INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 14, Issue 12, (2024) E-ISSN: 2222-6990

Regional Culture Design Features Studies of Traditional Food Packaging Based on the Kano Model to Enhance Consumers Satisfaction

Yue Ba[1] & Sazrinee Zainal Abidin[1]* & Nazlina Shaari[1] & Raja Ahmad Azmeer Raja Ahmad Effendi[1]

[1]Department of Industrial Design, Faculty of Design & Architecture, Universiti Putra Malaysia, 43000, Serdang, Selangor, Malaysia

Corresponding Author Email: sazrinee@upm.edu.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v14-i12/23704 DOI:10.6007/IJARBSS/v14-i12/23704

Published Date: 18 December 2024

Abstract

This study explores the design principles of regional traditional food packaging, focusing on Kaifeng traditional peanut cake and using the Kano model. The research first applies the three levels of cultural theory to identify cultural design features for the packaging. Then, a questionnaire survey collects data on user demands for these features. By categorizing these demands through the Kano model and calculating the priority of each feature using the better-worse coefficient, the study uncovers the intrinsic user needs for the packaging design. The findings highlight the impact of cultural design features on consumer satisfaction and identify which are most valued by users. This analysis informs the key cultural design elements for Kaifeng traditional peanut cake packaging, ultimately enhancing the aesthetic and practical value of regional traditional food products by aligning them with regional culture and user satisfaction.

Keywords: Consumer Satisfaction, Kano Model, Regional Culture Design, Packaging Design

Introduction

Consumer satisfaction is a critical focus and a key performance indicator for companies. As such, it is increasingly important for businesses to attract attention of consumers and cater to their preferences during the product sales process. In the highly competitive food industry, packaging plays a vital and integral role (van Ooijen et al., 2017). Marketers have recognized that food packaging design has become one of the most effective tools in marketing strategy, often referred to as a "silent salesman" (Bobrie, 2018; Krishna et al., 2017; Stewart, 1995) . The fact that Packaging not only reflects the content and identity of a product but also serves to attract potential buyers, especially since many purchasing decisions are made at the point of sale. This underscores the significance of the purchase moment in marketing (Solomon et al., 2017; Raghubir & Greenleaf, 2006). Often, food packaging is the sole communicative element encountered by consumers at the point of purchase, making it a crucial source of

information that influences their purchasing decisions (Underwood, 2003; Littel & Orth, 2013).

As global market competition intensifies, the connection between regional culture and food packaging design has grown in importance (Shin et al., 2011). Traditional foods represent one of the most significant cultural expressions of a country or region. Developing the regional traditional food industry has become a strategic focus for companies and governments to create local brands and boost tourism-related consumption (Hjalager & Corigliano, 2000). Packaging, therefore, serves as a crucial medium for promoting and publicizing these traditional foods. Effective food packaging design must balance practical functionality with market appeal, as it serves as the external image of product. Incorporating regional culture into packaging not only satisfies consumers' emotional needs but also fosters cultural resonance between consumers and products, ultimately achieving a deeper level of consumer satisfaction (Feng & Zhang, 2019). By integrating regional cultural characteristics, food packaging design can enrich the product's cultural significance and enhance the market competitiveness of food enterprises.

In recent years, there has been a growing interest in packaging design that draws on regional culture. However, when it comes to regional traditional foods, the packaging design still faces significant challenges in terms of improvement and enhancement. Firstly, while emphasizing regional culture in packaging design is an effective way to preserve traditional culture, many regional traditional food packages fail to fully reflect the cultural features and connotations of their regions. This shortcoming often stems from a lack of deep understanding and exploration of regional traditional culture by enterprises and designers, who still face a shortage of methods and guidance in the development of culturally resonant product packaging. Secondly, with the evolution of modern lifestyles and values, many traditional food packaging designs no longer align with the aesthetics and needs of contemporary markets and consumers. Therefore, it is crucial to explore new approaches to traditional food packaging design from the perspective of user satisfaction, focusing on how to adapt and innovate design concepts. This paper uses the packaging of Kaifeng traditional peanut cake as a case study. Kaifeng, known as the cradle of Chinese food culture, is renowned for its peanut cake, one of the most popular traditional foods in the region (Shang & Chen, 2016). By investigating the regional cultural design features, the study aims to enhance the quality of its packaging.

Although the current model of traditional food packaging based on regional culture is becoming increasingly diversified, there is still a lack of dedicated research on the impact of regional cultural design features on consumer satisfaction. The regional culture design approach proposed in this paper is based on the theory of cultural design hierarchy, which includes the Tangible “visceral” level, the Intermediate “behavioral” level, and the Intangible “reflection” level. By incorporating regional cultural features as an innovative factor within this framework, packaging can better match the product and achieve higher consumer satisfaction. In this study, the cultural design attributes of traditional food packaging will be classified, and demand attributes will be established using the three-level theory of culture. The analysis will be conducted based on a Kano questionnaire survey to identify and prioritize users' key demands and cultural design features. Ultimately, the study will summarize the key points for innovating the packaging design of regional traditional foods.

Literature Review

Cultural Hierarchy Theory

With the advancement of standardized production methods, the importance of regional cultural factors in product design and development has often been overlooked. Nevertheless, many researchers continue to emphasize the significance of incorporating regional culture into design (Chai et al., 2015). Designers bear the responsibility to prioritize regional cultural features and local lifestyle characteristics, even within the context of globalized markets (Wang, 2022). Some studies suggest that focusing solely on consumer needs is insufficient; designers must also respect and preserve regional cultural values, aligning their designs with the choices and desires of consumers (Li et al., 2008). Additionally, research has shown that cultural differences can significantly influence users' attitudes towards products, underscoring the necessity of integrating cultural considerations into design research (Celhay et al., 2020). Therefore, incorporating regional cultural factors into the design process is crucial for understanding how individuals relate to regional cultural life and habits.

The concept of regional culture is complex and spans multiple dimensions, intersecting with various theories and disciplines (Cui & Ryan, 2011; Ram et al., 2016). For this study, understanding culture begins with an examination of its levels and hierarchies, as culture is composed of both tangible and intangible elements (Hofstede et al., 2020). Culture has both tangible and intangible components (Reyes, 2020). The "iceberg model of culture" likens culture to an iceberg, highlighting both its visible and hidden components (Sasu, 2016). Hofstede et al., (2020) proposed a pyramid model categorizing culture into human nature, culture, and personality. Similarly, Trompenaars & Charles (2011) introduced the Onion model, which divides culture into three levels: the outer level, the middle level, and the core level. This paper examines how different dimensions of regional cultural features influence consumer satisfaction with traditional food packaging. To facilitate this investigation, cultures are classified based on their design elements. This classification is essential as it enables a deeper understanding of regional cultural characteristics across various levels.

From a design perspective, Lee (2004) introduced a multi-leveled cultural structure that includes 'artifact', 'value', and 'basic assumptions', emphasizing design attributes such as 'functional', 'aesthetic', and 'symbolic'. Likewise, Leong & Clark (2003) developed a framework that categorizes cultural objects into three distinct levels: the tangible outer, the behavioral mid, and the intangible inner. Building on these and other studies, Lin (2007) aligned the three levels of culture with elements of product design, resulting in a model of product culture features with three corresponding levels: (1) The Tangible “visceral” level, representing physical or material culture, including aspects like food, garments, and transportation; (2) The Intermediate “behavioral” level, which reflects social or behavioral culture, focusing on human relationships and societal structures; and (3) The Intangible “reflection” level, representing spiritual or ideal culture, encompassing art and religion (Lin, 2007). This framework effectively captures the different dimensions of regional culture, enabling product packaging design to better align with consumer needs and market demands.

KANO Model

The Kano Model, introduced by Professor Noriaki Kano in 1984, is a widely used method in product design for identifying and categorizing customer needs, with a particular emphasis on how these needs impact customer satisfaction. This model aids in determining which

products should be developed based on customer requirements. At the core of the Kano Model is a two-dimensional cognitive map that depicts the relationship between customer satisfaction and various product quality factors (see Figure 1.0). This relationship is non-linear and includes at least five attributes that influence customer satisfaction: Must-Be quality attributes (M), One-Dimensional quality attributes (O), Attractive quality attributes (A), Indifferent quality attributes (I), and Reverse quality attributes (R) (Kano, 1984).

Specifically, the Must-Be quality attributes (M) are the basic features that customers expect. If these requirements are not met, customers will be extremely dissatisfied; however, fulfilling them does not significantly increase satisfaction, as they are considered standard. The One-Dimensional quality attributes (O) directly influence customer satisfaction. The better these attributes are executed, the more satisfied customers will be; conversely, poor performance in these areas leads to dissatisfaction. Attractive quality attributes (A) are features that delight customers when present, but their absence does not cause dissatisfaction. These attributes are often unexpected and can significantly boost satisfaction when included. Indifferent quality attributes (I) are features that do not affect customer satisfaction, regardless of their presence or absence, as customers are neutral about these attributes. Lastly, Reverse quality attributes (R) are features that can lead to dissatisfaction if present and satisfaction if absent, often due to differing customer preferences or changing expectations over time. Each category of attributes reflects a different aspect of how users perceive and are affected by product features, aiding in the identification and prioritization of key requirements for product development and improvement.

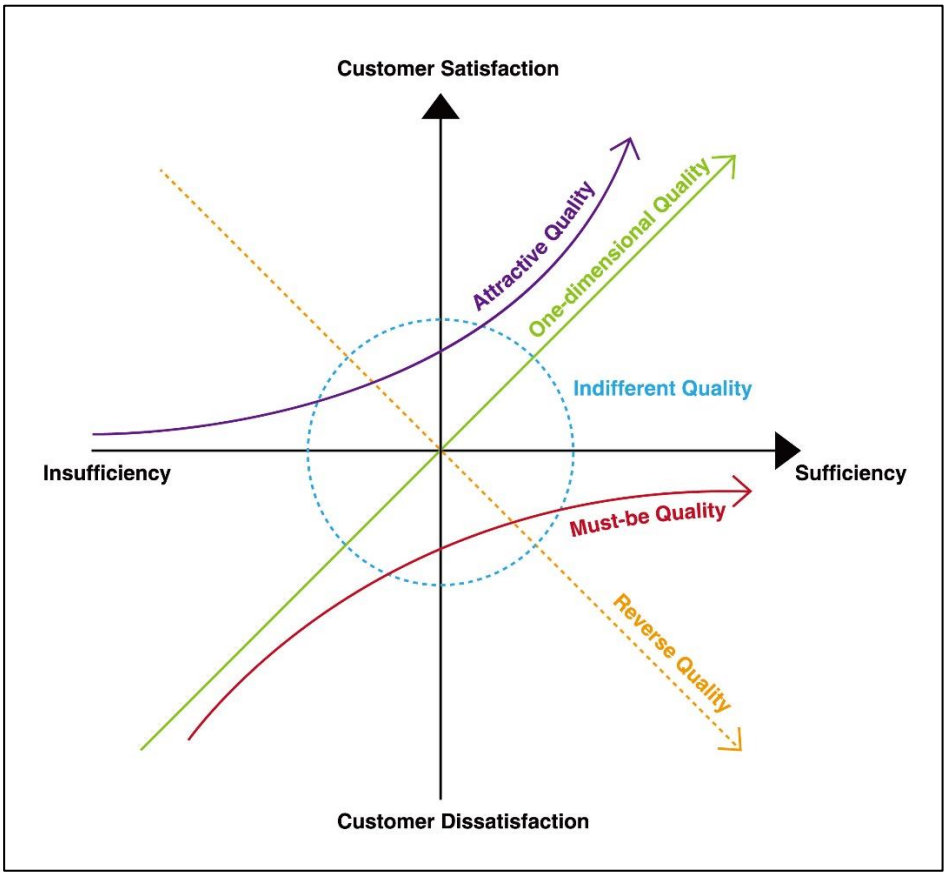

Figure 1.0: Kano Model of Consumer Satisfaction

In extracting the user needs for reshaping the package design of Kaifeng traditional peanut cake and enhancing consumer satisfaction, this research tries to follow the five major classifications of user needs of the Kano model to redefine the image of the regional traditional food culture by analyzing the data to sort out the cultural design features of the packaging of traditional Kaifeng traditional peanut cake as well as its relationship with the needs of consumers.

Methods

This study is conducted in three stages: (1) identifying the regional cultural design features in Kaifeng peanut cake packaging using cultural hierarchy theory; (2) conducting a Kano questionnaire survey to categorize and assess the importance of consumer demand for different cultural design features in the packaging; and (3) summarizing the design strategies for Kaifeng peanut cake packaging that emphasize regional cultural features based on the study's findings. The details of each stage are outlined below.

Identifying the Regional Cultural Design Features of Packaging

This study aims to identify cultural design feature indicators for product packaging through brainstorming sessions with a group of experts, grounded in the theory of regional cultural levels. The selection of these indicators adheres to the three levels defined by Leong & Clark (2003) and the cultural design framework proposed by Lin (2007): External or "Tangible" Level (Visceral Level): Represents the physical elements of cultural product design, such as color, outline, texture, and ornamentation. Intermediate or "Behavioral" Level: Encompasses elements with operational characteristics, such as functionality, operation, and craftsmanship. Internal or "Intangible" Level (Reflective Level): Involves the meaning, emotions, and cultural aspects of the product, incorporating intangible psychological and cultural features. Building on these cultural levels, this study further categorizes the demand attributes of Kaifeng peanut cake packaging into three corresponding levels: the Tangible "visceral" level, Intermediate "behavioral" level, and Intangible "reflection" level.

To gather relevant data, the researchers conducted market research in Kaifeng city by purchasing peanut cake products from supermarkets, souvenir stores, and local specialty shops in downtown Kaifeng. Initially, 46 different product packages were collected. After eliminating duplicates, similarities, and low-quality packages, nine representative packages of traditional Kaifeng peanut cake products were selected as case study samples. Ten experts, comprising four men and six women with an average of over six years of design experience in graphic design, were invited to participate in brainstorming sessions. During these sessions, the experts identified potential regional cultural features that could be incorporated into the design of Kaifeng traditional peanut cake packaging, based on the selected packaging samples. This process resulted in the identification of 22 regional cultural design features, which were subsequently categorized according to the regional cultural design framework, as shown in Table 1.0.

Table 1.0
The Regional Cultural Design Features of Kaifeng Traditional Peanut Packaging

Levels of Regional Cultural	No.	The Regional Cultural Design Features of Packaging	
Tangible "visceral" level	A1	Graphic	Graphic design with regional cultural characteristics
	A2	Color	Color with regional cultural expression
	A3	Shape	The shape of the package reflects the regional cultural features
	A4	Typeface	The typeface design has traditional cultural characteristics
	A5	Structure	The packaging structure is strong and durable, which can effectively protect the product
	A6	Material	Packaging materials reflect regional cultural characteristics
	A7	Product Characteristics	Packaging describes the quality characteristics of the product
Intermediate "behavioral" level	B1	Reseal Ability	Secondary sealing function of the package
	B2	Portability	Portability of the packaging
	B3	Moisture-proof	Packaging design against moisture and humidity
	B4	Gift Function	The gift function of the packaging
	B5	Transmission of Information	Vivid and clear transmission of product information
	B6	Sustainability	Sustainability of packaging
	B7	Opening Way	Packaging is easy to open and ceremonial
Intangible "reflection" level	C1	Souvenir	Packaging has a value as a souvenir collection
	C2	Tour Memory	Packaging can evoke memories of Kaifeng
	C3	Innovative and Creative	Innovative and creative packaging design
	C4	Fun Features	Packaging with fun features
	C5	Local Historical Legends	Packaging tells the story of local historical legends
	C6	The Regional Features	Packaging reflects the regional features of Kaifeng
	C7	The Wonderful Meaning and Blessings	Packaging reflects the wonderful meaning and blessings
	C8	Local Intangible Culture	Packaging representation of local intangible culture

Kano Questionnaire Survey

The distinctive feature of the Kano model questionnaire is that each attribute has a set of questions, focusing on both its functionality and dysfunction, which helps determine its demand category. Functional questions are framed positively, while dysfunctional questions are framed negatively. Both types of questions offer five response options: (a) Like, (b) Must be, (c) Neutral, (d) Live with, and (e) Dislike. The questionnaire requires consumers to choose one option to answer for each of the functional and dysfunctional questions.

In this study, the questionnaire method was chosen for the specific research. The questionnaire includes the basic parts of personal information such as gender, age, educational background and occupation. The questions in the Kano model questionnaire were derived from the 22 cultural design features summarized by the experts in the preliminary study, and covered three aspects of the regional cultural level: the Tangible "visceral" level, Intermediate "behavioral" level, and Intangible "reflection" level (see Table 1). Each feature corresponds to a part of functional and dysfunctional questions, resulting in a total of 44 questions in the Kano questionnaire. (see Appendix 1 Kano scale questionnaire survey).

Table 2.0
Example of Kano Functional and Dysfunctional Questionnaire

	Problem setting	**Like**	**Must be**	**Neutral**	**Live with**	**Dislike**
Tangible "visceral" level	1. How do you feel if the graphic design of Kaifeng traditional peanut cake packaging has regional cultural features?	O	O	O	O	O
	2. How do you feel if the graphic design of Kaifeng traditional peanut cake packaging does not have regional cultural features?	O	O	O	O	O

During data collection, the researcher uses the evaluation criteria of Kano model (Table 2) to categorize each respondent's answers into different demand categories. An attribute is classified as "Must be" (M) if the response to the functional question is "Must be," "Neutral," or "Live with," and the response to the dysfunctional question is "Dislike." An attribute is categorized as "One-Dimensional" (O) if the respondent selects "Like" for the functional question and "Dislike" for the dysfunctional question. If the response to the functional question is "Like," and the response to the dysfunctional question is "Must be," "Neutral," or "Live with," the attribute is classified as "Attractive" (A). When both the functional and

dysfunctional responses are "Must be," "Neutral," or "Live with," the attribute is categorized as "Indifferent" (I). An attribute is classified as "Reverse" (R) when the response to the functional question is "Dislike" and the response to the dysfunctional question is "Like," "Must be," "Neutral," or "Live with." Similarly, an attribute is also considered "Reverse" (R) if the functional response is "Must be," "Neutral," or "Live with," and the dysfunctional response is "Like." Finally, an attribute is labeled as "Questionable" (Q) if the responses to both the functional and dysfunctional questions are either "Like" or "Dislike."

Table 3.0
Kano Evaluation Table

		Functional				
		Like	**Must be**	**Neutral**	**Live With**	**Dislike**
Dysfunctional	**Like**	Q	R	R	R	R
	Must be	A	I	I	I	R
	Neutral	A	I	I	I	R
	Live With	A	I	I	I	R
	Dislike	O	M	M	M	Q

A: Attractive, O: One-dimensional, M: Must-be, I: Indifferent, R: Revers, Q: Questionable
In order to obtain a more accurate weighting of requirements, the Better-worse coefficient is calculated according to formula (1) and (2) and it is used to weigh the impact of a requirement on user satisfaction. A calculation of an average (better and worse), without losing the dimension of attractive, one-dimensional, and must-be attributes, was performed as suggested by Berger et al. (1993). These averages state whether customer satisfaction can be increased by meeting a certain culture design features or whether fulfilling this culture design feature merely prevents the customer from being dissatisfied. Positive "better" values indicate that customer satisfaction will improve when a cultural design feature is provided, while negative "worse" values suggest that satisfaction will decline if the feature is absent. The maximum possible value for both better and worse is 1. The closer the value is to 1, the stronger the impact on customer satisfaction. Conversely, a value near 0 implies that the cultural design feature has minimal effect on customer satisfaction (Matzler et al. 1996). Better-worse coefficient formula is as follows. where: A, O, M and I respectively represent the frequency of quality attribute indicators of Attractive quality attributes, One-dimensional quality attributes, Must-be quality attributes and Indifferent quality attributes.

$$Better=(O+A)/(M+O+A+I) \quad (1)$$

$$Worse=(O+M)/(M+O+A+I)\ (-1) \quad (2)$$

Results of Kano Questionnaire Survey
In this research, a total of 320 consumers participated in the questionnaire survey. Among these respondents, 164 were male, accounting for 42.6% of the total, and 221 were female, making up 57.4%. The data indicates that female consumers are more likely to purchase Kaifeng traditional peanut cake products, positioning them as the primary consumer group. The age distribution of respondents is as follows: those under 28 years old accounted for 31%,

those aged 26-30 made up 21.6%, those aged 31-40 comprised 15.8%, those aged 41-50 represented 11.9%, and those over 50 accounted for 19.7%. This distribution suggests that consumers across all age groups purchase Kaifeng peanut cake products, with younger consumers emerging as the primary demographic for this product.

Table 4.0
Demographic Profiles of Kaifeng Traditional Peanut Cake Consumer

Measure		Frequency	Percentage (%)
Gender	Male	164	42.6
	Female	221	57.4
Age	<26	119	31.0
	26-30	83	21.6
	31-40	61	15.8
	41-50	46	11.9
	>50	76	19.7
Academic	College Degree	93	27.2
	Bachelor Degree	163	39.3
	Master Degree	79	13.5
	PhD	1	.3
	Other	49	19.7
Occupation	Student	106	27.5
	Liberal Professions	23	6.2
	Non-Working	47	16.2
	Civil Servant	12	3.1
	Business Management	54	10.5
	Freelance Work	56	12
	Enterprise Employees	34	8.8
	Retiree	53	15.7
Location	Madao Commercial Street	49	12.7
	Millennium City Park Commercial Street	56	14.5
	Songduyujie Commercial Street	47	12.2
	Tongmengguzhen Cultural Travel Park	42	11.0
	Gulou Square	41	10.6
	Millennium City Park	58	15.1
	Baiji Peanut Cake Store	37	9.6
	Xiangguo Temple Commercial Street	55	14.3
Total		385	100

Based on the Kano model parameters used in the questionnaire design, a total of 720 questionnaires were analyzed, focusing on the five quality attributes of the Kano model. The analysis also considered the percentage of respondents who indicated a demand for each attribute relative to the total number of valid questionnaires. The conclusions drawn from this analysis are as follows:

Table 5.0
Kano Quality Attribute Classification of Cultural Design Features Demand Indicators of Kaifeng Traditional Peanut Cake Package

Levels of Regional Cultural	The Regional Cultural Design Features of Packaging	Percentage (%)				Coefficient - Better	Coefficient - Worse	KANO Attribute
		M	O	A	I			
Tangible "Visceral" Level	A1 Graphic	42%	9%	21%	28%	0.30	-0.51	M
	A2 Color	17%	34%	28%	21%	0.62	-0.51	O
	A3 Shape	15%	12%	56%	17%	0.68	-0.27	A
	A4 Typeface	19%	15%	15%	51%	0.30	-0.34	I
	A5 Structure	19%	41%	15%	35%	0.51	-0.55	O
	A6 Material	14%	10%	22%	54%	0.32	-0.24	I
	A7 Product Characteristics	37%	14%	28%	21%	0.42	-0.51	M
Intermediate "Behavioral" Level	B1Reseal Ability	17%	54%	21%	8%	0.75	-0.71	O
	B2 Portability	47%	23%	18%	12%	0.41	-0.70	M
	B3 Moisture-proof	61%	20%	15%	4%	0.35	-0.81	M
	B4 Gift Function	9%	48%	24%	19%	0.72	-0.57	O
	B5 Transmission of Information	32%	21%	23%	24%	0.44	-0.53	M
	B6 Sustainability	10%	39%	51%	10%	0.82	-0.45	A
	B7 Opening Way	49%	11%	13%	27%	0.24	-0.60	M
Intangible "Reflection" Level	C1 Souvenir	17%	13%	44%	26%	0.57	-0.30	A
	C2 Tour Memory	7%	10%	39%	44%	0.49	-0.17	I
	C3 Innovative and Creative	9%	27%	52%	12%	0.79	-0.36	A
	C4 Fun Features	9%	16%	28%	49%	0.43	-0.25	I
	C5 Local Historical Legends	16%	26%	38%	20%	0.64	-0.42	A
	C6 The Regional Features	29%	32%	20%	19%	0.52	-0.61	O
	C7 The Wonderful Meaning	2%	15%	61%	27%	0.72	-0.16	A
	C8 Local Intangible Culture	7%	26%	49%	18%	0.75	-0.33	A

This part summarizes the consumer demand data on the cultural design features of Kaifeng traditional peanut cake packaging, and classifies the 22 cultural design feature indicators into Kano attributes and calculates the Better-Worse coefficient. The results are shown in Table 5.0 and Figure 2.0. Among them, the Must-be attributes (M) contain 6 cultural design features, which are A1 Graphic, A7 Product Characteristics, B2 Portability, B3 Moisture-proof, B5 Transmission of Information and B7 Opening Way. the One-dimensional attributes (O) contain 5 cultural design features, which are A2 Color, A5 Structure, B1 Reseal Ability, B4 Gift Function and C6 The Regional Features. the Attractive attributes (A) contain 7 cultural design features, which are A3 Shape, B6 Sustainability, C1 Souvenir, C3 Innovative 109 and Creative, C5 Local Historical Legends, C7 The Wonderful Meaning and C8 Local Intangible Culture. And then, the Indifferent attributes (I) contain 4 cultural design features, which are A4 Typeface, A6 Material, C4 Fun Features and C6 The Regional Features.

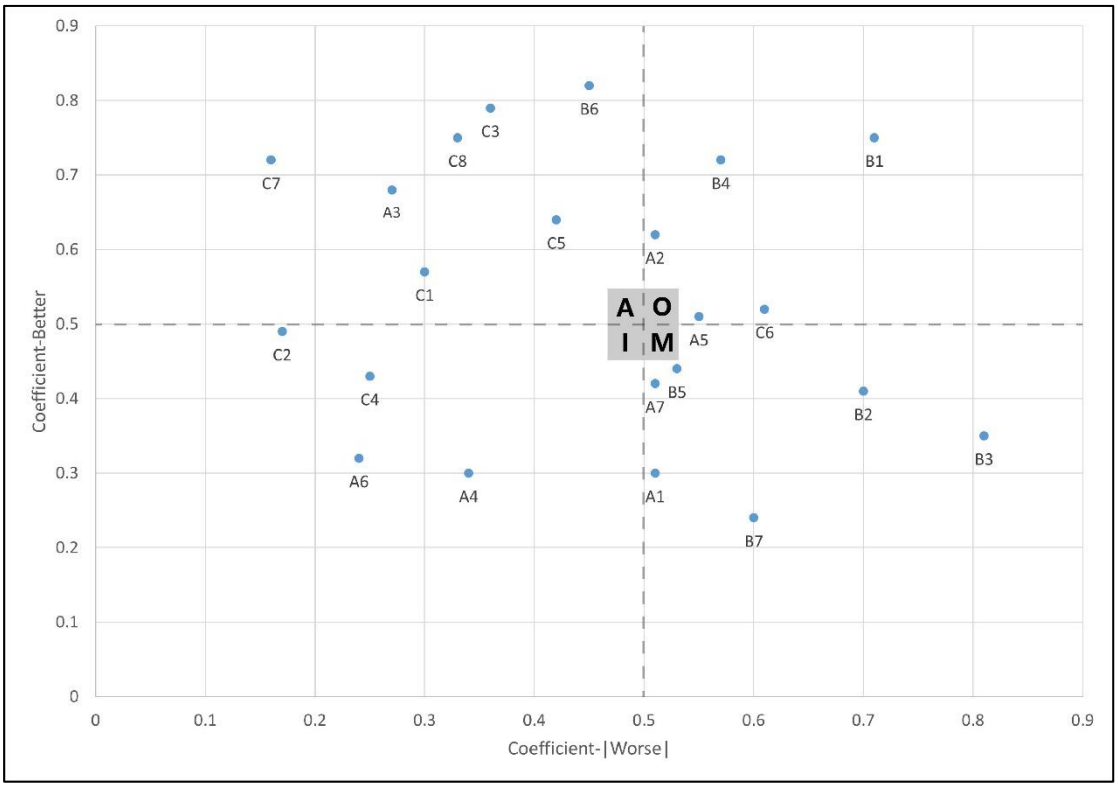

Figure 2.0 Scatter Diagram of Better-Worse Coefficient for Cultural Design Features Demand Indicators of Kaifeng Traditional Peanut Cake Package

The traditional Kano model demand factors are prioritized as M>O>A>I. American scholars C. Berger (1993) introduced the demand element sensitivity (S) index on the basis of the traditional Kano model, and the higher the value of S, the higher the importance of the demand, which should be prioritized in the design practice. The sensitivity of each demand element is calculated according to formula (3) to obtain the demand element priority.

$$S = \sqrt{Better^2 + |Worse^2|} \qquad (3)$$

Tables 6.0 and 7.0 present the sorting results of the sensitivity (S) values for the demand elements and cultural design features of Kaifeng traditional peanut cake packaging. This section will discuss the data from two perspectives: the Kano classification of attributes and the regional cultural level. First, from the perspective of the Kano classification, the sorting results indicate the following priorities for Must-be attributes (M): B3 > B2 > B5 > A7 > B7 >

A1. For One-dimensional attributes (O), the priority is B1 > B4 > A2 > C6 > A5. Regarding Attractive attributes (A), the priority order is B6 > C3 > C8 > C5 > C7 > A3 > C1. Finally, for Indifferent attributes (I), the priority is C2 > C4 > A4 > A6.

Second, analyzing from the perspective of regional cultural levels, the sorting results reveal that at the "Tangible" visceral level, the priority of demand provision is A2 > A5 > A3 > A7 > A1 > A4 > A6. Notably, A2 (Color) and A5 (Structure) have higher sensitivity coefficients and fall under One-dimensional attributes. At the "Intermediate" behavioral level, the priority order is B1 > B6 > B4 > B3 > B2 > B5 > B7. B1 (Reseal Ability) has a high sensitivity coefficient and is classified as a One-dimensional attribute, highlighting the necessity for secondary sealing in packaging. B6 (Sustainability), with the highest sensitivity coefficient, is categorized under Must-be attributes, indicating that users place significant importance on the package's recyclability and reusability. At the "Intangible" reflection level, the demand priorities are C3 > C8 > C6 > C5 > C7 > C1 > C2 > C4. C3 (Innovative and Creative) has the highest sensitivity coefficient and ranks second among Attractive attributes, suggesting that innovative and creative packaging features greatly influence user satisfaction and should be prioritized. C1 (Souvenir) also has a high sensitivity coefficient and is classified under desired attributes, indicating that cultural symbols within the packaging design significantly impact user satisfaction.

Table 6.0
Sorting Results of Cultural Design Features Demand Element Sensitivity (S) Value of Kaifeng Traditional Peanut Cake Package

Levels of Regional Cultural	**The Regional Cultural Design Features of Packaging**	**S**	**KANO Attribute**	**Rank**
"Tangible" Visceral Level	A1 Graphic	0.59	M	18
	A2 Color	0.80	O	8
	A3 Shape	0.73	A	13
	A4 Typeface	0.45	I	21
	A5 Structure	0.75	O	11
	A6 Material	0.40	I	22
	A7 Product Characteristics	0.66	M	15
"Intermediate" Behavioral Level	B1 Reseal Ability	1.03	O	1
	B2 Portability	0.81	M	7
	B3 Moisture-proof	0.88	M	4
	B4 Gift Function	0.92	O	3
	B5 Transmission of Information	0.69	M	14
	B6 Sustainability	0.93	A	2
	B7 Opening Way	0.65	M	16

"Intangible" Reflection Level	C1 Souvenir	0.64	A	17
	C2 Tour Memory	0.52	I	19
	C3 Innovative and Creative	0.87	A	5
	C4 Fun Features	0.50	I	20
	C5 Local Historical Legends	0.77	A	10
	C6 The Regional Features	0.80	O	9
	C7 The Wonderful Meaning	0.74	A	12
	C8 Local Intangible Culture	0.82	A	6

Table 7.0
Sensitivity (S) Ranking of Consumer Demand for Each Cultural Design Feature of Kaifeng Traditional Peanut Cake Packaging

Kano Attributes	S	Regional Cultural Level	S
Must-be Attributes (M)	B3>B2>B5>A7>B7>A1	**"Tangible" Visceral Level**	A2>A5>A3>A7>A1>A4>A6
One-dimensional Attributes (O)	B1>B4>A2>C6>A5	**"Intermediate" Behavioral Level**	B1>B6>B4>B3>B2>B5>B7
Attractive Attributes (A)	B6>C3>C8>C5>C7>A3>C1	**"Intangible" Reflection Level**	C3>C8>C6>C5>C7>C1>C2>C4
Indifferent Attributes (I)	C2>C4>A4>A6		

By analyzing the data obtained from the questionnaire survey and evaluating the sensitivity and importance of the demand for regional cultural design features of Kaifeng peanut cake packaging, the Kano model provides a visual framework to reposition and reorganize the packaging design. This approach is particularly valuable for upgrading and enhancing the packaging design of regional traditional foods. Such improvements are expected to contribute significantly to the healthy and sustainable development of regional traditional food brands and industries.

Analysis and Discussion of the Results

The Must-be attributes (M) in the Kano model represent the essential requirements that consumers expect from the packaging design of Kaifeng traditional peanut cake. These attributes are critical to consumer satisfaction; when these basic requirements are met, consumers consider them standard and do not experience increased satisfaction. However, if these requirements are not fulfilled, consumer satisfaction declines significantly. According to the data analysis in Table 7.0, the Must-be attributes include B3 (Moisture-proof), B2 (Portability), B5 (Transmission of Information), A7 (Product Characteristics), B7 (Opening Way), and A1 (Graphic). This indicates that as living standards continue to improve, consumers increasingly prioritize the operability of food packaging, food safety, and the accuracy of information provided on packaging. Therefore, in the design of packaging, designers must prioritize the protection and convenience of use. Additionally, packaging design must strictly adhere to national standards to ensure that the information conveyed is

accurate and standardized, fully addressing the basic consumer demand for packaging usability.

One-dimensional attributes (O) reflect consumers' expectations that Kaifeng traditional peanut cake packaging should incorporate regional and cultural design features, with these elements being directly proportional to consumer satisfaction. Within this category, consumers identify cultural design attributes such as B1 (Reseal Ability), B4 (Gift Function), A2 (Color), C6 (Regional Features), and A6 (Material) as key one-dimensional attributes. For Kaifeng traditional peanut cake packaging, attributes like vibrant color and clever structure represent the external design, while regional characteristics and cultural elements constitute the internal aspects. Therefore, in packaging design, it is crucial to achieve a harmonious integration of internal performance and external design. This approach not only enhances the functional attributes of the packaging as a gift but also ensures that the packaging is aesthetically pleasing while showcasing the unique local culture.

Attractive attributes (A) exceed consumers' basic expectations for packaging design. While the absence of these attributes does not negatively impact consumer satisfaction, their presence significantly boosts it. In the context of Kaifeng traditional peanut cake packaging design, consumers identify cultural design features such as B6 (Sustainability), C3 (Innovative and Creative), C8 (Local Intangible Culture), C5 (Local Historical Legends), C7 (The Wonderful Meaning), A3 (Shape), and C1 (Souvenir) as attractive attributes. This highlights the growing importance of creativity and sustainability in packaging design as future requirements. Additionally, with the increasing homogenization of packaging in the market, incorporating local intangible cultural heritage and regional history and legends into packaging design can enhance its regional cultural identity, showcasing its unique local flavor and product characteristics. Packaging that creatively embodies regional cultural characteristics is more appealing to consumers, satisfying their curiosity about regional culture and thereby enhancing their overall sense of well-being.

Indifferent attributes (I) represent the non-essential aspects of Kaifeng traditional peanut cake packaging design that do not impact consumer satisfaction. According to the analysis, consumers do not have specific requirements for A4 (Typeface), A6 (Material), C4 (Fun Features), and C2 (Tour Memory) in the packaging design. This suggests that the typeface and material used in the packaging are of lesser importance to consumers, and that features related to creating a memorable journey or adding fun elements do not significantly influence consumer satisfaction.

From the perspective of regional cultural levels, the analysis shows that at the "tangible" visceral level, the sensitivity coefficients of A2 (Color), A5 (Structure), and A3 (Shape) are higher. Notably, A2 (Color) and A5 (Structure) are classified as one-dimensional attributes, indicating that the expressiveness of the package's color and the design of its structure can directly influence user satisfaction. Meanwhile, A3 (Shape) is categorized as an attractive attribute, suggesting that enhancing the appearance of the packaging's shape can increase consumers' preference for the packaging. Additionally, when the color expressiveness, package structure, and shape are well executed, consumers may place less emphasis on other cultural design features at the "tangible" visceral level.

At the "intermediate" behavioral level, the cultural design features with higher sensitivity coefficients include B1 (Reseal Ability), B6 (Sustainability), and B4 (Gift Function). Both B1 (Reseal Ability) and B4 (Gift Function) are classified as one-dimensional attributes, highlighting their importance to consumers. The ability to reseal the package is crucial for preserving the taste and quality of the food, making it a key feature for consumer satisfaction. Additionally, as a cultural symbol of Kaifeng, the gift function of the peanut cake is highly valued by consumers. B6 (Sustainability), categorized as an attractive attribute, indicates that consumers are increasingly concerned about whether the packaging is environmentally friendly and meets sustainable development standards.

At the "intangible" reflection level, the sensitivity coefficients of C3 (Innovative and Creative) and C8 (Local Intangible Culture) are high, ranking second and third among the attractive attributes. This suggests that the innovativeness of the packaging and the inclusion of local intangible cultural elements can significantly enhance consumer satisfaction, warranting special attention from designers. The sensitivity coefficient of C6 (The Regional Features) is the third highest at this level and is classified as a one-dimensional attribute, indicating that reflecting Kaifeng's regional cultural characteristics in the packaging has a substantial impact on consumer satisfaction.

Conclusion

Through the investigation and analysis of Kaifeng traditional peanut cake packaging based on the Kano model, data were collected by categorizing consumer demands according to the model's attributes. These data were then used to justify and explain the research problem. The study identified the cultural design features of Kaifeng traditional peanut cake packaging that influence consumer demand, and each feature was analyzed in depth to examine its relationship with different regional cultural levels. Firstly, the distinct regional cultural features in the color, graphics, and structural design of the packaging can directly enhance consumer enjoyment. Additionally, the secondary sealing function of the package is crucial for consumers, as it plays an important role in preserving the taste and quality of the food. The gift function of Kaifeng peanut cake is also highly valued by consumers, who increasingly consider whether the packaging meets sustainable development standards. Moreover, packaging innovativeness and the expression of regional intangible culture in the design can significantly boost consumer satisfaction, making these features critical for designers to consider. Ultimately, the study demonstrates that reflecting Kaifeng's regional cultural features in packaging can improve consumer satisfaction.

The knowledge contribution of this study is that through the data collected by the researcher and the analysis and interpretation of the data, the researcher presents a guideline recommendation that can be used by packaging designers to design regional food packaging. The guideline recommendation can be used as a solution for adapting the design process to increase the cultural design attributes of packaging by prioritizing and applying each of the cultural design features of regional food packaging. This study also showed that packaging designers must have good cultural translation abilities as well as basic design techniques in order to design quality Kaifeng traditional peanut cake packages or other regional traditional food packages. Based on this study, the proposed design guidelines can serve as an overall guide for designers to use in producing packaging designs that emphasize regional culture. By emphasizing the importance of different regional cultural design features and packaging

attributes, the packaging design workflow can be simplified and the design quality of local traditional food packaging can be improved. In addition, this study can provide references and guidance for other regional cultural food packaging designs, thus ensuring the best product experience for customers.

Furthermore, this study found that many of the previous studies on regional culture packaging design mainly focused on extracting elements of regional culture through qualitative methods or showed a preference for knowledge related to sociology and human geography. In the area of packaging design, the main discussion is about design elements or knowledge related to the field of business and marketing. This study, on the other hand, focuses on combining regional culture with design and applying it to the field of packaging design in order to improve consumer satisfaction. The results of the study are compelling and suggest design recommendations that can be used universally by researchers and designers studying traditional regional food packaging. In addition, this study identifies the regional cultural design features of traditional peanut cake packaging in Kaifeng through an integrated approach, which is important for the study of regional cultural design. In addition, as there are relatively few studies that combine regional culture, packaging design and consumer satisfaction, this study adds a new knowledge contribution to the existing literature focusing on packaging design research in the areas of culture and marketing.

However, this study has certain limitations. Given the limited geographic reach of Kaifeng peanut cake, the majority of respondents were concentrated in Kaifeng and surrounding areas, resulting in a less comprehensive study population. Additionally, the study is primarily focused on the consumer perspective, lacking insights from the commercial perspective within enterprises. Furthermore, the process of identifying and extracting regional cultural design features for Kaifeng traditional peanut cake packaging involved designers and experienced experts, making it a highly subjective process. Future studies should explore the use of other innovative design methods to address these issues and improve the study's objectivity. Despite the challenges in improving and developing the packaging of many regional traditional food products, there remains strong interest and emotional connection to these products. This conveys a clear message to designers and producers: redesigning the packaging of regional traditional foods can bring significant and valuable benefits to both users and producers.

References

Berger, C. (1993). Kano's Methods for Understanding Customer-Defined Quality. *Center for Quality Management Journal*, *2*(4), 3–36.

Bobrie, F. (2018). Visual Representations of Goods and Services Through Their Brandings: The Semiotic Foundations of a Language of Brands. *Recherche et Applications En Marketing*, *33*(3), 122–144. https://doi.org/10.1177/2051570718791784

Celhay, F., Cheng, P., Masson, J., & Li, W. (2020). Package Graphic Design and Communication Across Cultures : An Investigation of Chinese Consumers ' Interpretation of Imported Wine Labels. *International Journal of Research in Marketing*, *27*(1), 108–128. https://doi.org/10.1016/j.ijresmar.2019.07.004

Chai, C., Bao, D., Sun, L., & Cao, Y. (2015). The Relative Effects of Different Dimensions of Traditional Cultural Elements on Customer Product Satisfaction. *International Journal of Industrial Ergonomics*, *48*, 77–88. https://doi.org/10.1016/j.ergon.2015.04.001

Cui, X., & Ryan, C. (2011). Perceptions of Place , Modernity and the Impacts of Tourism-Differences among Rural and Urban Residents of Ankang , China : A Likelihood Ratio Analysis. *Tourism Management*, *32*(3), 604–615. https://doi.org/10.1016/j.tourman.2010.05.012

Feng, Q., & Zhang, C. (2019). Food Packaging Design with Traditional Cultural Characteristics Based on Hierarchy of Needs. *Packaging Engineering*, *40*(24), 56–64. https://doi.org/10.19554/j.cnki.1001-3563.2019.24.009

Hampden-Turner, C., Trompenaars, F., & Hampden-Turner, C. (2020). *Riding the waves of culture: Understanding diversity in global business*. Hachette UK.

Hjalager, A.-M., & Corigliano, M. A. (2000). Food for Tourists—Determinants of an Image. *International Journal of Tourism Research*, *2*(4), 281–293. https://doi.org/10.1002/1522-1970(200007/08)2:4<281::AID-JTR228>3.0.CO;2-Y

Hofstede, G., Hofstede, H., Gert, J., & Michael, M. (2020). *Cultures and Organizations: Software for the Mind*. McGraw-Hill.

Kano, N. (1984). Attractive quality and must-be quality. *Journal of the Japanese Society for Quality Control*, *31*(4), 147–156.

Krishna, A., Cian, L., & Aydınoğlu, N. Z. (2017). Sensory Aspects of Package Design. *Journal of Retailing*, *93*(1), 43–54. https://doi.org/10.1016/j.jretai.2016.12.002

Lee, K. (2004). Design Methods for Cross-Cultural Collaborative Design Project. *Futureground - DRS International Conference 2004*, 17–21.

Leong, B. D., & Clark, H. (2003). Culture-Based Knowledge Towards New Design Thinking and Practice—A Dialogue. *Design Issues*, *19*(3), 48–58. https://doi.org/10.1162/074793603768290838

Li, L., Su, W., & Huang, Z. (2008). Creativity Roots in Life --Thinking about the Impact of Regional Culture on Product Design. *2008 9th International Conference on Computer-Aided Industrial Design and Conceptual Design*, 774–778.

Lin, R. T. (2007). Transforming Taiwan Aboriginal Cultural features into modern product design: A case study of a cross-cultural product design model. *International Journal of Design*, *1*(2), 45–53.

Littel, S., & Orth, U. R. (2013). Effects of Package Visuals and Haptics on Brand Evaluations. *European Journal of Marketing*, *47*(1), 198–217. https://doi.org/10.1108/03090561311285510/FULL/HTML

Raghubir, P., & Greenleaf, E. A. (2006). Ratios in Proportion: What Should the Shape of the Package Be? *Journal of Marketing*, *70*(2), 95–107. https://doi.org/10.1509/JMKG.70.2.095

Ram, Y., Bjork, P., & Weidenfeld, A. (2016). Authenticity and Place Attachment of Major Visitor Attractions. *Tourism Management*, *52*, 110–122. https://doi.org/10.1016/j.tourman.2015.06.010

Reyes, V. (2020). Ethnographic Toolkit: Strategic Positionality and Researchers' Visible and Invisible Tools in Field Research. *Ethnography*, *21*(2), 220–240. https://doi.org/10.1177/1466138118805121

Sasu, A. (2016). The Cultural Iceberg and Other Cultural Models. *Buletinul Științific Al Universității Tehnice de Construcții București Seria: Limbi Străine Și Comunicare*, *9*(2), 79–87.

Shang, W., & Chen, N. (2016). A Study on Development Strategies of Time-honored Catering Brand from the Perspective of Food Tourism. *International Leisure Review*, *5*(2), 88–110. https://doi.org/10.6298/ILR.2016.5.10

Shin, M. J., Cassidy, T., & Moore, E. M. (2011). Cultural Reinvention for Traditional Korean Bojagi. *International Journal of Fashion Design, Technology and Education*, *4*(3), 213–223. https://doi.org/10.1080/17543266.2011.579578

Solomon, M., White, K., Dahl, D., & Zaichkowsky, J. (2017). *Consumer Behavior: Buying, Having, and Being* (Vol. 10). Pearson.

Stewart, B. (1995). *Packaging as an Effective Marketing Tool*. CRC Press.

Underwood, R. L. (2003). The Communicative Power of Product Packaging: Creating Brand Identity via Lived and Mediated Experience. *Journal of Marketing Theory and Practice*, *11*(1), 62–76. https://doi.org/10.1080/10696679.2003.11501933

Ooijen, I., Fransen, M. L., Verlegh, P. W. J., & Smit, E. G. (2017). Packaging Design as an Implicit Communicator: Effects on Product Quality Inferences in the Presence of Explicit Quality Cues. *Food Quality and Preference*, *62*, 71–79. https://doi.org/10.1016/j.foodqual.2017.06.007

Wang, M. (2022). Proposing a New Oceanic Culture-Based Creative Product Design Method to Construct and Deconstruct Products of the Austronesian Aborigines. *Journal of Coastal Research*, *38*(2), 458–470. https://doi.org/10.2112/JCOASTRES-D-21-00045.1