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CLUSTERING OF INDONESIAN YOUNG MILLENNIAL
CONSUMERS BASED ON GREEN VALUES

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Abstract

The purpose of the study is to conduct clustering of young millennial consumer based on green values. After grouping, the clusters are analyzed based on altruism, materialism, pro-social attitudes and green behavior. This study was carried out on millennial young consumer aged 18-25 years. The results showed that respondents could be classified into three groups, namely the fresh green consumers, the light green, and the dark green consumers (do not look green). The fresh green consumers are most concerned about the effects on the environment, while the dark green is the opposite. Nearly half of the respondents are the light green, who consider environmental impacts in decision making, but are not always reflected in purchasing decisions. Among the three, Fresh Green clusters have the highest altruistic character. Consumer materialism in all clusters shows a moderate level. Fresh Green consumers are most prosocial, and their green behavior is quite high and the highest compared to the other two clusters.

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1. Introduction

According to data from the Central Bureau of Statistics (Badan Pusat Statistik Indonesia), in 2017 Indonesia's population aged 19 years to 37 years is 33.75% of Indonesia's total population (Budiarti et al., 2018). These are the millennial generation. Compared to the previous generation of millennials known to be the most consumptive (Sullivan & Heitmeyer, 2008), interestingly, millennials tend to have social, cultural, and caring awareness of their environment (Sheahan, 2005). In Indonesia the study and assessment of the green clustering of millennial generation has not been done.

Millennials are people who born between 1985 and 1999 (Pendergast, 2009). Unlike its predecessor generation, millennial grows in a global life, thus they tend to have sensitivity to ethical issues, can accept diverse cultural values, and like to express themselves. Millennials tend to have social, cultural, and caring awareness of their environment (Sheahan, 2005), are loyal to family, friends, community, and themselves but not at the company they work for (Hira, 2007).

Millennials have a direct contribution to the economy, they have high purchasing power which has an impact on the world economy (Farris et al., 2002). They also have indirect contributions (Morton, 2002; Taylor & Cosenza, 2002) through their role in purchasing decisions in families. Among generations, millennial is the most consumptive generation (Sullivan & Heitmeyer, 2008).

Millennials have a relaxed lifestyle; listening to music, going out with friends, watching movies, eating dinner outside and watching TV (Morton, 2002). They like comfort, value oriented, and are interested in what reflects their lifestyle, not because of the appearance of the product. They respond more positively to humorous and emotional ads, advertisements that offer lifestyle and excitement, rather than advertisements that inform product features and specifications (Morton, 2002). Celebrities and athletes have the greatest influence on this generation (Morton, 2002).

In terms of social behavior, millennials have a concern for social problems. Many social activists come from this generation, they volunteer not for personal gain but to help others and contribute to society. Research in America shows that among students there is a positive response to social advertising and environmentally oriented advertising (Hyllegard et al., 2010). The problem that concerns this generation is primarily the problem of education, poverty, environment, health and disease, attention to this problem affects their purchases (Hyllegard et al., 2010). Millennial in US recommends products produced by companies that are responsible for the environment. Millennial can be involved in sustainability activities, with suitable methods and approaches (Paulin et al., 2014). Previous research shows that through an appropriate message approach, Indonesian millennials can be influenced to engage in green behavior, including making donations for environmental conservation (Laksmidewi & Soelasih, 2019). So that a green campaign against the millennial generation is successful, then the problem must be emotionally relevant.

2. Problem Statement

In order to influence young millennial consumers, especially those related to green behavior, it is necessary to understand how their characteristics are. The problem is that the cluster or young millennial consumer groups in Indonesia are not yet known, as well as how they are characterized in these clusters.

3. Research Questions

This research was conducted to answer the research questions: Are there groups in young millennial consumers based on green values, and how are the characteristics of each group according to altruistic, materialism, pro-social attitudes, and green behavior.

4. Purpose of the Study

This research is a preliminary study of millennial prosocial behavior. The purpose of the study is to conduct clustering of young millennial consumer based on green values. Then analyze the characteristics, and behavior of millennial consumers in each cluster. Characteristic analysis was carried out including materialism, altruism, prosocial attitude, and green behavior of young millennial consumers.

5. Research Methods

The method used is K-means Clustering (Jain, 2010), in this case we use the green value as the basis for clustering. Research is limited to millennial young people aged 18-27 years. Based on Howe and Strauss (2007) the current millennials are aged 18 to 37 years (age range is 19), so in this study we define young consumers as millennials aged 18 to 27 years (half of the age range of 19). Our respondents consist of 235 young consumers aged 19-25 years, 7.1% is 19 years old, 3,6% is 24 years old, and 89.3% is between 20-23 years old. Consisting of 96% of students and 4% of young employees. 58.6% of men and 41.4% of women. Grouping of respondents based on green value using the cluster method (Jain, 2010). Then from the cluster formed, the mean difference test was conducted on One-way Anova based on materialism, altruism, prosocial attitude, and green behavior. Green value measurement adapted from doPaço et al. (2019). The materialism measurement was adapted from Richins and Dawson (1992), consists of dimensions of success, centrality, and happiness. Altruism measurements were adapted from Khanna et al. (1992), consists of 20 indicators, with scale: never - very often. Prosocial attitude measurement adapted from doPaço et al. (2019).

6. Findings

With the aim of segmenting green consumers, we do clustering based on their green values. Table 01 shows that all significant green value indicators are factors that are the basis for grouping respondents. The results of the K-means cluster formed three groups consisting of the first group of 104 people, the second group of 83 people, and the third group of 38 people (Table 02).

Table 01. Cluster significancy

ANOVA						
	Cluster		Error		F	Sig.
	Mean Square	df	Mean Square	df		
Greenval1	26.909	2	.512	232	52.605	.000
Greenval2	39.560	2	.433	232	91.402	.000
Greenval3	60.190	2	.499	232	120.643	.000
Greenval4	54.408	2	.565	232	96.239	.000

Greenval5	66.578	2	.409	232	162.960	.000
Greenval6	61.124	2	.648	232	94.383	.000

Table 02. Number of member in each cluster

Cluster	Member
Cluster 1	104
Cluster 2	83
Cluster 3	48
Total	235

Source: SPSS data processing

Table 03 shows a significant difference in green value between 3 clusters ($F = 443.751$ $p = 0,000$). Consumers in cluster 2 have the highest green value ($M = 5.2088$), followed by Cluster 1 ($M = 4.3702$), and finally Cluster 3 has the lowest green value ($M = 3.4271$)

Table 03. Green value differences among clusters

		N	Mean	Std. Deviation	Std. Error	
Green value	1	104	4.3702	.26980	.02646	
	2	83	5.2088	.35769	.03926	
	3	48	3.4271	.40666	.05870	
	Total	235	4.4738	.72886	.04755	
ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Green value	Between Groups	98.549	2	49.274	443.751	.000
	Within Groups	25.761	232	.111		
	Total	124.310	234			

6.1. Cluster labeling and description

Based on the green values in each cluster, we provide names or labels that are appropriate for the cluster according to the description of their respective green values. We strengthen the description by doing a One-way Anova Mean-difference test for each value. ANOVA results show that the F test is significant for all green value indicators, each p value = 0.00 (Table 04).

Table 04. Clusters based on green values

Green values	Cluster 1 Mean	Cluster 2 Mean	Cluster 3 Mean	F
It is important for me that the products I use do not damage the environment	4.71	5.39	4.08	52.605*
I consider the potential environmental impact of my actions when making many decisions	4.61	5.22	3.60	91.402*
My buying habits are influenced by my concern for the environment	4.20	4.99	3.00	120.643*
I am worried about wasting the resources of our planet	4.63	5.35	3.46	96.239*

I describe myself as a person who is environmentally responsible	4.19	5.16	3.08	162.960*
I am willing to be uncomfortable, to take actions that are more environmentally friendly	3.88	5.16	3.33	94.383*

Note: *p=0.000

6.1.1. The ‘fresh green’ young consumer

Among the three clusters, cluster 2 is the consumer group with the highest green value (Table 04). We labeled them ‘Fresh Green’, because it is the greenest consumer group. With a scale of questions 1-6 each indicator has an average value of 5. This cluster considers that products that do not damage the environment are very important to them. In each decision, the impact on the environment is very much a consideration. They are very worried about spending resources on earth. They feel responsible for environmental problems, and even willing to be uncomfortable in order to protect the environment. Even though they hold the green principle very strongly, their green buying decision does not fully reflect their green value.

6.1.2. The ‘light green’ young consumer

The number one cluster consists of good consumers; they know their impact on the environment. We labeled them ‘Light Green’, because the green value was not as strong as Fresh Green. They have high green values but not become a strong value for them. They consider environmental impacts in decision making, but are not always reflected in purchasing decisions. They themselves feel quite responsible for the environment, but are less willing to be uncomfortable. The number of members of this cluster is the largest compared to the other two clusters (104 of 253 people).

6.1.3. The ‘dark green’ young consumer

The last cluster is young consumers who care less about environmental issues, therefore we gave him the label "Dark Green". Fortunately, the number of clusters is the smallest (48 of 235 people). They assess the problem of the impact of the products they use on environmental damage is important to them. But even if it's important, it doesn't affect their decision making, and it doesn't affect their buying habits. They are somewhat worried about the depletion of resources, but are not willing to be uncomfortable for taking actions that are environmentally friendly. They realize that they are less responsible for the environment.

6.2 Cluster characteristics in terms of altruism, materialism, pro-social attitude and green behavior

Next we examine how the characteristics of Fresh Green, Light Green, and Dark Green Consumer. The author considers the nature of consumers’ altruism and materialism as characters that make the level of green values differ between clusters. Altruism and materialism then influence consumer pro-social attitudes. The more pro-social it is assumed that consumers will pay more attention to environmental issues. Consumer behavior is driven by value. We suspect Fresh Green consumers are the ones who apply the greenest values to their behavior. Conversely, Dark Green consumers are the least green behavior.

Table 05. Differences of altruism, materialism, pro-social attitude and green behavior among cluster

		N	Mean	Std. Deviation	Std. Error	
Green behavior	1	104	4.2871	.51509	.05051	
	2	83	4.8892	.51703	.05675	
	3	48	3.7146	.58745	.08479	
	Total	235	4.3828	.68293	.04455	
Altruism	1	104	3.0097	.55618	.05454	
	2	83	3.2850	.76701	.08419	
	3	48	2.9256	.45652	.06589	
	Total	235	3.0897	.63724	.04157	
Materialism	1	104	3.7404	.68341	.06701	
	2	83	3.7612	.77812	.08541	
	3	48	3.7348	.52133	.07525	
	Total	235	3.7466	.68736	.04484	
Prosocial Attitude	1	104	4.7067	.70958	.06958	
	2	83	5.2341	.55526	.06095	
	3	48	4.3819	.67281	.09711	
	Total	235	4.8267	.72557	.04733	
ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Green behavior	Between Groups	43.667	2	21.833	77.371	.000
	Within Groups	65.468	232	.282		
	Total	109.135	234			
Altruism	Between Groups	5.124	2	2.562	6.612	.002
	Within Groups	89.898	232	.387		
	Total	95.022	234			
Materialism	Between Groups	.028	2	.014	.030	.971
	Within Groups	110.528	232	.476		
	Total	110.557	234			
Prosocial attitude	Between Groups	24.770	2	12.385	29.195	.000
	Within Groups	98.418	232	.424		
	Total	123.188	234			

Previous research shows that altruism is a determinant of CRM efficacy (Kozłowski & Sobotko, 2017). The desire to help others influence consumers to buy products that support a social cause (Kozłowski & Sobotko, 2017). Anova results show that consumers in all clusters have a fairly low altruistic nature (Table 05). At this fairly low level, the difference of altruism between clusters is significant ($F = 6.612$ $p = 0.002$). Among the three Fresh Green clusters have the highest altruistic character ($M = 3.2850$), and the lowest is Dark Green ($M = 2.9256$). This result is consistent with the explanation of green value in each cluster. As young people living in urban areas, respondents rarely do social actions that prioritize others over self-interest, without expecting anything in return. Such as help other person's whose motor was trapped in a hole, donate clothes for poor people, donate blood to save other life, give orphan some money, to be volunteers in religious institution, help friends in study, help disables cross the road, help old man get on bus, offer the chair to a woman in crowded bus, etc.

Consumer materialism in all clusters shows a moderate level, and there is no significant difference between the three clusters ($F = 0.03$ $p = 0.971$). This indicates that there is no association between materialism and green value. They are not too much admire people who own homes, cars, and expensive clothes; obtaining material possessions is not the most important achievements in their life; having a job that helps people in their opinion is plenty important; they do not overemphasize the amount of material objects that people have as a sign of success; and the things they have not always reflect how well they do in life.

As previously predicted, Fresh Green consumers are most prosocial ($M = 5.2341$). For them it is important to make other people happy, they really want to make other people happy, and according to them the needs and welfare of others are very important. Pro-social Light attitude Green consumer is quite high and lower than Fresh Green ($M = 4.7067$). Dark Green has the lowest prosocial attitude ($M = 4.3819$).

Fresh Green consumer green behavior is quite high and highest compared to the other two clusters ($M = 4.8892$). The difference in green behavior between the three clusters is significant ($F = 77.371$ $p = 0.000$). Consumers who lack green behavior are Dark Green consumer ($M = 3.7146$). Fresh Green consumers buy products that are energy efficient, do not have excessive packaging, and at least pollute. They try to buy products that can be recycled and convince family members or friends not to buy some products that are harmful to the environment.

7. Conclusion

Based on the adopted green value, respondents can be classified into 3 groups: the first, the consumer group that gives the most attention to environmental problems, they are willing to be uncomfortable so that the environment is maintained. We call the fresh green consumers, because the greenest are the two other groups. The second group is less green than the previous fresh green group, so we named the consumers of light green. This group is aware of the importance of environmental sustainability but has not been reflected in its buying behavior. The third group is the least green group, so we call it dark green because it doesn't look green. The environment is important to them, but decisions and buying behavior are not affected.

This research is a preliminary research, in which we want to know what young millennial consumers are, especially in their values and attitudes towards the environment. The results of this study are expected to provide an overview of how young millennial consumers, so that it can help green product marketers design marketing and promotion tactics for these consumers. The limitation of this study is that the number of samples is too small, so it is necessary to add the number of samples and use the same clustering method. Taking samples that were less spread, caused our respondents to be mostly final year students, so that they did not reflect the whole young millennial. Future studies are expected to explore more of the variables related to green behavior, and examine their relevance.

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