughout their interaction with the tea set.

5.2 Research Scope and Limitations

1. Contextual Scope: This study focuses exclusively on small-scale "weekend gathering" scenarios. The discussion centers on the impact of holistic tea set forms on atmosphere and emotional perception; it does not encompass professional tea ceremonies, commercial hospitality spaces, or long-term daily usage.
2. Temporal Constraints of Simulation: User experience data were collected during short-term simulated scenarios. As a "single-session gathering," the study does not account for habit formation, material wear, or emotional attachment accumulated over extended periods. Therefore, the appraisals primarily reflect immediate, first-contact perceptions.
3. Material Experimental Boundaries: The material selection and craftsmanship were limited to ceramic media, excluding a wider range of glaze formulations or cross-material combinations. Consequently, the discussion on the "Kansei value of craft materials" represents a preliminary exploration within a specific material set and may not fully represent the broader craft domain.

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REFERENCES

1. Adamson, G. (2013). The invention of craft. Bloomsbury Academic.

2. Bergmann Tiest, W. M. (2010). Tactual perception of material properties. Vision Research, 50(24), 2775–2782. https://doi.org/10.1016/j.visres.2010.10.005

3. Chuang, M. C., & Lin, Y. T. (2013). Color schemes on different media and their imagery transmission [Master's thesis, National Chiao Tung University]. Google Books.

4. Greenhalgh, P. (1997). The persistence of craft: The applied arts today. Rutgers University Press.

5. Huang, W. H. (2011). On the "Common Sense" in modern Japanese philosophy. Bulletin of the College of Liberal Arts, National Taiwan University, (5), 217–241.

6. Jeong, J.-G., Kang, S.-W., & Choi, S. B. (2020). Employees' weekend activities and psychological well-being via job stress: A moderated mediation role of recovery experience. International Journal of Environmental Research and Public Health, 17(5), 1642. https://doi.org/10.3390/ijerph17051642

7. Liu, C. Y., & Tang, L. Y. (2009). Integrating grey relational analysis and Kansei engineering into product design and development. Journal of Quality, 16(3), 165–177.

8. Murata, C. (2020). Kansei potential thinking: Business innovation from zero. China Productivity Center. (Original work published 2014).

9. Norman, D. A. (2004). Emotional design: Why we love (or hate) everyday things. Basic Books. https://doi.org/10.5860/CHOICE.41-6846

10. Rimé, B. (2007). Interpersonal emotion regulation. In J. J. Gross (Ed.), Handbook of emotion regulation (pp. 466–485). The Guilford Press.

11. Yanagi, S. (2002). The theory of folk art (Mingei). Jiangxi Art Publishing House.