Research on Demand for Cultural Souvenirs in Changsha Based on Kano Model

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This study focuses on the existing cultural souvenirs in Changsha, utilizing various methods such as hierarchical analysis and surveys to analyze consumer preferences across four dimensions: visual appearance, functional application, product quality, and intrinsic value. Based on preliminary research combined with quantitative analysis using the Kano model, this study categorizes user demands for Changsha cultural souvenirs and quantifies satisfaction with these demands using the Better-Worse Coefficient method and Four Quadrant Analysis. The results indicate that there is a high demand for the functionality and cultural attributes of Changsha cultural souvenirs. Based on these findings, this research proposes three innovative design strategies: first, innovating design elements to inject fun; second, enhancing interactivity to improve the user experience; and third, personalizing designs to expand influence. This study aims to provide references and design ideas for similar types of cultural souvenir designs.

Keywords: Changsha, Kano mode, consumer preferences, cultural souvenir design

Introduction

Cultural souvenirs are tourism products that closely connect cities, regional cultures, and people. Not only can they continue to be used after tourists have ended their travels, but they can also evoke profound impressions of the city. Therefore, creating cultural souvenirs with regional cultural characteristics is crucial for shaping a city's image (Fang, 2020; Hwang, 2020).

In November 2017, Changsha was designated as a "City of Media Arts" by United Nations Educational Scientific and Cultural Organization(UNESCO), becoming the first Chinese city to receive this honor (Changsha Evening News, 2021). In 2022, the Changsha municipal government's work report further proposed the development of the cultural and creative industries, aiming to establish an international cultural and creative center (Changsha Evening News, 2022). Against this backdrop, Changsha's cultural and creative industries have flourished. However, according to 2021 data from Changsha's top 100 cultural enterprises (Changsha Municipal Bureau of Statistics, 2022), companies mainly engaged in souvenirs and handicrafts generally have profit margins below the city average, indicating that enterprises related to cultural and creative product development and sales still have weak influence. Furthermore, field research has shown that while Changsha already offers a variety of

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cultural souvenirs with visual appeal, they often lack deep emotional resonance and an experiential feel, limiting their impact in the tourism and souvenir markets. These products lack practicality for local residents and memorability and experience for visitors from other areas. As shown in Figure 1, even ice cream products inspired by landmarks have failed to make a lasting impression on consumers, as they are too similar across multiple cities and lack uniqueness.

Figure 1. Homogenized products in the cultural and creative market.

Addressing these issues, this study employs hierarchical methods, the Kano model, and the Better-Worse Analysis to conduct in-depth research and needs analysis on young consumers of Changsha's cultural souvenirs. The main purpose of the study is to explore how to enhance the personalization and cultural experience of products, thereby improving the market competitiveness and brand influence of Changsha's cultural and creative products.

Methodology

This study employs the Kano model for quantitative analysis, aimed at identifying the key attributes of Changsha's cultural souvenir design. The research design is divided into four stages: first, using hierarchical methods to systematically filter and categorize users' actual needs; second, based on preliminary research, completing the design of the survey questionnaire with the Kano model, collecting and organizing related data, and analyzing the reliability and validity of the data results with SPSS; third, classifying the needs for Changsha's cultural souvenirs using Kano's calculation methods, and quantifying these needs' satisfaction levels using the Better-Worse Coefficient method and the Four Quadrant Analysis method; fourth, based on the classification of demand attributes and the analysis of satisfaction results, proposing design development strategies for Changsha's cultural souvenirs to ensure the accuracy of the design.

Kano Model

The Kano model, introduced in 1984 by Noriaki Kano and Fumio Takahashi, conducts quantitative analysis on user needs and satisfaction. It sets questions in both positive and negative directions to study consumer psychology and motivations, dividing user needs into five categories: Must-be (M), One-dimensional (O), Attractive (A), Indifferent (I), and Reverse (R). Classifying different user needs helps brands understand how

these needs impact user satisfaction, thus identifying the core factors that affect it. The M is essential, O meets expectations, and A enhances product charm, which are crucial elements to focus on in design; it is also advisable to reduce I to lower costs and avoid R to reduce negative experiences. By analyzing with the Kano model, it is possible to accurately identify user need types, providing direction for the improvement and research of Changsha's cultural souvenir design.

Kano Questionnaire

In the research process, this study employs a questionnaire format based on the Kano model, as proposed by Sauerwein (2000), which includes both positive and negative questions (Matzler, Fuchs, & Schubert, 2004). For example, it asks about "the user's attitude when cultural products have cultural connotations" and "the user's attitude when cultural products lack cultural connotations", with each question providing five response options: like, taken for granted, indifferent, reluctantly accepted, and disliked, corresponding to scores of 5, 4, 3, 2, and 1, respectively. Based on the results of the Kano questionnaire, the needs attributes for the research subjects are determined against the standards in Table 1 of the Kano model evaluation.

Table 1

Kano Model Evaluation Criteria

User demand		Reverse demand				
		Like	Taken for granted	Indifferent	Reluctantly accepted	Dislike
Positive demand	Like	Q	A	A	A	O
	Taken for granted	R	I	I	I	M
	Indifferent	R	I	I	I	M
	Reluctantly accepted	R	I	I	I	M
	Dislike	R	R	R	R	Q

Notes. M stands for Must-be needs; O stands for One-dimensional needs; A stands for Attractive needs; I stands for Indifferent needs; R stands for Reverse needs; Q stands for Questionable questionnaire responses.

Better-Worse Analysis

The traditional Kano model identifies the most frequent factor among M, O, A, and I as the attribute of user needs for a specific criterion, with the priority ranking of needs factors as M > O > A > I. To more accurately and intuitively analyze the importance of demands for Changsha's cultural and creative products, the Better-Worse Analysis method, proposed by American scholar Berger and others in 1993, is added to the existing results of the Kano model analysis. This method quantifies the weight of each demand to further understand user needs. The coefficients are calculated as follows: Satisfaction Coefficient (SI): Better = (A + O) / (A + O + M + I); Dissatisfaction Coefficient (DSI): Worse = - (O + M) / (A + O + M + I).

Results

Establishment of Changsha Cultural Souvenir Needs

In this study, while analyzing the basic needs for the design of Changsha's cultural and creative products, references were made to the 11 indicators proposed by scholars such as Li and Cai (2008) and Littrell, Anderson, and Brown (1993), concerning the attributes of cultural souvenirs. These indicators include cultural connotation, tourist attraction, quality, practicality, sense of fashion, uniqueness, suitability as gifts, craftsmanship, technique,

and price. These indicators have been widely used by numerous scholars, and their validity has been repeatedly verified. Based on these indicators, this study employs a hierarchical method to systematically filter and categorize user needs, further identifying 16 relatively important needs based on cultural factors such as user preferences, usage habits, and production elements. These needs are divided into four levels: visual appearance (A), functional application (B), product quality (C), and cultural connotation (D), as shown in Figure 2.
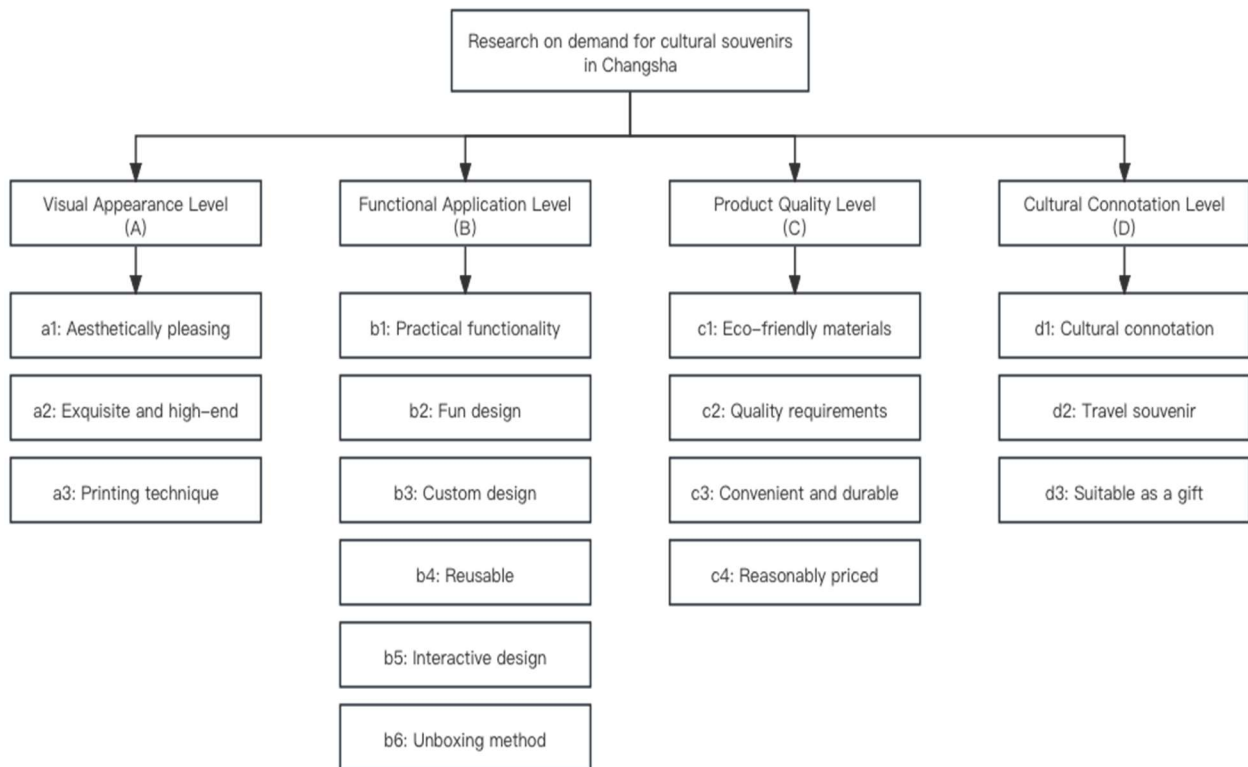

Figure 2. Changsha cultural and creative products user demand.

Data Result Reliability and Validity Analysis

This survey targeted purchasers of Changsha cultural souvenirs, distributing 257 Kano questionnaires and collecting 181 valid responses. The Kano questionnaire consisted of two parts: The first part collected personal information of the respondents, including gender, age, occupation, and location; the second part involved Kano dual-direction questions set up based on the 16 user needs identified in the preliminary screening. To ensure the reliability of the questionnaire, reliability and validity tests were conducted using SPSS software. The questionnaire's alpha coefficient was 0.878, exceeding the acceptable standard of 0.7; the KMO value was 0.898, above the threshold of 0.5, indicating high suitability of the sample.

Kano Needs Category Analysis

By surveying consumer satisfaction and comparing data with the Kano evaluation model, all questionnaire items were statistically analyzed. Then, based on the Kano model calculation formulas, the levels of needs, Better values, and Worse values were calculated. The results showed that among the 16 needs, there were eight Must-be needs (M), two One-dimensional needs (O), two Attractive needs (A), and four Indifferent needs (I), as detailed in Table 2.

Table 2

Changsha Cultural Souvenirs Demand Classification

Serial number	M	O	A	I	R	Q	Better value	Worse value	Demand category
a1	55	32	47	39	1	7	0.456	-0.502	M
a2	49	29	42	47	7	7	0.425	-0.467	M
a3	22	38	38	74	4	5	0.441	-0.488	I
b1	24	32	46	70	4	5	0.453	-0.325	I
b2	31	59	45	36	5	5	0.459	-0.362	O
b3	28	28	67	49	3	6	0.554	-0.456	A
b4	28	23	44	77	4	5	0.603	-0.344	I
b5	30	33	63	47	4	4	0.608	-0.467	A
b6	24	55	51	44	2	5	0.552	-0.325	O
c1	25	23	49	70	8	6	0.431	-0.287	I
c2	59	21	43	51	3	4	0.427	-0.514	M
c3	52	32	43	45	4	5	0.362	-0.293	M
c4	50	39	41	43	3	5	0.386	-0.526	M
d1	57	34	42	42	2	4	0.434	-0.520	M
d2	66	32	44	30	2	7	0.441	-0.569	M
d3	52	24	47	46	6	6	0.420	-0.449	M

Better-Worse Coefficient Analysis

The Better and Worse values can intuitively reflect which needs affect user satisfaction. In this study, the Better values are used as the vertical axis and the Worse values as the horizontal axis to create a scatter plot of user data for Changsha cultural souvenirs. The scatter plot is divided into four quadrants: Attractive, One-dimensional, Must-be, and Indifferent, as shown in Figure 3.
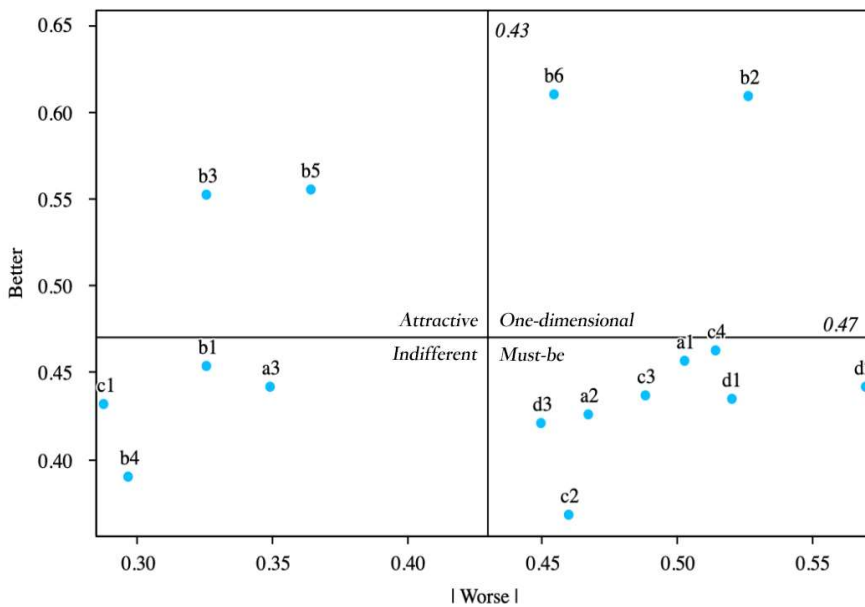

Figure 3. Scatter plot of Changsha cultural souvenir needs.

Using the order of M > O > A > I, and combining the absolute values of the Better-Worse coefficients, where a further distance from the axis indicates a higher priority level, and following the principle that a higher

Better value within the same category takes precedence, the 16 needs are prioritized as follows: M: c4 > a1 > d2 > c3 > d1 > a2 > d3 > c2; O: b6 > b2; A: b5 > b3; I: b1 > a3 > c1 > b4.

Results Analysis

In this study, the gender ratio of the participants was relatively balanced, with the main participants being young users aged 19 to 29. According to the results in Table 2, the respondents showed a higher expectation for the functional application layer (B) of Changsha's cultural souvenirs. This finding emphasizes the importance of innovation and creativity in designing cultural souvenirs, aimed at providing users with a unique experiential feeling. Moreover, the Must-be needs mainly focused on visual appearance and cultural connotations, reflecting not only the diversity and differentiation of user needs but also suggesting that these characteristics have the potential to become unique selling points in the design of Changsha's cultural souvenirs, thereby enhancing their market competitiveness. In terms of Indifferent needs, respondents were not sensitive to factors such as practical functionality, reusability, eco-friendly materials, and durability; these factors are not the focus of consideration when making purchasing decisions.

According to the distribution in Figure 3, the 16 needs are more concentrated in the third and fourth quadrants, while the distribution in the first and second quadrants is more dispersed. Of these, eight needs are located in the fourth quadrant, indicating that most needs identified in the study are considered Must-be. Users typically regard these needs as necessary, and their absence would lead to dissatisfaction, although their presence does not directly increase satisfaction. Additionally, needs related to packaging opening and fun designs are located in the first quadrant, classified as one-dimensional; interactive design and customized design needs are in the second quadrant, classified as attractive. Although meeting these two types of needs does not affect the basic satisfaction of users, once met, they can significantly enhance user satisfaction. Therefore, these two categories of needs should be given special consideration in the current design of Changsha's cultural souvenirs.

Discussion

Based on the analysis using the hierarchical method, the Kano model, and the Better-Worse Analysis method, this study suggests that the design of Changsha cultural souvenirs should focus on fulfilling the basic Must-be needs while particularly emphasizing the development of One-dimensional and Attractive needs to enhance the product's market competitiveness. Specific design development strategies are as follows:

Innovative Design Elements, Injecting Fun

Currently, the design of Changsha's cultural souvenirs primarily revolves around architectural landmarks, local cuisine, and historical figures, with common product forms including fans, bags, bookmarks, and fridge magnets. However, as the primary consumers in the current market are young users, designs should consider items favored by this group, such as culturally themed cosmetics, jewelry, and city-specific figurines. Incorporating youthful elements into cultural souvenir design is crucial. By telling stories or constructing scenarios that showcase Changsha's urban culture (Qiu, Rahman, & Dolah, 2024), this design concept can help young users better understand and perceive the unique charm of Changsha, sparking their interest and desire to purchase cultural souvenirs. Additionally, combining special materials, textures, sounds, or scents on souvenirs, utilizing multi-sensory experiences like visual, tactile, and auditory stimuli, can evoke emotional resonance in users, making them feel as though they are immersed in a specific cultural scene. This approach will align better

with the consumption preferences of young users, meeting their needs for personalization and unique experiences, and enhancing their emotional connection with the products.

Enhanced Interactivity, Improving Experience

To enhance users' sense of ceremony and imaginative capabilities, the design of Changsha cultural souvenirs should integrate interactive experiences and highlight regional characteristics to strengthen purchasing motivation. For example, innovative designs can be implemented in packaging and unboxing methods, using special structures, mechanisms, or puzzles related to city culture, allowing users to enjoy the fun of exploration while opening the package. Additionally, introducing operable interactive elements, such as designs that can be rotated, folded, or disassembled, can enhance user experience and engagement. Furthermore, incorporating digital interactive elements such as Quick Response(QR) codes, Augmented Reality(AR), or Virtual Reality(VR) technology on packaging can provide more city cultural information and interactive content, enriching the user's experience and perception. By incorporating regional characteristics and interactive design, cultural souvenirs no longer remain static displays but become more dynamic and interesting, closer to users' daily life and emotional needs.

Personalized Design, Expanding Influence

In an era where personalized needs are increasingly growing, allowing users to customize cultural souvenirs is a forward-thinking model. For example, imprinting personal names, photos, or insignias can make each souvenir unique, better satisfying users' needs for personalized customization. Such personalized customized cultural souvenirs can serve as keepsakes for oneself or as gifts for friends and family, enhancing the uniqueness and special significance of the gifts. Additionally, launching limited edition or special edition cultural souvenirs can enhance their scarcity and uniqueness, increasing the product's market competitiveness and appeal (Wong & Cheng, 2014).

Notes

Facing the ever-evolving cultural souvenir market, user aesthetics and needs change with the times. Those souvenirs that are unattractive, functionally limited, or lacking in a good experience will eventually be eliminated from the market. This study, through hierarchical analysis and the Kano model, has deeply analyzed user needs. The research results show that the current market demand for cultural souvenirs has shifted from traditional functional needs to aspects that can evoke emotional resonance and enhance the experience, such as unboxing methods, fun designs, interactive designs, and customized designs. Based on these findings, this study proposes several solutions, including: innovating design elements to inject fun; enhancing interactivity to improve the experience; and personalizing design to expand influence. These strategies aim to enrich the market performance of Changsha's cultural souvenirs while preserving their unique cultural features, to achieve a goal of "coexistence".

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