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Determining The New Yotta Snack Photo Factors through Kansei Engineering Approach

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Abstract
The Covid-19 pandemic has had a significant impact on social habits in Indonesia. Conditions that require society to reduce interaction directly result in changes in the shopping style and diet of society. As such changes, this phenomenon also resulted in the food business's transition into a versatile online. This causes the food menu to be selected based on the picture and rating of food, So the picture becomes one of the important things in attracting consumer interest in choosing a certain type of food. Yotta Snack is one of the new products of Yotta that is not so well known to the public. Food photography is one of the ways that consumers can use to increase their desire for food. Kansei engineering is one of the methods that can be used in designing a product that fits the consumer's wishes. This research aims to determine the factors of Yotta's photo products snack with a Kansei engineering approach. The research of 100 responders got 27 words of kansei. The analytics factor came up with 6 groups of Kansei words in pairs. Six words Kansei pairing is a neat mess, Fresh wilted, creative monotonous, not aesthetic, The darkness of light, It's unclear.
Keywords: *food photography, kansei engineering, factor analysis*

Abstrak
Pandemi *Covid-19* membawa pengaruh signifikan terhadap kebiasaan masyarakat di indonesia. Keadaan yang mengharuskan masyarakat untuk mengurangi interaksi secara langsung mengakibatkan perubahan terhadap gaya belanja dan pola makan masyarakat. Seiring dengan perubahan tersebut fenomena ini juga mengakibatkan bisnis makanan beralih menjadi serba *online*. Hal ini menyebabkan menu makanan dipilih berdasarkan gambar dan rating makanan, sehingga gambar menjadi salah satu hal penting dalam menarik minat konsumen dalam memilih jenis makanan. Yotta *Snack* merupakan salah satu produk baru dari Yotta yang tidak begitu dikenal oleh masyarakat. *Food Photograpy* merupakan salah satu cara yang dapat digunakan dalam meningkatkan keinginan konsumen terhadap sebuah makanan. Kansei Engineering merupakan salah satu metode yang dapat digunakan dalam merancang sebuah produk yang sesuai degan keinginan konsumen. Penelitian ini bertujuan menentukan faktor-faktor produk foto Yotta *Snack* dengan pendekatan Kansei Engineering. Hasil penelitian dari 100 responden didapatkan 27 kata Kansei. Hasil analisis faktor didapatkan 6 kelompok kata Kansei secara berpasangan. Enam kata Kansei berpasangan adalah berantakan–rapi, layu–segar, monoton –kreatif, tidak estetik–estetik, gelap–terang, tidak jelas –jelas.
Kata Kunci: *fotografi makanan, rekayasa kansei, analisis faktor*

1. Introduction

The Covid-19 pandemic has prompted significant changes in life. Restrictions on interaction between humans encourage the use of information technology in all work. The growing use of information technology in the culinary world encourages efficiency and intense competition between culinary entrepreneurs [1]. MSME food business actors are required to always adapt community needs to business developments. Information technology makes it easier for someone to get services in the food business. Various applications that have emerged in the online food business have made food businesses, both small and large, closer to consumers.

Before the emergence of online food business platforms, delivery business and innovation were controlled by large companies such as McDonald's, KFC, PHD and others. [2]. The ability to adapt to technology encourages food entrepreneurs to continue to innovate. The growth of online food delivery applications means that people have many choices regarding types of food. Marketing food products online encourages the food promotion process to be carried out through photos of the product or what is called food photography [3]. In general, 90% of information about a product is obtained visually [4].

Developments in photography as a commercial tool are widely applied today. Many businesspeople use photography media to promote their products. Food businesses use photos as a medium to attract consumers to buy their food [5]. *Food photography must be designed persuasively and attract consumers* [6]. The concept in food photography must be able to make a food object look delicious and appetize potential consumers. Food photography can be used in promotional media, catalogs, social media, and online food delivery applications [7].

The increasing use of social media will result in an increase in food visualization. Based on research from Andresen, all in 2021 it was stated that looking at photos of food will increase brain activity in the desire to eat that food [8]. Photos of food will stimulate the hormone ghrelin, where this hormone will stimulate a person's eating habits [9]. Visual perception of food will influence a person's acceptance and decision to purchase food products online.

Yotta is a local culinary business from Makassar City. Yotta products that are well known to the public are contemporary beverage products. Yotta is diversifying its products by introducing a new product in the form of Yotta snacks. Yotta Snack products are not very popular with Yotta consumers, this is because this product is a new product. Photography is an easy medium for marketing techniques [10]. The application of sensory marketing, especially stimulation of the sense of sight, can be done to increase sales of Yotta Snack products online. Perception and cognition are individual observations through the five senses of a product's characteristics. Product characteristics such as packaging, shape, taste and aroma will influence consumer perception and cognition. Selection of food through the application is an important factor in the online food ordering process, therefore food photos will be a critical point for consumers. Food photos can be a trigger in increasing a person's desire to consume food. Based on research results, photos of food will trigger different responses in the brain. Food photos can also improve the taste and deliciousness of food [11].

Kansei Engineering is one method that can be used to design Yotta Snack product photos that are more interesting and attractive. Kansei Engineering has several advantages in designing and developing food photos, this method is based on items and categories that suit the wishes of consumers [12]. Kansei Engineering can translate Kansei into elements in a design [13]. Kansei Engineering is consumer-oriented in producing new products [14]. If the consumer's feelings towards the new product are applied, then the consumer will be more interested in the product [15]. The elements of food photography can be applied as a function of customer satisfaction with a product [16]. The interaction between humans and photos is a cognitive interaction that can be influenced by emotions. Kansei Engineering is one of the right methods to meet consumer expectations in the Yotta Snack product photos they want.

There are six types of Kansei that are often used. The difference between these six types of Kansei is in the engineering process. The most frequently used type of Kansei is Kansei type I. Kansei type I involves simple steps with ten stages. [17]. Where the steps are determining strategy, collecting kansei words, making scales, collecting product samples, forming categories, evaluating, statistical analysis, implementing the results of analysis, and elaborating data for designing new products [18].

This research only reaches the differential semantic stage. Where differential semantics is used in analyzing the meaning of each connotative word. In differential semantics, an adjective can describe an object in pairs with its opposite. Factor analysis can be applied to analyze the correlation between many factors that describe consumer desires. In this research, factor analysis was used to determine the most important factors of a Yotta Snack product obtained from the results of a differential semantic questionnaire.

2. Research Method

This research was conducted to determine the factors of Yotta Snack product photos in attracting consumers' interest in buying products through online shopping applications. This research uses the Kansei Engineering type I method to translate consumers' views, feelings, and desires into a photo of a food product which increases purchase intentions. Applications from Kansei Engineering for food photography are applied based on styles in food photography. Kansei Engineering type I starts from the goal setting stage, determining strategies, and collecting Kansei words to the semantic differentiation stage. The initial stage of research was carried out by determining the type of Yotta Snack product that would be the object of research. The Yotta Snack product specified is a new product from Yotta. Next, collect kansei words that represent photos of Yotta Snack products. The number of respondents in this study was 100 people who had ordered Yotta Snack online on the online application. The research flow can be seen in **Figure 1.**

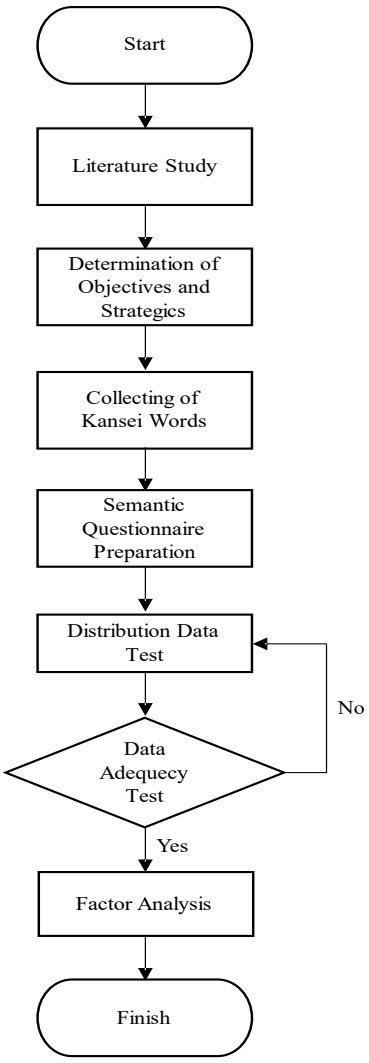

Figure 1. Research Flow chart

3. Results and Discussion

There are five stages of the process analyzed in this study, namely diat is the process of selecting appropriate Kansei words, then continued by passing test data, instrument tests such as validity and reliability, finally factor analysis is carried out.

1. Collecting of Kansei Words

Kansei words were collected from 100 respondents with an age range of 18-36 years. The proportion of respondents was 62% female and 38% male. The aim of creating and distributing a preliminary questionnaire is to collect Kansei words that will be used in the next questionnaire. Respondents will fill out a preliminary questionnaire with adjectives that describe Yotta Snack product photos. Based on the results of the preliminary questionnaire, it was found that the number of Kansei words was 24 Kansei words which can be seen in **Table 1**.

Table 1. Kansei Word

Kansei Word	
Lighting	Background
Presentable	Full
Bright	Interesting
Attractive	Clear
Creative	Focus
Fresh	*Condiment*
Healty	Estetic
Clean	Real
Colourfull	Flavor

Kansei Word	
Fresh	*High Resolution*
Plating	Realistic
Natural	Simple

Source: Data Processing Results

2. Preparation and Distribution of Differential Semantic Questionnaire I (SD-I)

The SD-I questionnaire is a collection of Kansei words for Yotta Snack product photos which have been grouped into adjectives. All Kansei words that did not contain adjectives were eliminated from the SD-I questionnaire. Kansei words obtained from this grouping are then paired with negative words or sentences to form Kansei word pairs which will then be given a score on a scale of 1 – 7, where a score of 1 indicates closeness to a negative word/sentence, while a score of 7 indicates a positive word/sentence. All pairs of Kansei words are used in the SD-1 questionnaire and there is no elimination for technical Kansei words. The Kansei words in the SD-1 questionnaire were then rated by respondents according to their respective opinions. Selected Kansei word pairs based on adjectives can be seen at **Table 2**.

Table 2. Kansei Word Pairs

No.	Kansei Word and Pairs
1.	Disarray – Presentable
2.	Dark – Bright
3.	Not Fresh – Fresh
4.	Monotonous – Creative
5.	Filthy – Clean
6.	Not Attractive – Attractive
7.	Unclear – Clear
8.	Not Estetic – Estetic
9.	Complex - Simple

Source: Data Processing Results

3. Adequate Data Test

Observation data was carried out on 100 respondents. This observation uses a significant level of 95% (Z value is 1.96), while the sample accuracy level is 5% (Z value is 2.29) and the expected proportion is 1/100 = 0.01. The maximum error obtained is 5%. The results of calculating the minimum sample size are:

$$n' = 0{,}01\ (1 - 0{,}01)\ \frac{1{,}96^2}{0{,}05} = 15{,}21 \text{ or } 16 \text{ samples.}$$

The calculation results show that the value n' < n, means the data is sufficient. The Kansei words obtained must be processed with validity and reliability tests.

4. Validity Test

After the amount of data is declared sufficient through a data adequacy test, the data is tested using a validity test using the SPSS statistics 27 application. The data is declared valid if the Kansei words that have been tested in the questionnaire can describe the photo well. Data can be said to be valid if $r_{calculation} \geq r_{table}$, using an error tolerance of 5% and with a value of df = 100-2 = 98, so that the r_{table} value used as a comparison is 0.197. The validity test results of paired words can be seen in **Table 3**.

Table 3. Pair Word Validity Test Result

Kansei Word	R_{tabel} Value	Total Correlation of item	Description
Disarray – Presentable	0,197	0,705	Valid
Dark – Bright	0,197	0,672	Valid
Not Fresh – Fresh	0,197	0,814	Valid
Monotonous – Creative	0,197	0,706	Valid
Filthy – Clean	0,197	0,685	Valid
Not Attractive – Attractive	0,197	0,819	Valid
Unclear – Clear	0,197	0,726	Valid
Not Esthetic – Esthetic	0,197	0,676	Valid
Complex - Simple	0,197	0,422	Valid

Source: Data Processing Results

5. Reliability Test

A variable is declared reliable if the Cronbach alpha value is > 0.6, then the instrument questionnaire is declared reliable. The Cronbach alpha value from the reliability test is 0.850. So, the results of the reliability test state that the Cronbach alpha value is > 0.6, namely 0.850 > 0.6, so the questionnaire data is declared reliable.

6. Factor Analysis

Factor analysis is used to find out which factors are superior or dominant from several variables to be selected. Factor analysis can also differentiate priority variables that are ranked based on the results of the analysis. The results of the analysis in the Kansei engineering system concept of these factors will provide a purposeful space in determining items and categories of photo items based on images or feelings in Kansei words. Variables that are declared valid and reliable, then factor analysis is carried out on the variables using SPSS statistics 27 software. The results of the KMO (Kaiser-Mayer-Olkin) test and Bartlett's test can be seen in **Table 4**.

Table 4. KMO Value and Bartlett Test Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,895
Bartlett's Test of Sphericity	*Approx. Chi-Square*	373,084
	df	36
	Sig.	0,000

Source: Data Processing Results

The calculation results show that the Kaiser-Mayer-Oikin measure of sampling adequacy value is 0.895. This shows that the KMO value is > 0.5, so the factor analysis process can be continued. In the MSA test (measures of sampling adequacy) the anti-image correlation in the anti-image matrix process can be seen in **Table 5**.

Table 5. KMA Value Results

No.	Kansei Word Pairs	MSA Value	Description
1.	Disarray – Presentable	0,918	Valid
	Dark – Bright	0,899	Valid
	Not Fresh – Fresh	0,847	Valid
2.	Monotonous – Creative	0,923	Valid
	Filthy – Clean	0,887	Valid
	Not Attractive – Attractive	0,925	Valid
3.	Unclear – Clear	0,875	Valid
	Not Estetic – Estetic	0,895	Valid

Source: Data Processing Results

Based on theory, variables that are suitable for analysis are variables with an MSA value of more than 0.5. The results of the MSA data test above show that the results of data analysis show that all variables are considered feasible because the MSA value is> 0.5.

The next stage continues with reducing Kansei word pairs. This process is carried out by selecting the kansei words in each group that have the largest values of 1 and 2. This is done because with the largest MSA value, the Kansei word is the most correlated with that factor group so that it can represent the factor group.

Table 5 shows that the Kansei word pair with the first highest MSA value in factor group 1 is "Messy – Neat" with an MSA value of 0.918 and the second highest is "Withered – Fresh"; in factor group 2 the first highest is "Not Aesthetic - Aesthetic" with an MSA value of 0.925 and the second highest is "Monotonous - Creative" with an MSA value of 0.923; The first highest Factor 3 group is "Not clear - Clear" with an MSA value of 0.895 and the second highest is "Dark - Bright" with an MSA value of 0.875. The results of the reduction of Kansei words along with their MSA values can be seen in **Table 6**. These results are used as a reference for the nature or character of traditional healthy food photos desired by consumers.

Table 6. Result of Kansei Word Reduction

Factor	Kansei Word Pairs	MSA Value
1	Disarray – Presentable	0,918
2	Not Fresh – Fresh	0,899
3	Monotonous – Creative	0,923
4	Not Estetic – Estetic	0,925
5	Dark – Bright	0,875
6	Unclear – Clear	0,895

Source: Data Processing Results

Based on the research results, the factors that someone most desires from Yotta Snack product photos are neat, fresh, creative, aesthetic, bright, and clear. All these factors can be used as a reference in making Yotta Snack product photos. Based on these factors, we can create a design specification for Yotta Snack products that can stimulate the brain. For example, we can create styling and composition. We can make photo props neat, fresh, and aesthetic. We can adjust the lighting intensity based on the Kansei words bright and clear.

4. Conclusion

New products from a company require an appropriate strategy in the promotion process. Yotta Snack product photos are one way to stimulate the brain with product photos to influence consumers to buy products. Based on the extraction process of Yotta Snack product characteristics using Kansei Engineering. The Kansei word results obtained were 24 Kansei words that represented Yotta Snack products. Based on the analysis carried out, six groups of representing factors were obtained. Based on the six pairs of Kansei words, the highest scores were found to be the words Kansei unaesthetic-aesthetic, monotonous-creative and messy-neat. All selected Kansei words can be used as a reference in designing Yotta Snack product photos.

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