CHAPTER III

RESEARCH METHODOLOGY

3.1. Introduction

The whole research process and methodology will be elaborated within this chapter to support the idea and argumentation of the topic. It specified in the following points: population, sample, and sampling technique, data collection, research variable, data and variable measurement scale, instrument validity and reliability, research method, and data analysis method.

3.2. Population, Sample, and Sampling Technique

The population of the current research is consumers who were visiting organic market, supermarkets, and cafe inYogyakarta. The purposive sampling was being used in this research because only limited people who have the information that is sought. People who are most advantageously placed or in the best participation to provide the information required are people who were visiting organic market, supermarkets, and café in Yogyakarta and have experience on purchasing green products through an offline store in Yogyakarta. During the questionnaires distribution, the questionnaires distributed to the respondents after being asked about green experience/ after they are purchasing green products. The Author expected to get at least 150 respondents.

3.3. Data Collection

3.3.1. Data Source

Primary source data gathered in the form of a modified questionnaire from previous research done by Juwaheeret. al.(2012), while other sources sort of: citations, quotations, and interpretations, was taken from the printed and from the digital media: books, journals, newspaper, magazine, and web page.

The data took from reliable and trustworthy sources. Any subjective or provocative blogs and forums were eliminated in order to gain the validity and reliability of this research.

3.3.2. The Time and Location

Research form was circulated during February 2016 in 16 different locations around DIY (Yogyakarta). The places were:

    a. POJOG (Pasar Organik Jogja).

    b. Milas; Jalan Prawirotaman Yogyakarta.

    c. Letuse; Kawasan Demangan Jogja.

    d. Pasar SETUM; Sukoharjo, Ngaglik, Sleman.

    e. HERO Supermarket; Mall Malioboro, Jalan Malioboro nomor 52-58, Yogyakarta.

    f. Roemah Oerganik; Ngaglik, Sleman.

    g. Ps. Siliran; Yogyakarta.

h. Superindo Seturan; Jalan Raya Seturan Kav. IV, Depok, Yogyakarta.

i. Lottee Mart; Jalan Ring Road Utara, Yogyakarta.

j. Carrefour Ambarukmo Plaza; Jalan Laksda Adisucipto, Yogyakarta.

k. Giant Supermarket; Jalan Urip Sumoharjo, Yogyakarta.

l. Hypermart; Mall JCM, Jalan Magelang, Yogyakarta.

m. Starbucks-Empire; Jalan Urip Sumoharjo, Yogyakarta.

n. Dunkin Donuts; Jalan Kaliurang, Yogyakarta.

o. Hestek Kopi; Jalan Kaliurang, Yogyakarta.

p. Ling-Lung; Jalan Perumnas 20a, Depok, Yogyakarta.

3.4. Research Method

Present research is quantitative research. This research aims to investigate the influence of eco-labelling, green packaging and branding, environmental advertisement, green premium pricing, and eco-image to consumers' environmental behaviour.

The questionnaires distributed to 220 people in the chosen places, in Yogyakarta. The question within the questionnaires divided into three sections, sort of: (1) green marketing strategy tools, (2) environmental behaviour, and (3) demographics. The instrument used in the present research was replicated and modified from Juwaheer*et. al.* (2012),entitled: *"Analysingthe Impact of Green Marketing Strategies on Consumer Purchasing Patterns in Mauritius".*

3.5. Research Variable

There are five independent variables that taken from green marketing strategy tools. Those five independent variables (x1-x5) are: (1) eco-labelling, (2) green packaging and branding, (3) environmental advertisement, (4) green premium pricing, and (5) eco-image. Those were investigated in the relation with the consumers' environmental behaviour as the dependent variable (y). In addition, the demographic variables also included for presenting the profile of the respondents. Thus, those variables used could be seen in the following table.

Table 3.1 | Variable Measurement

No.	Variable	Description	Total Items	Sample of Items
1	Eco-Labelling	Labelling systems for green products (Delafrooz, et, al., 2012).	6 items	"Eco-labelling are eye-catching on green products"
2	Green Packaging and Branding	Eco-friendly packaging and branding (Rahbar and Wahid, 2011).	5 items	"Important to reuse the packaging."
3	Environmental Advertisement	Eco-friendly ads (Juwaheer et. al., 2012).	4 items	"The content should offer emotional relevance."
4	Green Premium Pricing	Premium pricing for green cost product (Christopher, 2002).	3 items	"Pay a higher price for green products."
5	Eco-Image	Eco-friendly image (Delafrooz et. al., 2013).	2 items	"There should be more visibility market the green product."
6	Consumers' environmental behaviour	Consumers' willingness to buy eco-friendly product (Juwaheer et. al., 2012).	9 items	"Recycle bottles, cans, or glass.'
7	Demographics	The respondents' personal background (Schiffman and Kanuk, 2010).	10 items	"Age."

3.6. Data Measurement Scale

The type of questions used in the questionnaire was mostly closed questions since the choice answers were provided except for the demographics section. There are two open questions used to identify where the respondents live and originally comes from.

Likert Scale was used to measure the eco-labelling, green packaging and branding, environmental advertisement, green premium pricing, eco-image; and consumers' environmental behaviour. There are two types of Likert Scale used, both used 5 points-scale. The Likert Scale itself used interval measurement scale.

To measure the eco-labelling, green packaging and branding, environmental advertisement, green premium pricing, and eco-image, the scale used was the level of agreement, as follows:

Strongly Disagree (*SangatTidakSetuju*)   = 1

Disagree (*TidakSetuju*)   = 2

Neither Agree or Disagree (*Netral*)   = 3

Agree (*Setuju*)   = 4

Strongly Agree (*SangatSetuju*)   = 5

Whereas to measure the consumers' environmental behaviour, the level of frequency was used as follows:

Never (*TidakPernah*) = 1

Rarely (*Jarang*) = 2

Sometimes (*Kadang-kadang*) = 3

Usually (*Biasanya*) = 4

Always (*Selalu*) = 5

Various measurement scales that used to measure demographics elaborated as follows.

1. Origin

   This question was an open questioned used to ask the origin of the respondents.

2. Residence

   To ask the respondent's residence, an open questioned used besides to ask the origin of the respondents.

3. Gender

   There are only two categories here, which are male and female and gender and the scale measurement is nominal scales.

4. Age

Age included in ratio scale. The answer choices were provided; those were:

a. < 18   d. 40-50

b. 18-28   e. > 50

c. 29-39

5. Marital Status

There's only two choices provided, whether the respondents could choose single or married and it categorized as nominal scale.

6. Education

In this section, the choices provided was:

a. Senior High School/Vocational School

b. Diploma/Undergraduate

c. Postgraduate

d. Other

Thus, education is included as an ordinal scale category.

7. Occupation

The measurement scale of occupation is nominal scale. The multiple choices provided, were:

a. Student   e. Housewife

b. Public Employee/PNS   f. Retired

c. Private Employee   g. Other

d. Entrepreneur/Sales

8. Income (Monthly)

The measurement scale of monthly income is interval scale. The choices provided, were:

a. $\leq$ 1,000,000   c.   4,000,001-7,000,000

b.   1,000,001-4,000,000   d. $\geq$ 7,000,001

3.7. Instrument Validity and Reliability

An instrument of a survey must be tested for getting the valid and reliable findings. Therefore, a validity and a reliability test must be conducted.

3.7.1. Validity Test

The validity test uses for investigating how far the measurement could test the goodness and the fitness for what researchers wants to observe.This study used Pearson Product Moment Test. The instrument included as a valid tool if the value of *r value* (the value of Corrected Item-Total Correlation) $\geq$ *r table* (Stephanie, 2013).

$$r = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\sqrt{\{n\sum x^2 - (\sum x)^2\}\{N(\sum y^2) - (\sum y)^2\}}}$$

with $\alpha = 5\%$ (0.05)

where:

r = the value of Corrected Item-Total Correlation

n = total respondents

x = total score of variable from respondent

y = total score of variable associated with the observed respondent

3.7.2. Reliability Test

The internal consistency of the questionnaire can be seen by observing whether the items and subsets of measuring instrument items highly correlated or not. The internal consistency of the questionnaire could be examined through the value of the Cronbach's coefficient Alpha. The better measuring instrument has higher coefficients (Sekaran and Bougie, 2009).

Based on Stephanie (2013), an instrument included as a reliable instrument if the coefficient of Cronbach's Alpha > 0.60. The Cronbach's Alpha formulation formulated as follows:

$$\propto = \left(\frac{k}{k-1}\right)\left(1 - \frac{\Sigma_{i=1}^{k}\sigma_{yi}^{2}}{\sigma_{x}^{2}}\right)$$

where:

k = the number of scale items

σ_{yi}^{2} = the variance associated with the item i

σ_{x}^{2} = the variance associated with the observed total scores

Alternatively, the Cronbach Alpha could also formulate as follows:

$$\propto = \frac{k \times \bar{c}}{\bar{v} + (k-1)\,\bar{c}}$$

where:

k = the number of scale items

$\bar{c}$ = the average of all covariance between the items

$\bar{v}$ = the average variance of each item

3.8. Data Analysis Method

3.8.1. Descriptive Statistics

The descriptive statistics of percentages used to analysis the data and presenting the profile of respondents. According to Stephanie (2013), the formula could be seen in the following paragraphs.

$$Percentage\,(\%) = \left(\frac{f}{N}\right) \times 100$$

where:

f = frequency

N = total respondents

3.8.2. Multiple Linear Regression

Present research has focused on understanding the influence of eco-labelling, green packaging and branding, environmental advertisement, green premium pricing, and eco-image towards consumers' environmental behaviour. Therefore, the analysis tools that suitable to be used is multiple linear regression. Mathematically, it could be formulated as the following formula:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

where in this research,

Y = Consumers' environmental behaviour

X_1 = Eco-Labelling

X_2 = Green Packaging and Branding

X_3 = Environmental Advertisement

X_4 = Green Premium Pricing

X_5 = Eco-Image

β_0 = Constant (Y)

$\beta_{1,2,3,4,5}$ = Constant (X)

Based on Stephanie (2013), multiple linear regression is a statistic technique that attempts to model the relationship between two or more than two independent variables and the dependent variable. In this regression, x is associated with the value of y. There are two tests that must be done in this model in order to know the relationship between independent variables and a dependent variable. Those two are: (1) T test to test the overall significance model and (2) F test to test the partial/single independent variable significance/contribution in the model. Therefore, those two test steps would be addressed in the following paragraphs.

    a. F Test

In order to do f test, people must perform several steps:

1. Formulate null (H_0) and alternative hypothesis (H_a)

    If it's related to this research, thus, the formulation would be:

$$H_o : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$$

Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in overall doesn't contribute to the consumers' environmental behaviour.

$$H_a : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 = 0$$

Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in overall significantly contributes to the consumers' environmental behaviour.

2. Calculate the value of f with the formula:

$$F = \frac{(R_{x1,x2,y})^2 (n - m - 1)}{m(1 - R_{x1,x2,y}^2)}$$

where,

m = the total of independent variables

n = the total of respondents

3. Make a Comparison between the value of F and F distribution table

Ho accepted if the value of f < f table; with the p-value > 0.05.

Ha accepted if the value of f > f table; with the p-value <0.05.

4. Conclusion

If Ho accepted, this condition means that Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in overall significantly contributes to the consumers' environmental behaviour.

If Ha accepted, this condition means that Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in overall doesn't contribute to the consumers' environmental behaviour.

b. T Test

In order to do t test, people must perform several steps:

1. Formulate null (H_0) and alternative hypothesis (H_a)

    If it's related to this research, thus, the formulation would be:

    $H_o : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$

    Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in partial doesn't contribute to the consumers' environmental behaviour.

    $H_a : \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 = 0$

    Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in partial significantly contributes to the consumers' environmental behaviour.

2. Calculate the value of t with the formula as follows:

$$t = \frac{bi}{Sbi}$$

    where,

    bi = the value of constant

    Sbi = standard error

3. Make a comparison between the value of t and t distribution table.

    Ha accepted if the value of t > t table; with the p-value < 0.05.

Ho accepted if the value of t < t table; with the p-value < 0.05.

4. Conclusion

If Ho accepted, this condition means that Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in partial significantly contributes to the consumers' environmental behaviour.

If Ha accepted, this condition means that Eco-labelling, Green Packaging and Branding, Environmental advertisement, Green Premium Pricing, and Eco-Image in partial doesn't contribute to the consumers' environmental behaviour.