

Indonesian Green Consumers Segmentation: Study Case Eco-Friendly Powder Detergent Product

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ABSTRACT: Environmental pollution is a serious problem faced by every country. Indonesia's environmental quality in 2016 experienced a decline driven by a decrease in water quality. Detergent waste is the three most pollutant in the waters of DKI Jakarta, Indonesia. Therefore, consumption of detergent products that are environmentally friendly needs to be improved. Nowadays, the market share of environmentally friendly detergent is still very small and stagnant. Several factors were formulated which influenced the low market share of environmentally friendly detergent in Indonesia, namely the low purchasing power of the people, the imbalance of competition in the detergent industry and the lifestyle of people who did not care about the environment. From this formulation, this study aims to identify consumer segments based on their concern for the environment. This study used a quantitative descriptive method with a multistage random sampling technique and using a structured questionnaire instrument. From the analysis results obtained three consumer segments, namely green indifferent, green potential and green follower. These segments differ by its lifestyle, however no significant different in terms of each segment demography characteristics.

KEY WORD: Green Segmentation, Segmentation, Indonesian Consumers, Multistage Random Sampling, Biplot Analysis, Eco-friendly Detergent

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I. INTRODUCTION

Every international agreement placed environmental development and protection as one of the priorities and stated it in every country's SDGs (Sustainable Development Goals). Thus, every country should put more attention into it. In 2017, some countries had a red score on its environmental development. Indonesia was one of them, shown by the gradual degradation of its Total Environmental Quality Index, notably its water quality index (IKLH, 2017). Indonesia's water quality index dropped by 5.5 points and in 2016 continued to weaken by 1.7 points in 2017. It is mostly driven by the declination in some areas, especially Jakarta and Banten which has the lowest water quality index in 2016 and the highest water quality deterioration in 2017.

The government has made some efforts to improve Indonesian waters quality. However, support from every layer, such as companies as producers and citizens as consumers, are needed. Based on the environmental quality periodic monitoring result, there were some chemical substances contained in Indonesian waters. The result indicated that surfactant was the top three highest concentration after Nitrate and Ammonia in Jakarta waters. The same result was found by Suoth and Nazir (2016) in West Java and Banten waters. Detergent concentration level in both areas has exceeded the government standard threshold. This situation brings some anxieties for Indonesian waters quality in the future. What is more, detergent is a basic consumer product whose potential is getting higher. In 2021, its retail value market expected to increase by 7 trillion rupiahs over 2016.

Despite the product ingredients and production process have met the government and international standard regulation, cleaner products in Indonesia still contain detergent which contaminates the waters. Therefore, its accumulation will endanger human ecosystem in the future. In this case, awareness of the consequences of current detergent ingredients and its consumption patterns need to be increased to improve Indonesian waters quality. AC Nielsen stated in their "New Wealth New World" publication that 72% of Indonesian consumers agreed to change their lifestyle into environmentally friendlier. Despite the high intention, fewer of Indonesian consumers who translate it into their purchase habit. The eco-friendly powder detergent has been launched since several years ago in Indonesia and yet the market shares very low, which is less than 3% of the powder detergent total market (Mars retail audit, 2017).

Given above, Companies need to build a more beneficial marketing strategy. An effective marketing strategy should understand consumer motives and behaviour that underlie in their decision-making process. Consumer behaviour has a strong influence on consumers' decision-making process It reflects how consumers

live, think, behave, and act towards a product (Todd, Lawson and Faris, 1996). Thus, understanding consumers lifestyle has a significant role in building an effective marketing strategy.

The first action that should be taken by companies on building an effective marketing strategy is segmenting the market. Segmenting the market is a fundamental action and placed as the first action in marketing strategy (Kotler and Keller 2012). There are two approaches of market segmentation that commonly used i.e. through demography profile and psychographics. Some past studies in Indonesia applied demography approach to segment the Indonesian market, while some others implemented a psychography approach. Besides commonly used to segment the consumers, psychographic conceptualization also can measure consumers' lifestyle. Thus, the author employed a psychographic approach to understand consumers lifestyle and to segment the market. In developing the market segmentation, the author combines psychography and demography approach, so that the segment obtained can be easily measured.

1.2 Research Objectives

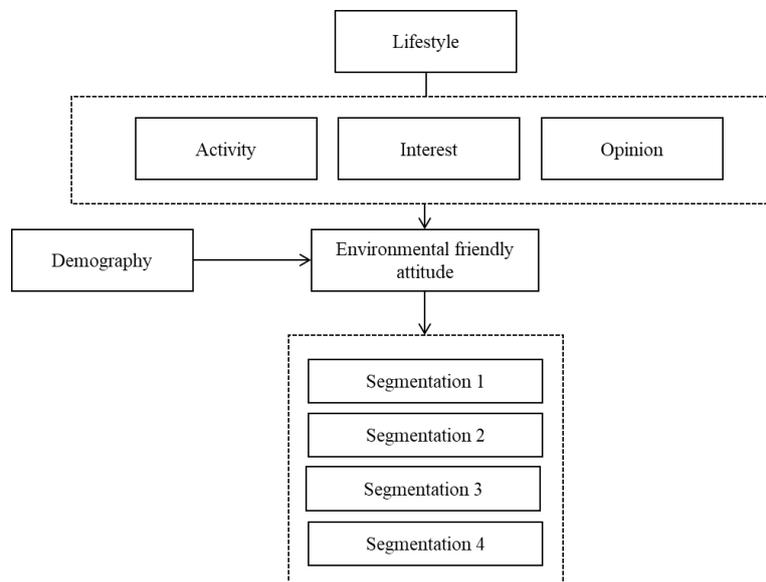
The main issue of the Indonesian water quality is the chemical substances contained. Therefore, an eco-friendly product is needed to improve the Indonesian water quality. By produce and market an eco-friendly product eventually, will transform consumers' lifestyle into environmental friendlier. A marketing strategy is necessary to attract consumers to buy the product. Consumer segmentation is the first step in building an effective marketing strategy. Therefore, information on how Indonesian consumers segmented based on their lifestyle towards the environment is needed.

This research aims to identify the Indonesian consumer stratification respect to their environmental lifestyle. Perhaps by segmenting the consumers based on their lifestyle, this study could contribute to the eco-friendly product market growth, knowing that consumers knowledge and concern towards environmental issues are varied.

1.3 Conceptual Frameworks

This research conceptual frameworks adopted some theories from previous studies and some literature i.e. Irmawati and Waskito (2012) and Engel et al. (1993 (7): 369).

Figure 1: Conceptual Frameworks



1.4 Research Methodology

The author implemented a multistage random sampling method with a direct face-to-face interview to collect the respondents' response. Respondents in the study were 175 women aged 21-45 years old who live in Jakarta and responsible for the laundry and household products purchase, especially detergent. A structured questionnaire from previous research with some adjustment was adopted in this research by the author. Likert scale was employed to get consumer characteristics information. The author exercised a Hierarchical Cluster analysis with ward method to obtain the consumer stratification number. The result from the Cluster analysis was confirmed then with Discriminant analysis. Consumers' characteristics from each segment in this study

were determined through Biplot analysis, while the demography information was analyzed through both Descriptive analysis and Correspondence analysis

1.5 Data Analysis and Result

Respondents in this research were spread evenly across Jakarta five municipalities. Table 2 describes respondents demographic profiles included age, education level, expenditure, occupation, and marital status. Majority of respondents in this study were aged over 30 years old (73%) and 93% of them have married and having children. Due to one of the research criteria should be the one who is responsible for laundry and household products purchase, thus respondents' mainly occupation is a housewife (85%). More than third-fourth of the respondent highest education level is a high school. This finding is still in line with Indonesian women profile published by the Ministry of Female Empowerment and Child Protection of the Republic of Indonesia in 2017.

Table 1: Respondents characteristics

Variable	Indicator	Percentage
Age	21-25 years old	8%
	26-30 years old	20%
	31-35 years old	25%
	36-40 years old	25%
	41-45 years old	23%
Education	Junior highschool	7%
	Senior highschool	87%
	College	5%
Spending	> Rp. 5.000.000	12%
	Rp. 4.000.001 - Rp. 5.000.000	24%
	Rp. 3.000.001 - Rp. 4.000.000	44%
	≤ RP. 3.000.000	20%
Occupation	Housewife	85%
	Working (Freelance/Full time work)	15%
Marital status	Single	2%
	Married without kids	5%
	Married with kids	93%

Consumer segmentation on this paper has generated through some stages. The main idea on the first stage is to identify an optimal number of consumer segments which also done by Do Paco and Raposo (2008) and Wulandari (2012) in their study. The author determined the segment number by exercising Dendogramm, the outcome from Hierarchical Cluster Analysis and then confirmed it using Stepwise Discriminant Analysis. This result is consistent with Whitson (2014) number of detergent user segments, even though it is different from Wulandari (2012) dan Mintz (2011) findings.

The second stage in developing consumer segmentation is identifying the lifestyle characteristics of each segment. Out of 24 indicators used in this research, only 11 indicators that significantly explain the group segment. Table 2 represents the indicator used in this research and the significant indicator generated from Stepwise Discriminant Analysis

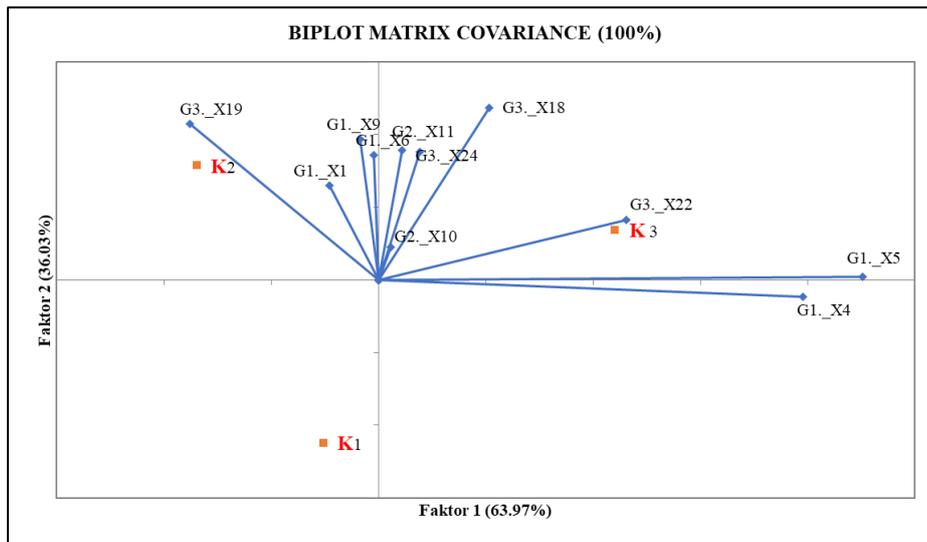
Table 2: Segment Indicators

Variable	Indicator	Initial Indicator	Significant Indicator
Opinion	Environmental sustainability importance	G1_X1	G1_X1
	Party to responsible in environmental pollution alleviation	G1_X2	-
	Government socialization on pollution	G1_X3	-
	Eco-friendly products impact on the environment	G1_X8	-
Knowledge	Relationship of home cleaner product purchase and the environment	G1_X4	G1_X4
	Relationship of personal care product purchase and the environment	G1_X5	G1_X5
	Relationship of home cleaner product purchase and the consumer well-being	G1_X6	G1_X6
	Relationship of personal care product purchase and the consumer well-being	G1_X7	-
Interest	Eco-friendly product's price	G1_X9	G1_X9
	Environmental issues update	G2_X10	G2_X10
	Product purchase interest from pollutants company	G2_X11	G2_X11
	Company activities concerning environmental sustainability	G2_X12	-
	The number of companies offering environmentally friendly products	G2_X13	-
Activities	Willingness to pay higher for eco-friendly product	G2_X14	-
	Participation on event concerning environment	G3_15	-
	Remind family and friend of the impact on their activity	G3_16	-
	Electricity usage	G3_17	-
	Water consumption	G3_18	G3_18
	Waste sorting habit	G3_19	G3_19
	No littering	G3_20	-
	Reducing plastic waste	G3_21	-
	Eco-friendly toilet tissue paper usage	G3_22	G3_22
Eco-friendly personal care product usage	G3_23	-	
		G3_24	G3_24

Once the significant indicators have acquired, the process continued by practicing the Biplot analysis to identify each segment lifestyle characteristics. Figure 2 shows the result of Biplot analysis. From the Biplot analysis it can be identify that each characteristic as below:

- K1: This group of consumers already have knowledge in eco-friendly products and its benefit, however, this segments still do not have interest to life in greener lifestyle, thus this segment called as green indifferent
- K2: Contrary to K2, this group of segments already have knowledge and they are interested in greener life. They have done some simple activities to conserve the nature. However, this group of segments hasn't move to buy any eco-friendly product. Thus, this segment can be called as green potential
- K3: Respondents in this group segment already aware of eco-friendly products however, they don't have enough knowledge of it. Furthermore, member on this group segment does some environment friendly activities yet no based on their environment knowledge.

Figure 2: Biplot analysis to characterize each segment



The above segment lifestyle characteristics supported by the following descriptive analysis of consumers spontaneous knowledge on eco-friendly products. Table 3 represents the green potential segment knowledge which directionally better than to the other two segments knowledge which mainly focus on the product features.

Table 3: Segment Indicators

Consumer Knowledge	Consumer Segment		
	Green Indifferent	Green Follower	Green Potential
Harmless (non-toxic) / does not damage the skin	38%	47%	50%
Does not contaminate the environment	37%	40%	60%
Made from natural ingredients	30%	53%	50%
Recyclable	30%	26%	31%
Low foam	25%	26%	17%
Natural and not pungent fragrance	18%	19%	12%
Others	15%	12%	14%

The last step after identifying each segment lifestyle characteristic, correspondence analysis was used to categorize each segment based on their demography profile. Table 4 reveal the chi-square score for demography variable for each groups segment. It is clearly shown that none of the demography variable is significant to describe difference profile of each group. Which means there is no difference demography profile for each group segment. This result emphasizing previous studies conducted by Wulandari (2012) and Mintz (2011) who brought out the same findings that none of demography variables significantly correlate in profiling group segmentation.

Table 4: Chi-square score for demography variable

Demography variable		Consumer segmentation			Chi-Square
		K1	K2	K3	
Age	21-30 years old	30%	26%	27%	0.161
	31-40 years old	48%	40%	59%	
	41-45 years old	22%	35%	14%	
Educational background	Junior high school	10%	5%	6%	0.387
	Senior high school	88%	86%	86%	
	College or above	2%	9%	8%	
Spending	> Rp. 4.000.000	28%	47%	39%	0.293
	Rp. 3.000.001 - Rp. 4.000.000	47%	40%	43%	
	≤ RP. 3.000.000	25%	14%	18%	

According to Wilkie in Restopo (2016), to make consumer segmentation it takes three stages to determine segments, namely identifying consumer characteristics, knowing the benefits desired by consumers, and understanding the consumer behavior. Consumer behavior that is intended by Wilkie in his research is how the pattern of consumer purchases of a product. In the previous discussion, the characteristics of each consumer segment have been identified, then the next process is to know the benefits that consumers want and how consumers behave in buying detergent products.

From the results of this study, prices are the most widely considered factor and also a major factor in purchasing detergents. Table 5 below describes what consumers consider while buying laundry detergent. 80% consumers consider price as one of their consideration followed by detergent brand and the amount of foam created. However, the amount of the foam is not their main consideration, they consider product ingredients as their main consideration instead. It is stressed by Shin and Jo (2017) study yielded price and product ingredients are the most important attribute for laundry detergent.

Table 5: Factor consideration when buying laundry detergent

Factor considered	Factor considered	Main consideration
Price	80%	33%
Well known brand	71%	20%
The amount of foam produced	62%	9%
Product ingredients	49%	23%
Pack size	42%	3%
Product availability in the store	37%	10%
Has many advertising	25%	-

Next, to understand what benefit needed of each segment, we have to analyse the buying consideration by segment. Table 6 elucidates each factor that considered by each segment. Despite, it is not significant differ each segment, there is tendency that green indifferent consumer considers price higher than other segment, while green potential considers more product ingredients and well-known brand than other segment.

Table 6: Factor considered by each segment

Factor considered	Consumer Segmentation		
	<i>Green indifferent</i>	<i>Green potential</i>	<i>Green follower</i>
Price	37%	26%	33%
Product ingredients	22%	28%	20%
Well-known brand	17%	26%	20%
Product availability in the store	6%	9%	16%
Others	17%	12%	12%

From the results of the analysis both from the characteristics of each consumer segment, the main consideration factor in buying laundry detergent, it can be summarized into consumer segmentation formed in this study as in Table 7.

Table 7: Factor considered by each segment

Criteria	Consumer Segmentation		
	<i>Green indifferent</i>	<i>Green follower</i>	<i>Green potential</i>
Percentage	46%	29%	25%
Lifestyle	Knowing but not yet interested in preserving the environment	Insufficient knowledge but have carried out environmental sustainability activities	Knowing and interested, and have taken simple steps to preserve the environment
Demographics	Aged 21-30 years, junior high school expenditure level is below IDR 3,000,000	Aged 31-40 years, higher education level, level of expenditure IDR 3,000,000 - IDR 4,000,000	Aged 41-45 years, highly educated, expenditure level is more than IDR 4,000,000
The main factor in choosing a product	Price and product characteristics (amount of foam, fragrance, packaging size)	Product availability	Ingredients and brands

1.6 Findings and Interpretation

There are three consumer segments that have different lifestyle characteristics. The three consumers are green indifferent, green follower, and green potential. Green indifferent is a group of consumers who have knowledge about the environment and environmentally friendly products but seems indifferent. Green follower, consumers in this group do not have enough knowledge about environmental issues and environmentally friendly products but have carried out activities that care about the environment because of the trend. Green potential consists of consumers who care about the environment and have carried out activities that showed interest and concern for the environment.

Demographic factors do not have a significant relationship in segment formation, so in this study simply an indication of the characteristics of each segment. There is a tendency for more environmentally friendly consumers to have higher expenditure levels. Price is one of the main considered factors in the selection of detergents.

Of course, there are some limitation on this study, several simple attributes administered to depict consumer lifestyle, thus suggested to applied more complex attributes in addition of consumer behaviour attributes to get more comprehensive consumer segmentation result. Furthermore, larger sample size is recommended to have more significant result in demography profile for each segment.

1.7 Managerial Implication

Based on the results of this study, there were three consumer segmentations in which two of them could be the main target market by the company, namely green potential and green follower. In the green potential market segment, companies can implement communication strategies that emphasize the ingredients used and their benefits to the environment. Based on the characteristics of consumers in this segment who tend to have higher income, prices that are slightly more expensive than regular detergent products on the market can be applied.

The segmentation of the green follower market segment shows that the lifestyle of this consumer segment has followed the trend by turning to be more environmentally friendly. The company can communicate that environmentally friendly detergent is a product that will be used in the future and at the same time the company also educates consumers about the benefits and advantages of environmentally friendly products. So that the products offered get a place in consumer's heart and are considered as innovators in the category of laundry detergents. Product availability factors are considered by the green follower consumer segment, so companies need to consider the traditional trade of products distribution where the company can increase the price of environmentally friendly detergent products

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