

Packaging Design and Trade Mark of Lanting Products Using Kansei Engineering Method and Kano Model: A Case Study

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ABSTRACT

The high number of snack MSMEs creates intense competition, requiring product innovation, particularly in packaging, which plays a crucial role in marketing and adding value. This research aims to design packaging and a trademark for Mrs. Tuti's Lanting MSME according to consumer desires by integrating the Kansei Engineering method with the Kano Model. The study identified 8 prioritized Kansei words: reliable (worse -0.90), informative (worse -0.88), there is a logo (worse -0.86), attractive (better 0.51), practical (better 0.50), unique (better 0.48), colorful (worse -0.85), and simple (worse -0.76). The final design proposal utilizes aluminum foil material (chosen by 78.4% of respondents), a specific color scheme (34%), and a preferred logo (59.8%), resulting in a design that meets prioritized consumer emotional needs

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are one of the businesses that have the potential to improve the economy to realize community welfare (Tresyanto, 2020). According to data from the Kebumen Regency Central Bureau of Statistics (2022), the number of companies in the Micro and Small industry in Kebumen Regency is 48,089 business units. MSMEs are able to create jobs and produce goods and services to meet the needs of the community without requiring large capital (Djuniardi et al., 2022). One of the MSMEs currently found in Kebumen Regency is the food production business, especially snacks.

With so many snack MSMEs, entrepreneurs in this field are competing to develop innovations regarding their products due to market competition and consumers who are increasingly intelligent in choosing a product so that the product attracts the attention of consumers. Every competitor continues to compete in creating product quality such as shape, size, taste, price, and packaging (Donida et al., 2019). Packaging itself has a very important role in marketing a product because it can create consumer recall with a creative design and can maintain product quality while increasing added value and product selling value (Stewart, 1995); (Rundh, 2016); (Banindro, 2021). Many manufacturers compete through the superior products they produce. However, there are still many food products that do not pay attention to the importance of packaging. Meanwhile, packaging has many demands because of its function related to the product inside. Materials that are environmentally friendly, safe, do not cause contamination of food, and product information in the packaging will be the main consideration for consumers in choosing (Widiati, 2019); (Nguyen et al., 2020); (Bou-Mitri, C., et al., 2021).

Mrs. Tuti's MSME is a company engaged in making snacks, namely *lanting*, located in Sikayu Village, Buayan District, Kebumen Regency. Based on the results of interviews with business owners, the packaging used is gunny sacks with a load capacity of 5 kilograms per sack and there is no small packaging for individual sale. In addition, Mrs. Tuti's MSME also does not have a trademark because the distributor will package the *lanting* products using plastic packaging and create their own trademark. That way, a packaging design with characteristics and images according to consumer desires will help Mrs. Tuti's MSMEs to have wider market opportunities and an identifying mark.

In this case, the method that can be used is the Kansei Engineering method and the Kano Model. Kansei Engineering is a method that can unite human feelings and emotions which are then translated into product forms (Nagamachi & Lokman, 2015). This study uses Kansei Engineering Type I which is done by collecting Kansei words related to the product (Harjanto, 2019). In addition to the Kansei Engineering method, the Kano Model is also used to categorize design elements in order to meet consumer expectations and desires. The combination of the Kansei Engineering method and the Kano Model in this study can produce packaging that is not only functional but also in accordance with consumer preferences and expectations. As in research related to the design of regional specialty food packaging design *Keripik Tike*, the integration of the two methods results in several alternative packaging designs that can be selected later. This

research focuses on designing the packaging design of Mrs. Tuti's lanting MSMEs with characteristics according to consumer desires and creating a trademark to create wider business opportunities.

LITERATURE REVIEW

Packaging Design

Design is the whole process of thinking and feeling that combines facts, construction, function, and aesthetics to make something that meets human needs (Soecahyadi, 2015). The packaging design of a product can determine its sales, as an attractive and unique design can give a first impression that makes customers want to buy a product. Brand name, color, typography, and image are four dimensions that make up the graphic design which is used to decorate the packaging surface (Nilsson & Öström, 2005); (David et al., 2021); (Elkhattat & Medhat, 2022).

Kansei Engineering

Mitsuo Nagamachi of Hiroshima University proposed the Kansei method in the 1970s as a new engineering method that has the function of assisting the design and development process of industrial products based on human feelings and emotions. Kansei is defined as an individual's subjective impression of the surrounding environment that can be captured based on sensitivity, sensibility, feelings, and emotions. Kansei Engineering aims to understand, translate, and ensure emotional responses are in accordance with consumer desires for a product or service (Faisal et al., 2021); (Weiss, 2024). In essence, Kansei Engineering was developed as a consumer-oriented technology that translates the feelings and emotions of consumers into elements for product design (López et al., 2021); (Lamalouk & Simanjuntak, 2023); (Schütte et al., 2024).

The Kano Model

The Kano model is defined as a tool used in customer satisfaction analysis and product development (Wardhana, 2022). The Kano model provides a deep understanding of customer needs and preferences. By analyzing customer preferences and providing feedback through this model, companies can identify needs using five categories, including must-be attributes, one-dimensional attributes, attractive attributes, indifferent attributes, and reverse attributes (Al Rabaiei et al., 2021); (Du et al., 2022). These categories are distinguished based on consumer needs that influence customer satisfaction (Prasetyo & Sulistiyowati, 2022). Descriptions of these categories have been outlined by Bhardwaj et al. (2021).

Table 1. Kano Category

Kano Category	Kano Code
Must be (basic)	1
One-dimensional (performance)	2
Attractive (excite)	3
Indifferent	4
Reverse	5

The Kano model is defined as a tool used in customer satisfaction analysis and product development (Wardhana, 2022). It provides a deep understanding of customer needs and preferences, allowing a company to make the right decisions in meeting those needs. By analyzing customer preferences, companies can identify needs using five categories (Al Rabaiei et al., 2021). These categories are distinguished based on how consumer needs influence customer satisfaction (Prasetyo & Sulistiyowati, 2022).

The Kano categories from your research (Table 1) can be described as follows (Bhardwaj et al., 2021):

1. **Must-be (Basic):** These are attributes that are highly prioritized and expected to exist. If these attributes are fulfilled, the consumer's response is neutral, but if they are not fulfilled, it causes significant dissatisfaction.
2. **One-dimensional (Performance):** These attributes have a linear relationship with satisfaction. Customer satisfaction tends to increase if they are provided, and dissatisfaction increases if they are not provided.
3. **Attractive (Excitement):** These attributes are often unexpected by customers. Their absence does not cause a negative impact, but their presence tends to satisfy and even delight customers.
4. **Indifferent:** These attributes tend to have no particular impact on customer feedback. Their presence or absence does not affect customer satisfaction either positively or negatively.
5. **Reverse:** These attributes cause an opposite result of customer satisfaction. If this attribute is fulfilled, it will cause customer dissatisfaction, and vice versa.

METHODOLOGY

The research was conducted at the lanting production site, namely Mrs. Tuti's MSMEs in Sikayu Village, Buayan Subdistrict, Kebumen Regency, starting from February 2025. The purpose of the research is to determine kansei words from customer perceptions and design packaging and trademarks integrated with the Kano model. The data used are primary data (from field observations, interviews, and questionnaires with 96 respondents) and secondary data (from literature studies). The research began with the identification of Kansei words. The collected words were then used to compile the first Kansei questionnaire, which was then tested for validity and reliability. Valid Kansei words were grouped into two broad categories, namely packaging and trademark, to create the second Kansei questionnaire. The results were mapped using the Kano Model to determine attribute categories. Next, better and worse values were calculated to prioritize attributes. The final stage was designing the packaging and its branding, followed by a mockup as a proposal.

RESEARCH RESULT

Kansei Words Identification and Validation A total of 30 kansei words were collected from literature and interviews. After distributing the first questionnaire to 96 respondents, a validity test was conducted. With a significance level of 5%, the r-table value used is 0.202. The test results showed that 28 kansei words were valid. The subsequent reliability test using the Cronbach Alpha method yielded a value of 0.861, which is > 0.60 , indicating that the data is reliable.

Kansei Words Classification After categorizing the 28 valid kansei words based on similar meaning to avoid ambiguity, as done in previous research (Prakoso & Purnomo, 2019), 9 kansei words for packaging and 5 kansei words for the trademark were obtained. These were used to create a second questionnaire.

Kano's Category Assignment A Kano questionnaire consisting of functional and dysfunctional statements was created. The Kano category was then determined for all 96 respondents. The mapping results for packaging and trademark attributes are shown in Table 2 and Table 3.

Table 1. Packaging Kano's Category Results

No	Packaging Attributes	Kano's Category					
		O	M	A	I	R	Q
1	Informative	30	54	3	8	0	1
2	Unique	40	32	5	16	2	1
3	Transparent	29	9	3	30	19	6
4	Reliable	37	45	5	4	3	2
5	Practical	43	34	3	11	3	2

6	Using jars	17	17	7	41	12	2
7	Using alumunium foil	22	33	5	27	9	0
8	Using paper	3	15	5	30	40	3
9	Large size	19	21	14	31	6	5

Table 2. Trade Mark Kano's Category Results

No	Trade Mark Attributes	Kano's Category					
		O	M	A	I	R	Q
1	There is a Logo	45	34	4	8	1	4
2	Attractive	39	34	7	10	4	2
3	Colored	44	33	1	12	2	4
4	Patterned	30	29	11	18	2	6
5	Simple	33	37	6	15	2	3

The final Kano category grade was determined based on Blauth's formula, as shown in Table 4 and Table 5.

Table 3. Final Grade of Kano's Category on Packaging

No	Packaging Attributes	O+A+M	I+R+Q	Kano's Category Grade
1	Informative	87	9	M
2	Unique	77	19	O
3	Transparent	41	55	I
4	Reliable	87	9	M
5	Practical	80	16	O
6	Using jars	41	55	I
7	Using alumunium foil	60	36	M
8	Using paper	23	73	R

9	Large size	54	42	M
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Table 4. Final Grade of Kano's Category on Trade Mark

No	Trade Mark Attributes	O+A+M	I+R+Q	Kano's Category Grade
1	There is a Logo	83	13	O
2	Attractive	80	16	O
3	Colored	78	18	O
4	Patterned	70	26	O
5	Simple	76	20	M

Calculate Better and Worse Values

The Better and Worse values were calculated to determine how much customer satisfaction increases if a feature is available and how much it decreases if a feature is not available (Mahdi, 2018). The formulas are as follows:

$$\text{Better} = \frac{(A+O)}{(A+O+M+I)} \quad (1)$$

$$\text{Worse} = \frac{-(O+OM)}{(A+O+M+I)} \quad (2)$$

The calculated Better and Worse values for each attribute are shown in Table 6 and Table 7.

Table 5. Better and Worse Value on Packaging Attributes

No	Packaging Attributes	Better	Worse
1	Informative	0.35	-0.88
2	Unique	0.48	-0.77
3	Transparent	0.45	-0.53
4	Reliable	0.46	-0.90
5	Practical	0.50	-0.84
6	Using jars	0.29	-0.41
7	Using aluminium foil	0.31	-0.63
8	Using paper	0.15	-0.33

9	Large Size	0.38	-0.33
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Table 6. Better and Worse Value on Trade Mark Attributes

No	Trade Mark Attributes	Better	Worse
1	There is a Logo	0.53	-0.86
2	Attractive	0.51	-0.81
3	Colored	0.50	-0.85
4	Patterned	0.46	-0.67
5	Simple	0.42	-0.76

Design and Prototyping

The final packaging design was determined by considering the Kano category grade and the Better and Worse values. Based on questionnaire responses, the selected packaging material is aluminum foil (78.4% preference), the color is color B (34%), the logo is logo B (59.8%), and the writing styles are A and B (26.8% each). The resulting mockup is shown in Figure 2.



Figure 1. Front and Back View Packaging Design

DISCUSSION

The analysis of Better and Worse values reveals a clear prioritization of consumer needs. Attributes such as 'reliable' (-0.90), 'informative' (-0.88), and 'there is a logo' (-0.86) have high Worse values. This signifies that these are fundamental, must-be requirements. If these features are not provided, consumers will be significantly disappointed. Therefore, these features must be prioritized in the packaging design.

In contrast, attributes like 'attractive' (0.51), 'practical' (0.50), and 'unique' (0.48) scored high better values. These features can be classified as one-dimensional or attractive. Their presence can substantially increase consumer satisfaction, offering a competitive edge and adding value to the product. Therefore, these can be considered secondary priorities that enhance the product's appeal. Meanwhile, some attributes like 'using paper' showed low Better and Worse values, indicating that this feature has less effect on consumer satisfaction and dissatisfaction and can be considered not to be prioritized.

The final prototype is a direct translation of these findings. The use of aluminum foil addresses the 'reliable' attribute. The inclusion of product details and a clear brand name fulfills the 'informative' and 'logo' attributes. The visual design, which incorporates the preferred color, logo, and typography, caters to the 'attractive' and 'unique' attributes, resulting in a design that is both functional and emotionally appealing to consumers.

Based on the research conducted, it can be concluded that there are 8 kansei words that are prioritized based on the Kano category in designing packaging and trademarks: reliable, informative, practical, unique, there is a logo, attractive, colored, and simple. Kansei words on packaging (informative, reliable, and practical) and trademarks (there is a logo, colored, and simple) fall into the must-be and one-dimensional categories, so they must be provided. Unique and attractive kansei words need to be considered because they can add visual appeal and strengthen product identity.

The proposed packaging design for Mrs. Tuti's lanting products is an aluminum

CONCLUSIONS AND RECOMMENDATIONS

foil standing pouch. The packaging is designed to be informative, reliable, practical, has a logo, is colorful, and looks attractive yet simple. The material, color, logo, and writing style were all determined based on the largest percentage of respondent choices.

ADVANCED RESEARCH

This study has limitations, such as its focus on a single MSME in a specific region. The preferences of the 96 respondents may not represent a wider national market. Therefore, future research could apply this integrated Kansei Engineering and Kano Model methodology to other traditional snack products in different regions to validate the findings. Furthermore, after the implementation of the new packaging, a follow-up study could be conducted to quantitatively measure the impact of the new design on sales performance and brand recognition.

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