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## Classification of Design Attributes for FMCG (Fast Moving Consumer Goods) Products Official Store in E-commerce Website to Increase Usability and User Satisfaction

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# Classification of Design Attributes for FMCG (Fast Moving Consumer Goods) Products Official Store in E-commerce Website to Increase Usability and User Satisfaction

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**Abstract.** The purchase of FMCG products through e-commerce websites is currently growing rapidly and will continue to improve in the following years. E-commerce companies collaborating with the FMCG company to create an official store on e-commerce websites. Official store for food and personal care products is a strategy where e-commerce and FMCG company like create an official store where the FMCG company can directly sell their products officially with an online system on e-commerce websites. Official store on each e-commerce website has a different interface design that aims to increase user satisfaction and usability. This study aims to classify design parameters according to user expectations and satisfaction and give strategies to increase the usability of the official store in e-commerce websites for FMCG products. Result in this study indicated that attributes design provide maximum contribution to the overall usability and satisfaction of the websites.

## 1. Introduction

E-commerce companies are growing and expanding in Indonesia. E-commerce is a new business model that makes companies or individuals doing business trading through electronic networks and the Internet so that there is a shift in the pattern of transactions from the original run in conventional systems into technology-based or in the network (online). Since 2014 there is already an e-commerce website where the sellers offer a wide range of Fast Moving Consumer Goods (FMCG) products. Then to improve the trust aspect of e-commerce websites in the sales of FMCG products, e-commerce companies collaborating with the FMCG company to create an official store on e-commerce websites. Official store for food and personal care products is a strategy where e-commerce and FMCG company like create an official store where the FMCG company can directly sell their products officially with an online system on e-commerce websites. The specialty of FMCG official stores is a special interface design which aims to increase usability and user satisfaction while purchasing FMCG products through e-commerce websites and also aims to provide the same cognitive experience as purchasing FMCG products directly in the offline stores. Sales of FMCG products through e-commerce websites are growing rapidly with tremendous growth and will continue the strong growth within upcoming years. It also predicted that by 2025 FMCG online holds a 10% market share [1].

There is an S-O-R model that consists of three components i.e. stimuli, organism, response when humans interact with the website interface to do online shopping [3]. Moreover, user experience becomes even more important than it is for other kinds of products on the websites [4]. Official store on each e-commerce website has a different interface design that aims to increase user satisfaction.

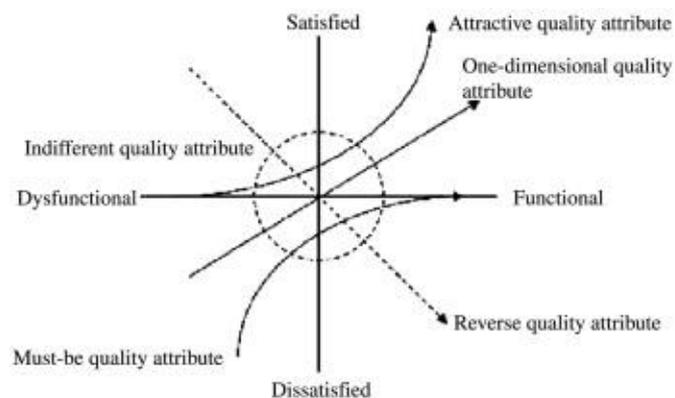


However, customers still encountered some problems in the context of usability i.e. navigation, online transactions, delivery, and inadequate information [5]. Usability defined as a quality attribute for software applications that indicates to what extent identified goals can be accomplished with effectiveness, efficiency, and satisfaction by users [6]. Moreover, usability is usually considered the ability of the user to use the thing to carry out a task successfully, whereas user experience takes a broader view, looking at the individual's entire interaction with the thing, as well as the thoughts, feelings, and perceptions that result from that interaction [7]. The e-commerce websites with high usability score are more preferred by users. So, it is indicated that the usability of e-commerce websites affect users purchases and satisfaction [5]. This study aims to classify design parameters according to user expectations and satisfaction and give strategies to increase the usability of the official store in e-commerce websites for FMCG products.

## 2. Methods

Product or service is more than just functionality, but also about the customer's emotions. Therefore, this research used the Kano model to classify interface design attributes that increase the user's satisfaction and usability. The Kano model encourages to think about how products are related to customer needs, while moving from a "more always better" approach in product development to a "less is more" approach [8]. Kano illustrates the relationship between customer satisfaction and the performance of a product or a service [9]. In the questionnaire prepared to implement Kano model, participants have to answer both functional and dysfunctional questions by choosing one of the following linguistic terms i.e. like, must-be, neutral, live-with, and dislike [10]. When the Kano model is implemented to the data collected through questionnaire, attributes of a product are classified as Must-Be, One-Dimensional, Attractive, Indifferent, Reverse, and Questionable attributes [5].

Dr. Kano (1984) used functional and dysfunctional questionnaires and  $5 \times 5$  evaluation tables as an implementation instrument. Dr. Kano classifies elements of quality into five categories. It has become a core instrument for the two-dimensional quality model and is widely applied in numerous research and case studies. The Kano model illustrates the relationship between customer satisfaction and product or service performance [8]. Figure 1 shows, to what extent a given quality element is shown on the x-axis. The more arrow moves to the right side, the greater the extent of the quality element provided, while the more arrows point to the left, the less the quality element is provided. Customer satisfaction is shown on the y-axis. The higher the arrow, the higher the customer satisfaction, while the lower the arrow, the higher the customer dissatisfaction [9].



**Figure 1.** Kano model and its five categories of quality attributes.

The Kano model divides the product or service features into five different categories, each of which affects customer's satisfaction in different ways. The five categories of quality attributes are attractive quality attributes, one-dimensional quality attributes, must-be quality attributes, indifferent quality attributes, and reverse quality attributes. For the attractive quality attribute, fulfillment of these attributes

generates more satisfaction. Non-fulfillment of these attributes does not cause any dissatisfaction. For the one-dimensional attribute, the higher level of fulfillment the higher the customer satisfaction. For the must-be quality attribute, fulfillment of these attributes does not increase their satisfaction level but non-fulfillment of these attributes cause extreme dissatisfaction. For indifferent quality attributes, the fulfillment or non-fulfillment of an attribute does not impact on user or customer satisfaction. For a reverse quality attribute, fulfillment of these attributes leads to customer dissatisfaction.

Procedures in the Kano model are devise Kano's questionnaire and evaluation according to frequencies. The questionnaire aims to understand the potential about how customers feel if certain features are available or not available. This is obtained by asking two questions for each feature - a functional question (if feature available feature) and a dysfunctional question (if feature not available), as shown in the opposite diagram. An overview of the categories of each product requirement is obtained from the Kano evaluation table. The simplest method of evaluation and interpretation is according to the frequency of answers. Part of the strength of the Kano model is that the Kano model not only provides an average response from the customer survey. Based on that response, Dr. Kano and his colleagues believe that 'one-dimensional', 'attractive', 'must be', 'indifferent', and 'reverse' can be classified through customer questionnaires. Referring to Matzler and Hinterhuber (1998) for Kano Evaluation in Table 1.

**Table 1.** Kano evaluation table.

	Dysfunctional				
Functional	Like	Must-be	Neutral	Live-with	Dislike
Like	Q	A	A	A	O
Must-be	R	I	I	I	M
Neutral	R	I	I	I	M
Live-with	R	I	I	I	M
Dislike	R	R	R	R	Q

The main steps of this research are identifying usability attributes by literature research, composing a Kano questionnaire, composing user requirements matrix, analysis, and assessments of e-commerce websites, and proposing strategies to increase usability and satisfaction. There are 150 respondents recruited in the urban areas of Indonesia consisting of students and employees to answer a Kano questionnaire. 51% of the respondents are female and 49% of the respondents are male, respectively. Besides 56% of respondents aged 21 to 30 years old and 44% aged 20 years old or younger. All the respondents are the user of the official store in e-commerce websites for FMCG products. Furthermore, 41% of respondents use official store every month to buy FMCG products in the e-commerce website, 34% of respondents use official store every week, and 25% of respondents use official store every six months. Twenty-five attributes on the usability of an official store in e-commerce websites are researched through a functional and dysfunctional questionnaire. Table 2 is designed usability attributes for the questionnaire. A, O, M, I, R, Q also satisfaction and dissatisfaction index are obtained from the results of the Kano questionnaire.

### 3. Result and discussion

Attributes classes as the result of the Kano questionnaire are given in Table 3. Three official stores for FMCG products on e-commerce websites, Lazada, Blibli, Elevenia, are evaluated through the Kano method to identify and classify design attributes that increase usability. The results of the Kano questionnaire in table 3 show that for attribute number 10, 14, 23, and 24 belong to indifferent quality attribute. Attributes numbered 1, 4, 7, 16, and 21 belong into must-be quality attribute. Furthermore,

attributes numbered 2, 5, 8, 12, 17-20, 22, and 25 belong into one-dimensional quality attribute. Lastly, for attributes 3, 6, 9, 11, 13, and 15 belong to the attractive quality attribute.

For the Lazada website, design attributes related to usability that still need improvements in the interface are customer comments and review about the website overall performance, promos and ads on official store page, compare-with option to compare products between brands, variations, etc., sort by product features option, easy navigation on the website, search feature for official store page, displaying product photos from various sides with informative product photo design, and a rating by an expert about an informative product.

Moreover, for the Blibli website, design attributes related to usability that still need improvements on the interface are customer comments and review about the website overall performance, promos and ads on official store page, compare-with option to compare products between brands, variations, etc., sort by product features option, search feature for official store page, displaying product photos from various sides with informative product photo design, and a rating by an expert about an informative product.

**Table 2.** Design usability attributes for questionnaire

Code	Attributes	Authors
Q1	Easy navigation	(Walia, Srite, & Huddleston, 2016)
Q2	Various payment method option	(Ilbahar & Cebi, 2017)
Q3	For future use address and information were saved	(Ilbahar & Cebi, 2017)
Q4	Live support for official store	(Ilbahar & Cebi, 2017)
Q5	Access to customer service via telephone	(Ilbahar & Cebi, 2017)
Q6	User review about websites performance	(Ilbahar & Cebi, 2017)
Q7	Information on product delivery	(Ilbahar & Cebi, 2017)
Q8	Search feature for official store page	(Ilbahar & Cebi, 2017)
Q9	Promos and ads on official store page	(Walia, Srite, & Huddleston, 2016)
Q10	Professional design for official store layout	(Ilbahar & Cebi, 2017)
Q11	Compare-with option	(Ilbahar & Cebi, 2017)
Q12	Option sort by price	(Ilbahar & Cebi, 2017)
Q13	Option sort by customer satisfaction score	(Ilbahar & Cebi, 2017)
Q14	Option by sales amount	(Ilbahar & Cebi, 2017)
Q15	Option Sort by product features	(Ilbahar & Cebi, 2017)
Q16	Tracking system for product delivery status	(Ilbahar & Cebi, 2017)
Q17	Product specification with picture and informative information	(Walia, Srite, & Huddleston, 2016)
Q18	Product's picture with high resolution and zoom option	(Walia, Srite, & Huddleston, 2016)
Q19	Information on product review	(Ilbahar & Cebi, 2017)
Q20	Product image from all sides with 3D image	(Walia, Srite, & Huddleston, 2016)
Q21	Rating for all products	(Ilbahar & Cebi, 2017)
Q22	Rating from expert for each product	(Walia, Srite, & Huddleston, 2016)
Q23	Product feature information with product storage and care instructions	(Walia, Srite, & Huddleston, 2016)
Q24	Information about product recommendation	(Walia, Srite, & Huddleston, 2016)
Q25	Information about product discount and promo	(Walia, Srite, & Huddleston, 2016)

Finally for the Elevenia website, design attributes related to usability that still need improvements on the interface are customer comments and review about the website overall performance, promos and ads on official store page, compare-with option to compare products between brands, variations, etc., sort by product features option, easy navigation on the website, search feature for official store page, product specification with picture and informative information, displaying product photos from various sides with informative product photo design, and a rating by an expert about an informative product. As a result of the analysis, Blibli official store for FMCG products is the best official store in terms of

usability and satisfaction, and it is followed by Lazada and Elevenia, respectively. Furthermore, this research provided strategy recommendations based on the classification of usability design attributes that suit the user's desire with the Kano model. Priority attributes as a strategy to increase satisfaction and usability of the official store for FMCG products on the three websites are attributes that are in quadrant two that is an effective improving area on customer satisfaction matrix (Customer Satisfaction Coefficient Grids) for Kano model [11]. Table 3 shows the results of coefficient satisfaction calculations with the formula  $(A + O) / (A + O + M + I)$  and coefficient dissatisfaction with the formula  $-(O + M) / (A + O + M + I)$ .

**Table 3.** Usability attributes classification

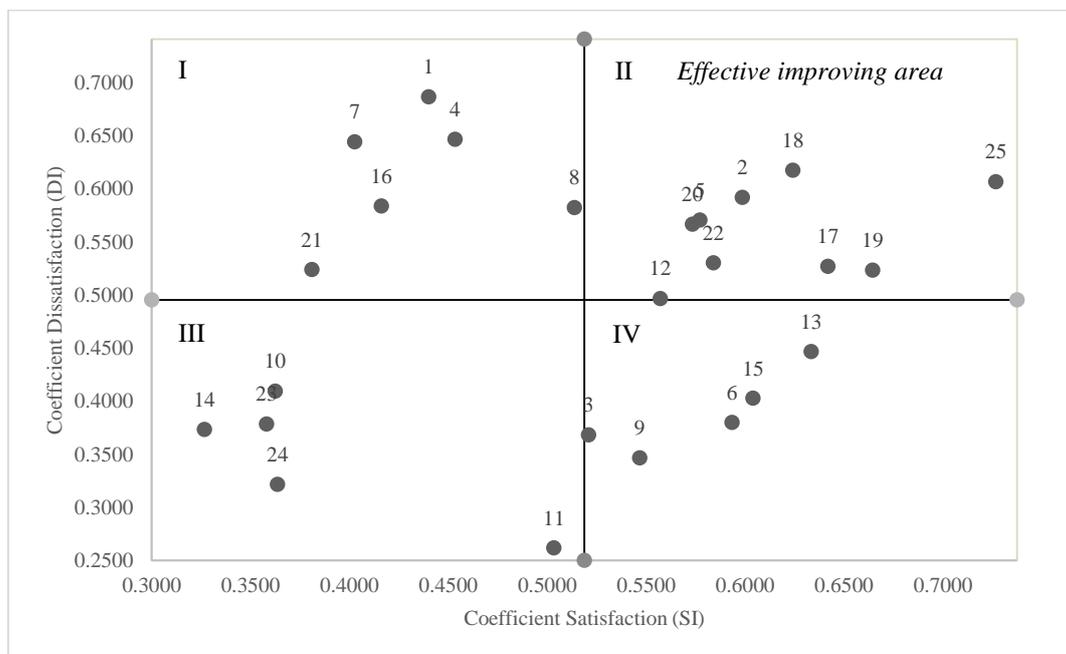
Attributes	A	O	M	R	Q	I	Total	Max	Classification	SI	DI
1	21	45	58	0	0	26	150	58	M	0.44	-0.68667
2	28	60	27	3	0	32	150	60	O	0.598639	-0.59184
3	53	22	31	6	0	38	150	53	A	0.520833	-0.36806
4	29	39	58	0	0	24	150	58	M	0.453333	-0.64667
5	34	52	33	1	0	30	150	52	O	0.577181	-0.57047
6	57	32	25	0	0	36	150	57	A	0.593333	-0.38
7	25	35	61	1	0	28	150	61	M	0.402685	-0.6443
8	21	54	31	4	0	40	150	54	O	0.513699	-0.58219
9	53	29	23	0	0	45	150	53	A	0.546667	-0.34667
10	24	30	31	1	0	64	150	64	I	0.362416	-0.4094
11	60	15	24	1	0	50	150	60	A	0.503356	-0.26174
12	32	51	23	1	0	43	150	51	O	0.557047	-0.49664
13	62	33	34	0	0	21	150	62	A	0.633333	-0.44667
14	26	23	33	0	0	68	150	68	I	0.326667	-0.37333
15	63	27	33	1	0	26	150	63	A	0.604027	-0.40268
16	27	35	52	1	0	35	150	52	M	0.416107	-0.58389
17	44	51	27	2	0	26	150	51	O	0.641892	-0.52703
18	33	60	32	1	0	24	150	60	O	0.624161	-0.61745
19	44	55	23	1	0	27	150	55	O	0.66443	-0.52349
20	37	49	36	0	0	28	150	49	O	0.573333	-0.56667
21	28	28	49	3	0	42	150	49	M	0.380952	-0.52381
22	39	48	31	1	0	31	150	48	O	0.583893	-0.5302
23	32	21	35	2	0	60	150	60	I	0.358108	-0.37838
24	26	26	20	7	0	71	150	71	I	0.363636	-0.32168
25	42	67	24	0	0	17	150	67	O	0.726667	-0.60667
Average										0.518656	-0.49546

Attributes in the second quadrant are attributes with a high coefficient of satisfaction value and decrease more the value of dissatisfaction. Then the next priority attribute is attributed in quadrant one and four. The last priority is the attribute that resides in the third quadrant in which the attribute has a low value of satisfaction and low dissatisfaction. The classification of the attributes generated from the Kano model can also be prioritized based on the category in which  $M > O > A > I$ . Figure 2 is the priority matrix of the Kano model classification result.

The strategy consists of the recommendation of design attributes related to usability that increase satisfaction and fulfill the user needs. The attributes that can be added to the Lazada website are the

promos and ads on official store page, search feature for official store page, compare-with option to compare products between brands, variations, etc., sort by product features option, column search on the official store page so that users can directly search the desired product, displaying product photos from various sides with informative product photo design including displaying photos with three-dimensional (3D) products, provide clear information content on product descriptions and specifications such as product content information, production date, and expiry date, customer comments and review on the website overall performance, and a rating by an expert about an informative product.

Attributes that can be added to the Blibli website are the information about product discount and promo placed on the main page of Blibli, search feature for official store page, the compare-with option to compare products between brands and variations, sort by product features option, search features on the official store page so that users can directly search the desired product, information of the remaining quantity of products available on the product information page, displaying product photos from various sides with informative product photo design including displaying photos with three-dimensional (3D) products, provide clear information content on product descriptions and specifications such as product content information, production date, and expiry date, customer comments and review on the website overall performance, and a rating by an expert about an informative product.



**Figure 2.** User satisfaction matrix from official store.

Attributes that can be added to the Elevenia website are the information about product discount and promo placed on the main page of Elevenia, search feature for official store page, the compare-with option to compare products between brands and variations; sort by product features option, column search on the official store page so that users can directly search the desired product, displaying product photos from various sides with informative product photo design including displaying photos with three-dimensional (3D) products, provide clear information content on product descriptions and specifications such as product content information, production date, and expiry date, customer comments on the website overall performance, and a rating by an expert about an informative product.

#### 4. Conclusion

In this study, design parameters according to user expectations and satisfaction are determined. Kano model is used to classify usability attributes and strategies are provided to increase the usability of the

official store in e-commerce websites for FMCG products. Based on the results of Kano questionnaires to classify design attributes related to usability that increase the user satisfaction, there are twenty-five design attributes related to usability on the official store for FMCG products. The classification of these attributes provides a design strategy with the attributes that match the level of satisfaction and user needs. As a result of the analysis, Blibli official store for FMCG products is the best official store in terms of usability and satisfaction, and it is followed by Lazada and Elevenia, respectively. The three e-commerce websites i.e. Lazada, Blibli, and Elevenia already have five design attributes that belong to the category of must-be quality attribute and four attributes that belong to the indifferent quality attribute. Attributes that belong to the indifferent quality attribute have no effect on user satisfaction. Thus, the attributes suggested to be a strategy are attributes that belong to the attractive quality attribute as much as six attributes and one-dimensional quality attribute as much as ten attributes.

The attributes that provide maximum contribution to the overall usability and satisfaction of the websites are various payment method option, access to customer representative via telephone, sort by price option, product specification with picture and informative information, product's picture with high resolution and zoom option, information on product review, product image from all sides with 3D image, rating from expert for each product, and information about product discount and promo. Limitations of this study are have not provided a quantitative value of usability score. Therefore, as future research can use quantitative Kano model methodology such as fuzzy Kano model to calculate total score usability of the official store for FMCG products in e-commerce website based on completeness of usability attribute that influences to user satisfaction level.

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