Analysis of eco-friendly preference and eco-friendly product quality; their implications to customer satisfaction

D S Soegoto*
Universitas Komputer Indonesia, Jl. Dipati Ukur. No. 99, Bandung, Indonesia.

*senny@unikom.ac.id

Abstract. The purpose of this study aims at analysing eco-friendly preference and eco-friendly product quality and their implications on the customer satisfaction either partially or simultaneously. The research method used was quantitative method with multiple linear regression analysis. Three variables measured were eco-friendly preference and eco-friendly product quality as independent variable (X) and customer satisfaction as dependent variable (Y). The object of this research was modern market customer as the unit of analysis. Technique of data collection used saturated random sampling with 100 respondents of modern market customers in Bandung. The statistical analysis used Classical Assumption Test and hypothesis testing test of Z, T and F with significant level (α) 5% and calculated by Eviews program. The result indicated implications Eco-friendly preference and eco-friendly product quality significant positive effect on Customer Satisfaction. This result obtained because the statistical test showed that the eco-friendly preference and eco-friendly product quality increases then implications customer satisfaction will increase. Both variables that were Eco-Friendly Preference and Eco-Friendly Product Quality have effects on their implications Customer satisfaction either partially or simultaneously.

1. Introduction

In the modern era today, the level of consumption of various products on the market is very high, from the general public circles the purchase transaction in the modern market around the neighborhood where the customers live. However, do we realize that the product products in the consumption is safe for users and not pollute the environment? Interestingly, a product that is offered in the market cannot be separated from the interesting design, intensive communication, and the quality of the product that is very adequate. The phenomenon of the use of environmentally friendly products of customers can be discovered from the pre-survey in the form of direct interviews with the customers by author in modern market January 2018 and presented in the figure 1.
Consumers of various daily needs products should be smart. Consumers are very often facilitated with various information that is widely circulated about the quality of the products offered. Consumers are invited to be able to choose products that are not only useful to meet the needs and in accordance with the standards of consumption feasibility, but also its environmentally friendly production process.

Based on the existing phenomenon, this research is conducted to examine how actually the modern market is trying to build environmentally friendly preference and the quality of environment-friendly products that will have implications on customer satisfaction; which of course will give positive impact for modern market.

Marketers has responded to consumers’ increasing concern for the environment with an approach called green marketing. Green marketing generally involves (1) developing product whose production, use, or disposal is less harmful to the environment than the traditional versions of the product; (2) developing products that have a positive impact on the environment; or (3) tying the purchase of a product to an environmental organization or event [1]. Green Marketing a marketing strategy involving\[^\text{2}\]\] Green Marketing can not be separated from consumer's understanding, action through consumer's eco-preference as well as quality of consumer product so that the expected attribute of the product make the consumer satisfied. The lack of awareness about green products, negative perceptions of green products, can be resolved by educating customers and building better products respectively [3].

1.1. Eco-friendly consumer preferences

Eco-friendly consumer preferences aims to find out what consumers love and dislike toward environmentally friendly products, and to know the understanding and interest of consumers of environmentally friendly products in the modern market. Eco-friendly products are designed and manufactured products such as plastic wrappers, cup coffee, cake wrap, pouches, foodstuffs, electronic products and others. No types of the products pollute the environment once they are used up. One of the best ways to fight pollution is to live by setting a model of example and making sure the product purchased has safety for the environment. Consumer preferences according to [4] is The Target audience might like the product but not prefer it to other. Consumer preferences according to [5] consists of awareness and attraction so that the customer responds to the product offered. The consumer understands and is interested because the product offered is known through the communication mix process. Awareness and consumer attraction to a product marketed through green marketing (Green Marketing) is very important in determining the decision to purchase environmentally friendly products. [6] A preference is a type of attitude that evaluates an object, idea, or person in a positive or negative way.

According to the preference-for-prototypes theory [7], the more prototypical an object is, the more it will be aesthetically preferred. Environmental issues concerning product labeling, packaging, use, and disposal need to be considered protection of the environment involves a complex set of trade-offs among social, economic, political and technology [8]. Extended decision making with the brand in the evoked
set requires a preference strategy. Because extended decision making generally involves several brand, many attributes, and a number of information sources, a simple capture strategy may not adequate. Instead, the marketer needs to structure an information campaign that will result in the brand being preferred by members of the target market. Effective preference strategy it assumes an involved search, provided detailed information relative to multiple product attributes, shopping venues, and so on. The next step is a strong position on those attributes important to the market. [1]. There are marked and important differences in preferences around the world for factors such as color and taste. Marketers who ignore preferences do so at their own peril [9,10]. The effect of attitude toward the environment was stringer for consumers with high level of environmental knowledge than for consumers with a low level of environmental knowledge [11]. That it develops insight into the specific antecedents of eco-friendly products purchasing for green and non-green consumers to assess potential similarities and differences in eco-friendly products purchasing process, the hypothesized antecedents, their impact on eco-friendly products purchase intention and behavior, and the intention–behavior relation.

1.2. Eco-friendly quality product
The quality of eco-friendly products has challenges related to customer knowledge and trust regarding the quality of products to be purchased. Two main problems are that (1) consumers may believe the product is of inferior quality as a result of being green and (2) they may feel the product is not really that green to begin with [4]. Successful green or eco-friendly products convincingly overcome both these concerns to persuade consumers they are acting in their own and society's long-run interest at the same time, such as with organic foods that are seen as healthier, tastier, and safer, and energy-efficient appliances that cost less to run. Emphasis should also be laid on the green image, safety and quality of the product [12,13] pointed out that the improvement of service, product quality, menu and facilities have a positive effect on consumer’s perceived value and satisfaction, thus shaping positive consumption attitudes. [14] Classified green products into general green products, recycled paper products, products not tested on animals, environmentally friendly detergents, organically-grown fruit and vegetables ozone–friendly aerosols and energy-efficient products. In addition, the positive relationship between ecological conscious behavior and purchasing intention towards environmentally friendly product were also significant [15]. In general, green products are known as an ecological product or environmental friendly product [16].

1.3. Customer satisfaction
Satisfaction is a person’s feelings of pleasure or disappointment resulting from comparing a products perceived performance or outcome in relation to his or her expectation [4]. According to [17] satisfaction is emotional state, post-buyer reaction can be dissatisfaction, neutrality, joy, aggravation or pleasure. [18] ‘Satisfaction is related to a subjective evaluation of emotion. The emotion occurs as a function of disconfirmation and relative output to input. The end result is a positive or negative feeling of fulfilment’. Furthermore, [19] states that customer satisfaction is the attitude of the overall assessment of a good or service after purchase and use. Consumers’ experience and learning influence product satisfaction and second purchase in the future [20].

We use the multiple linear regression analysis method to analyze how these eco-friendly preferences, and the of eco-friendly products quality can significantly positively effect their implications to customer satisfaction. This result obtained because the statistical test showed that the eco-friendly preference and eco-friendly product quality increases then implications customer satisfaction will increase.

The purpose of the article. The purpose of this article is to analyze eco-friendly preference and eco-friendly product quality and their implications on the customer satisfaction either partially or simultaneously.
2. Method

Research method used was quantitative method with multiple linear regression analysis. Three variables measured were eco-friendly preference and eco-friendly product quality as independent variable (X) and customer satisfaction as dependent variable (Y). The object of this research was modern market customer as the unit of analysis. Technique of data collection used saturated random sampling with 100 respondents of modern market customers in Bandung. The statistical analysis used Classical Assumption Test and hypothesis testing test of Z, T and F with significant level (α) 5% and calculated by Eviews program.

2.1. Multiple linear regression eco-friendly preference and eco-friendly product quality to customer satisfaction

By using Eviews 7 software, the following results of multiple linear regression analysis are obtained: value a is equal to 0.36, value of b1 equal to 0.30, and b2 equal to 0.58. Thus, the following multiple linear regression equation can be formed:

\[ Y = 0.36 + 0.30X_1 + 0.58X_2 \]  \( (1) \)

The a and bi values in the above equations can be interpreted as follows:

- **c** = 0.36 means: if eco-friendly preference and eco-friendly product quality is 0 percent, then customer satisfaction will be worth 36% percent.
- **X1** = 0.30 means: if eco-friendly preference increases by one percent while eco-friendly product quality is constant then customer satisfaction will increase by 30% percent.
- **X2** = 0.58 means: if eco-friendly product quality increases by one percent while eco-friendly preference is constant then customer satisfaction will increase by 58% percent.

2.2. Classic assumption test

Furthermore, the analysis of the classical assumption shows as follows:

| Brief Test                  | Criteria                                                                 | Acceptance                        |
|-----------------------------|--------------------------------------------------------------------------|-----------------------------------|
| Correlation serial test     | \( X^2 \) statistic \(< X^2 \) table where 0.687 \(< 5.99 \)            | model free from serial correlation problem |
| Normality test              | Jarque-Bera \(< X^2 \) table where 2.28 \(< 5.99\)                      | residual is normally distributed   |
| Linearity Test              | F f-statistic \(< f\) table (0.05 ; 2;100) \(= 3.09 \) so that 1.32 \(< 3.09 \) | linear model is acceptable        |
| Heteroscedasticity          | Obs*R-squared = 0.925665 \(< \) table chi-square (5%,df) = 5.99          | the model passed the heteroscedasticity test |
| Multicolinearity            | If R-squared 1 \(> \) R-squared 2 then R-squared1 = 0.717 \(> \) R-squared2 = 0.513 | the model did not find any multicolinearity |

2nd Annual Applied Science and Engineering Conference (AASEC 2018)  IOP Publishing
IOP Conf. Series: Materials Science and Engineering 434 (2018) 012164 doi:10.1088/1757-899X/434/1/012164
3. Results and discussion

3.1. Implications eco-friendly preference and eco-friendly product quality to customer satisfaction

The coefficient of determination (KD) is the square of the correlation coefficient (R) or also known as R-Square. The coefficient of determination serves to find out how much implications Eco-friendly preference and Eco-friendly product quality to Customer satisfaction.

From the output of E-Views 7, it is known that the coefficient of determination or R square is 0.7175 or 71.75%. This shows that Eco-friendly preference and Eco-friendly product quality simultaneously give implications to Customer Satisfaction variable equal to 71.75%, So Eco-friendly preference and Eco-friendly product quality give big implications to increase Customer satisfaction because eco-friendly product quality which is well managed and increase the eco-friendly preference is expected to improve implications to Customer Satisfaction. While the rest of 28.25% is the influence of other variables that are not examined outside the Eco-friendly preference and Eco-friendly product quality.

3.2. Correlation eco-friendly preference and eco-friendly product quality

To test whether Eco-friendly preference and Eco-friendly product quality variables have positive or negative correlation, then statistic testing of z. H0: β1 = β2 = 0, That is, there is no positive relationship between Eco-friendly preference and Eco-friendly product quality in Modern Market in Bandung City. H1: βi ≠ 0, That is, there is a positive relationship between Eco-friendly preference and Eco-friendly product quality in Modern Market in Bandung.

The level of significance (α): 0.05

Test criteria:

- reject H0 if value Z-statistics > Z-table,
- accept Ha if the value of Z-statistics < Z-table

From the calculation results obtained Z value of 10.9. This value will be compared to the Z value of the table. With α = 0.05, Z-table = Za / 2 = Z0.025 = 1.82. From the above values, it is known that the value of Z-statistics (17,34) > Z table (1,82), so H0 is rejected and Ha accepted, Z value is positive sign showing relationship between Eco-friendly preference and Eco-friendly product quality is the same direction, Eco-friendly preference includes how big Eco-friendly product quality is there. Value 17,34 shows that assuming variable X1 (Eco-friendly preference) constant mean there is positive relation between Eco-friendly preference (X1) and Eco-friendly product quality (X2) in Modern Market in Bandung City.

3.3. Implications of eco-friendly preference and eco-friendly product quality to customer satisfaction either partially

3.3.1. Testing implications eco-friendly preference (X1) to customer satisfaction (Y) either partial. Ho: β1 = 0, meaning that Eco-friendly preference partially has no significant implications effect on Customer satisfaction. Ha: β1 ≠ 0, It means Eco-friendly preferences partially significant implications effect on Customer satisfaction. With significance level α = 5%. Based on the processing using EViews-7, it can be seen that t-Stat value for Eco-friendly preference is 1.66. This value will be compared to the value of t table in the distribution table t. With α = 0.05, df = n-k-1 = 96- (3-1) = 94, for the two-sided test the value of t table is 1.66. It is known that t-Stat for X1 (4.05)> t-table, then Ho accepted means Eco-friendly preference partially significant implications effect on Customer Satisfaction. That is, if Eco-friendly preference is improved, it will have a significant implications effect on improving Customer Satisfaction.

3.3.2. Testing implications eco-friendly product quality (X2) against customer satisfaction (Y). Ho: β1 = 0, Meaning Eco-friendly product quality partially no significant implications effect on Customer
Satisfaction. Ha: β1 ≠ 0, Meaning Eco-friendly product quality partially significant implications effect to Customer Satisfaction. With significance level α = 5%

Criteria:
- Reject Ho if t-Stat is bigger than t-table
- Accept in other things

Based on the results of processing, it can be seen that t-Stat value for Eco-friendly product quality is 1.66. This value will be compared to the value of t-table in the distribution table t. With α = 0.05, df = n-k-1 = 96- (3-1) = 94, for the two-sided test the value of t table is 1.66. It is known that t-Stat for X2 (7.68)> t-table, then Ho accepted means Eco-friendly product quality partially significant implications effect to Customer Satisfaction. That is, if Eco-friendly product quality is improved, then implications effect to Customer Satisfaction will increase in Modern Market in Bandung.

3.4. Implications effect of simultaneous implications eco-friendly preference and eco-friendly product quality against customer satisfaction.

To test whether Eco-friendly preference and Eco-friendly product quality variables simultaneously give significant implications to Customer Satisfaction, then the simultaneous hypothesis testing is as follows:
H0: β1 = β2 = 0, That is, there is no implications Eco-friendly preference and Eco-friendly product quality in Modern Market in Bandung. Ha: βi ≠ 0, That is, there is implications Eco-friendly preference and Eco-friendly product quality at Modern Market in Bandung.

The level of significance (α): 0.05
Test criteria:
- reject H0 if value F-stat> F-table,
- accept Ha if the value of F-stat < F-table

From the data processing with Eviews-7, we can know the value of F-stat equal to 33.06. This value will be compared to the F table value. With α = 0.05, v = 2 and df = 94, it is known that F table value is 3.09. From the above values, it is known that F-stat (123,16) > F table (3.09), so H0 is accepted and Ha is rejected, meaning there is significant simultaneous implications of Eco-friendly preference (X1) and Eco-friendly product quality (X2) to Customer Satisfaction (variable Y), indicating that implications Eco-friendly preference and Eco-friendly product quality simultaneously have a significant effect on Customer Satisfaction. The result of the research indicated that implications Eco-friendly preference and Eco-friendly product quality simultaneously give implications to Customer Satisfaction variable equal to 71.75%, this means that if Eco-friendly preference and Eco-friendly product quality are properly managed and enhanced, their implications to Customer Satisfaction will increase as well. The result showed in the research is in line with the prior research that implications customer satisfaction is influenced by the good green marketing of eco-friendly product.

4. Conclusions

Based on the results of data analysis and discussion that has been done, the authors take the following conclusions:

There is a positive relationship between Eco-friendly preference (X1) and Eco-friendly product quality (X2) in modern market Bandung. Application of Eco-friendly preference good able to increase Eco-friendly product quality, and good Eco-friendly product quality able to increase their implications to customer satisfaction.

Eco-friendly preferences partially significant implications effect on Customer satisfaction. This may be due to the fact that in modern market, and Eco-friendly preference influences partially implications to customer satisfaction, so also reel green product excellence. Eco-friendly product quality partially significant implications effect to Customer Satisfaction. That is, if Eco-friendly product quality is improved, then implications effect to Customer Satisfaction will increase in Modern Market in Bandung.
Customers who receive the benefits will feel good they are against company and company eco-friendly products.
The research indicated there is significant simultaneous implications of Eco-friendly preference and Eco-friendly product quality to Customer Satisfaction, and indicating that implications Eco-friendly preference and Eco-friendly product quality simultaneously have a significant effect on Customer Satisfaction. this means that if Eco-friendly preference and Eco-friendly product quality are properly managed and enhanced, their implications to Customer Satisfaction will increase as well.

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