"Understanding Indonesian Consumer Preference towards Packaging Products Buying Decision through Eco-Friendly Product Attributes"

Bachelor Thesis Proposal

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Introduction

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Abstract

The study aims to reveal Indonesian consumers' preferences towards packaging products, such as a carrier bag and water bottle. It could be done by analysing the consumers' valuation of product attributes. Consumers are asked to choose a bundle of product attributes, which they value to have the highest utility. In addition, this study applies a qualitative method of in-depth interview and a quantitative method by distributing a questionnaire with a discrete choice experiment. There are five eco-friendly product attributes for packaging product, functional performance and quality, economic costs, environmentally friendly feature, hedonic or emotional appeal and convenient. Given the result for a carrier bag, the product attributes which have a significant influence in determining preferences are functional performance and quality, economic costs, environmentally friendly feature, and convenient. However, for a water bottle, only functional performance and quality does not become statistically significant towards consumer preferences. Aside from that, the level of education and level of income does not have any significant effect on consumer choices towards both packaging products. This research also analyses the level of awareness and interest of Indonesian consumers towards eco-friendly packaging products through a Likert scale and interview. From the result of the study, it is found that most of Indonesia customer have a high awareness of the environment and interest in purchasing packaging products. The purpose of the study is to give insights for manufacturers for creating alternative products to replace the use of single-use plastics packaging products that are proven to be harmful to the environment. At the end of this research, directions for further research are provided in order to continue the development of the study in this area.

Chapter 1
Introduction

1.1 Background

1.1.1 Demographic Information of Indonesia

Indonesia is located in South-East Asia, and it is the fourth highest populated country in the world. This archipelago nation has 250 million people live across over 6000 inhibited islands. However, according to the world bank,[1] Indonesia has substantially lower GDP per capita compared to the world's GDP at $3,893 and $11,296 respectively. In addition, Indonesia has income inequality among its provinces. According to 2017 data from Indonesia Central Bureau of Statistics (BPS),[2] DKI Jakarta has the highest GDP per capita with Rp. 232.242 Million (~$16,490) while having Nusa Tenggara Timur as the province with the lowest GDP per capita with Rp. 17,241 Million (~$1,224). Indonesia has a young population with an average age of 30.2 years old, CIA World Factbook 2017[3] placed Indonesia in rank 117 among 230 countries in the world in terms of population average age.

1.1.2 Environmental Issue in Indonesia

A study has shown that five countries in East Asia have contributed more than 50% of the total world plastics waste in the oceans. Indonesia is positioned as the second-largest country who is responsible for the million metric tons of plastic waste in the ocean. Also, the top polluter is China and followed by the other countries; Indonesia, Philippines, and Vietnam. According to a research article on global plastic production by industry, 40% of the plastic produced is one-time use packaging (Jambeck et al, 2015).

Indonesia is estimated to generate greater than 190,000 tons of waste each day, and plastic waste supply around 25,000 tons per day to that amount. The capital of Indonesia itself generates up to 2,400 tons of plastic waste in a day. It cannot be denied that plastic is already an integral part of

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1 GDP per capita (current US$) | Data. (2019). Retrieved 2 July 2019, from https://data.worldbank.org/indicator/ny.gdp.pcap.cd?most_recent_value_desc=tru

2Badan Pusat Statistik. (2019). Retrieved 10 July 2019, from https://www.bps.go.id/dynamictable/2015/10/07/957/-seri-2010-produk-domestik-regional-bruto-per-kapita-atas-dasar-harga-berlaku-menurut-provinsi-2010-2016-ribu-rupiah-.html

3 East Asia/Southeast Asia :: Indonesia — The World Factbook - Central Intelligence Agency. (2019). Retrieved 26 July 2019, from https://www.cia.gov/library/publications/resources/the-world-factbook/geos/id.html

our daily lives, for instance, when we are shopping, buying a water bottle, or when drinking iced coffee in a cafe. Plastic bags and plastic bottles are closely linked to our daily consumption. As stated by the Indonesian Environment and Forestry Minister, Indonesian used 9.8 billion from plastic bags in a year, and 95% of these products became plastic waste. The waste of these products could endanger the environment. For instance, there is evidence that a Sperm Whale is stranded in Sulawesi with plastic waste in its stomach. It has 25 plastic bags, four plastic bottles, and more than 1000 other plastic waste. Also, a viral video shows a turtle with a straw in its nostrils, and this condition makes the turtle hard to breathe. The presence of plastic waste in the ocean could threaten the life of the sea animals. When these animals keep ingested the plastic waste, it could make them suffer and eventually die.

The use of plastic packaging is hazardous to the environment as these plastic products could take up to hundreds of years to be degraded or decomposed. WWF Australia explained that it could take up to 20 years for a plastic carrier to be degraded, the plastic bottle even provides a higher threat to the environment as this product needs almost half a century to break down (450 years). In addition, the presence of plastic waste in the ocean is also the sources of many other environmental issues such as consumption of plastic waste by marine creatures or water pollution that could be harmful to humans as many studies found out that it contains dangerous substances that could lead to cancer and congenital disabilities.

Therefore, plastic pollution is one of many problems that Indonesia needs to tackle. The government had put an effort by conducting a trial program called “Plastic Bag Diet.” The program regulated retailers to charge a minimum plastic tax costs Rp 200, nevertheless the program only lasted for less than a year. This program is expected to build awareness among people concerning the results of plastic waste on the environment. Some people criticized that Rp 200 is too affordable to incentivize people to reduce their usage of plastic bags. In 2019, the government set a targeted revenue for plastic taxes for the amount of Rp 500 billion. This regulation is expressed in Presidential Regulation No. 97/2017 on the management of household waste.[4]

4 Raniah, R. (2016, December 26). Ban against single-use plastic bags, half-hearted effort? Retrieved April 10, 2019, from https://www.thejakartapost.com/news/2018/12/28/ban-against-single-use-plastic-bags-half-hearted-effort.html

Some retailers also have started to provide paper bags as an alternative for plastic bags. Paper bags are assumed to be less environmental damage compared to plastic bags. However, in producing paper bags, trees are required to be cut down, and it negatively affects the ecosystem. In processing the pulp, the number of fuels, chemicals, and energy is also primarily consumed in this stage (Muthu, 2009). Hence, this topic also raised different opinions and preferences regarding the environmentally value aspect and each person preferences towards eco-friendly product attributes as their considerations in choosing the packaging product. Also, each province in Indonesia has different regulations to reduce plastic pollution. In 2019, Bali is the first mover province who bans on single-use plastic.[5] Thus, by knowing the eco-friendly packaging product attributes which preferred by customers and understand how it substantially affects the customers' decision, this research could be used as guidance to develop alternate products which are less hazardous to the environment as a replacement of plastic packaging.

1.2 Scientific and Social Relevance

The purpose of this research is to provide more in-depth knowledge of eco-friendly product attributes for society, including government and corporate. In this research, product attributes will be studied, and each value of product attribute will be compared and ranked according to the importance of the attributes. This research contributes to society by providing the result of the research, which shows eco-friendly product key attributes that customers perceive most important. The key attributes will depict the actual preferences of the market and reveal how it influences the decision-making process of consumers in buying packaging products. Given the knowledge, alternate packaging could be developed according to consumers' preferences. Moreover, as Indonesia is well-known as one of the highest producers of plastic waste, by introducing the alternate eco-friendly packaging product, this possibly could contribute to reduce plastic pollution in the environment. Therefore, this study researches the possible relationship between eco-friendly packaging product attributes with customer buying decision of packaging products.

5 Bali bans single-use plastics, targets 70 percent reduction in 2019. (2018, December 26). Retrieved April 15, 2019, from https://www.straitstimes.com/asia/se-asia/bali-bans-single-use-plastics-targets-70-per-cent-reduction-in-2019

1.3 Problem Statement and Research Question

Intending to develop alternate packaging products as an alternative to plastic packaging which gives hazardous effect to the environment, a study is necessary to penetrate deeper into the consumers' actual needs and their favoured features. From the research, it is expected that alternate packaging products could be developed in line with customers' preferences and motivate them to switch to this product. Given the condition, the main question for this research is:

"Which eco-friendly packaging product attributes could possibly influence Indonesian people buying decision of packaging products?"

Theoretical sub-questions are formulated as below:

1. What is the Consumer Buying Process?
2. What is the Consumer Decision Making Process?
3. What is Eco-Friendly?
4. What are Eco-friendly Product Attributes?

Empirical sub-questions are formulated to answer the main research questions which will guide this thesis:

1. Which characteristics define an Indonesian consumer?
2. To what extent is the Indonesian consumer interested in the eco-friendliness of packaging?
3. What are the key attributes that influence the buying and decision-making behaviour of the Indonesian consumer in purchasing eco-friendly packaging product?
4. What kind of Consumer Packaging is used by Indonesian Retailers?

1.4 Research Objective

Each product attributes a utility which reflects the value of the features, and people tend to choose a choice set of alternatives that has the highest positive utility and avoid in choosing the negative utility (Edwards, 1954). Given all the information above, the main objective of this research is to find which eco-friendly key attributes that significantly influence the decision-making process in

buying packaging product and also to find the relationship between income, level of education and its effect to Indonesian consumers' preferences towards eco-friendly product attributes.

1.5 Report Structure

This research starts with the introduction in chapter 1, where the background information and the problems will be discussed, complemented by the purpose of the research. This chapter outlines the expected outcome of the research. In chapter 2, fundamental theories related to the research are discussed to support the analysis. Chapter 3 contains the explanation for a methodology that was used to process & collect data. The research will use JMP and SPSS as the software to help to unveil which attribute has the highest importance among other attributes. The results of data analysis generated by JMP and SPSS will be described and interpreted in chapter 4. The last chapter for this research is chapter 5, and the research will be closed with the conclusion of the research itself.

Chapter 2
Literature Study

2.1 Consumer Behaviour

Consumer behaviour is a study of a process of how people, or organization to search, select, purchase, experience, consume, service, or product to satisfy their needs. (Schiffman and Kanuk, 2007). The process starts by finding the available products and services in the market which matched their needs and wants. The next step is to gather information about the product and service to make decisions which product or service to purchase. Lastly, the decision is made, and the product or service is being acquired (Fasi, 2017).

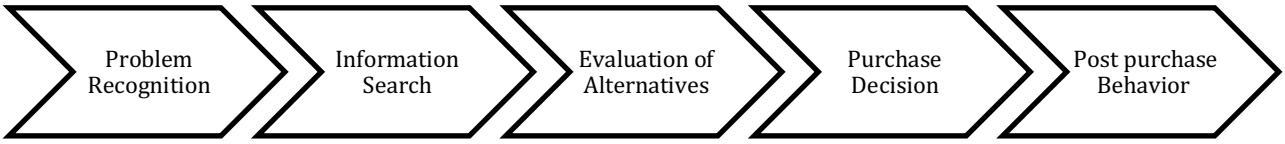
However, several factors might affect consumers in their decision-making process, shopping habits, and purchasing behaviour. The factors that influence consumer's buyer behaviour and purchase decision are cultural, social, personal, psychological characteristics. Each different groups, regions, or cultures have their influences on people buying behaviour. The cultural environment can form an individual value, preferences which mean it will affect an individual perception, habits, behaviour or expectations. The example of this factor is culture, subculture, and social class. Social factors allow the references group, family, and roles and status to take part in influencing an individual purchase decision. For instance, the family takes part in shaping individual personality and values. An individual shopping behaviour clearly influenced by personal factors such as age and life cycle stage, occupation, economic situation, lifestyle, and personality and self-concept. When someone has an environmentally friendly lifestyle, he/she buying decision and choices of a product will be based on the eco-friendly, organic, sustainability, or the other eco-labelling. The last one is psychological factors, which are motivation, perception, learning, beliefs, and attitudes (Rani, 2014).

2.2 Consumer Buying Process

According to Kottler (2013), there are five stages of the consumer buying process. The step starts with problem recognition. In this stage, the buyers identify their problems or needs, which usually caused by internal stimuli or external stimuli. For instance, internal stimuli are the feeling of being hungry, thirsty, and sleepy. While for external stimuli are watching an ad, listening on word of mouth, and seeing the store display. As the buyer already identified the problem, they are likely to gather information. The information could be gathered from personal sources such as family and friends. Commercial sources are advertising, websites, and salesperson. In this stage, the buyer will understand more about the brand and competing brands. Initially, consumer will learn only part of these bands, and this is called awareness set. Then, there is a consideration set where the buyers identify some brands that meet the initial buying criteria. Lastly, there are several brands left; these brands are the strong contestant known as the choice set, and the final choice will be picked from this set. In conclusion, it starts with the total set, awareness set, consideration set, choice set, and lastly decision. (Kottler, 2013:98)

The third stage is the evaluation of alternative, and buyers will seek from a product that able to satisfy their needs and be the solution from their problem. Consumer understands that a product is a bundle of attributes with various abilities to satisfy the consumers' needs. In this stage, consumers will have their judgment towards each attribute, and consumers will find out which attribute they found most important and relevant. The attribute valuation procedure happens in this stage, each attribute will have its weight, and the consumer will calculate the score for the products and reveal which product has the highest perceived value or utility. In the third stage, two factors might interfere between purchase intention and purchase decision. These factors are the attitudes of others and unanticipated situational factors. The attitude of others factor is the influence of other persons, such as another person negative opinion towards the consumers' preferences and the consumers' willingness to fulfil other person wishes. The unanticipated situational factor is the factor that may arise to change the purchase intention, such as other purchase might become a new priority instead of the current purchase. These considerations are related to perceived risk, and the risk depends on the amount of money at stake, attribute uncertainty, and consumer self-confidence.

The final stage is post purchase behaviour, and the consumer will evaluate whether they are satisfied or not. Post purchase satisfaction is based on the buyers' expectation and the actual perceived value and performance of the product (Kottler, 2013:101).



Decision-Making process (Kottler, 2013)

2.3 Consumer Decision Making Process

Consumer behaviour is considerably affected by the amount of effort put by the consumers into their consumption behaviour and decision (Hoyer et al, 2013). The purpose of the decision-making process is to seek a solution for a problem or to attain the intended goal. The amount of involvement of a buyer during the buying process is the key that affects the decision-making process. Involvement is the perceived relevance of the purchase towards the buyer. There are two types of involvement in the decision-making process, high-involvement and low-involvement (Szmigin & Piacentini, 2018: 88). This study only focuses on the low involvement decision-making process. In a condition where consumers are involuntary or unable to put many efforts or dedicate emotional resources to process the main idea of marketing communication is known as a low-effort situation (Hoyer et al, 2013:158).

In decision-making process, there are two models introduced. Cognitive decision-making model explains how consumers apply the information about attributes systematically to reach a decision. On the other hand, effective decision-making models consumers make a decision based on their feelings and emotions. Cognitive models can further be classified into two major dimensions, either the processing happens by comparing one brand at a time or one attribute at a time and whether they are compensatory or not. When the decision is made based on product attributes, attribute processing takes place in it. In this case, buyers are comparing the brand, one attribute at a time. While for compensatory models, buyers identify how good each of attributes of the brands in their consideration set. They weight the attributes and compare them to evaluate the

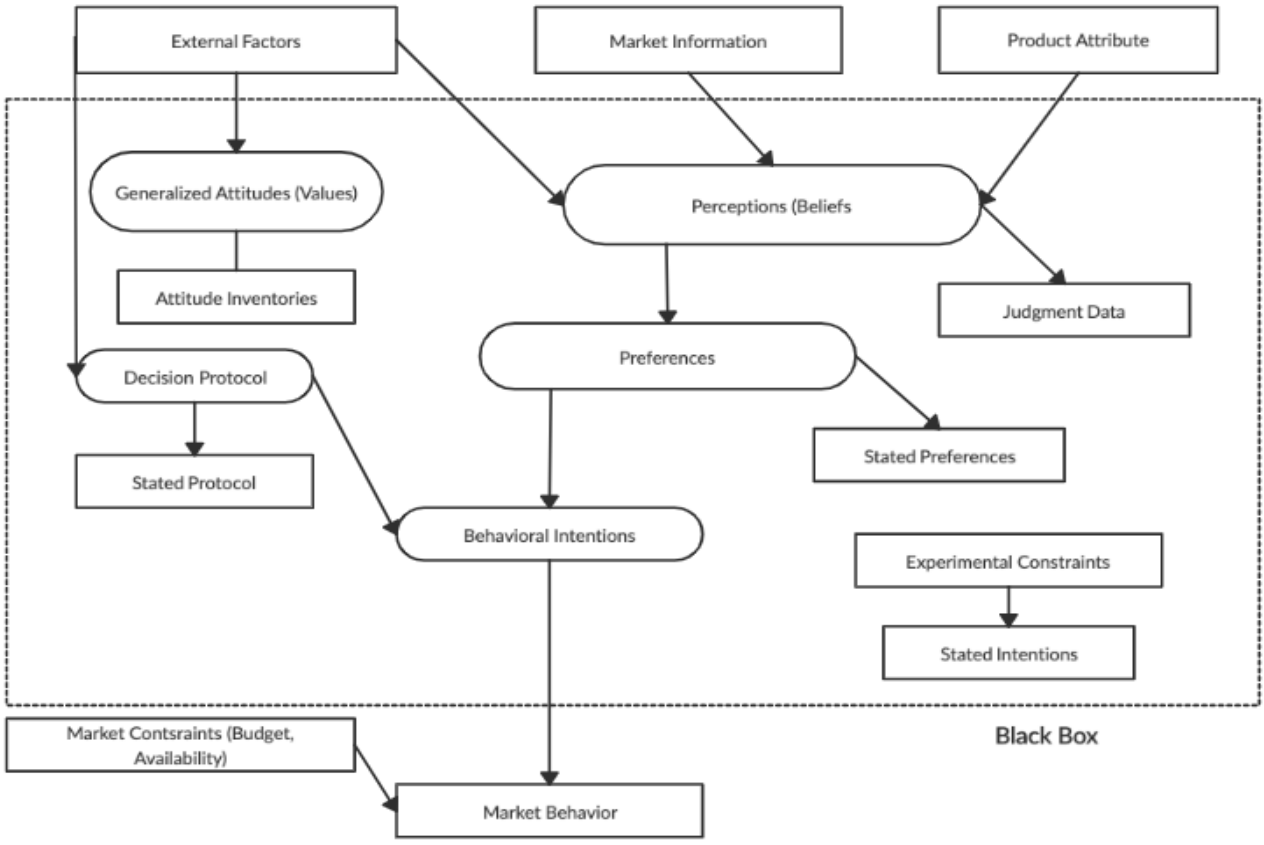
importance of the attributes towards their decision. The brand which has the highest overall score will be chosen. This is similar to mental cost-benefit analysis, in which a negative evaluation of one attribute can be compensated for the positive feature on others. Non-compensatory model rejects negative information or opinion in decision making (Hoyer at al, 2013: 222).

In low effort decision making, buyers remove the complexities of the cognitive process by using heuristics to reduce the effort in making a decision. There is two of heuristics, representativeness and availability heuristic. Representativeness heuristics is making the decision by only comparing the stimulus with the category prototype or exemplar. Availability is when the judgment based on events that are easier to remember (Hoyer et al, 2013: 242). Low-involvement decision-making process does not involve any information gathering before making a purchase and any extensive research, and this is called passive learning. Buyers with low effort in decision making have more motivation to switch to other brands and gain new experience if the differences between brands are substantial (Szmigin & Piacentini, 2018: 89).

2.3.1 Black Box Model

Consumers are frequently treated as an optimizing black box by the economist. According to McFadden (1986), the inputs are product attributes, socioeconomic characteristics, market information, historical experience, and market constraints. Purchase decisions, consumption levels, and related market behaviour are the outputs. The method of modelling the black box is the economical choice theory, which was created in order to generate quantitative forecasts with well-defined statistical properties (McFadden,1986). The figure above shows the black box decision-making process. Theoretical or latent variables that have been measured by experiment or observed directly is showed in the oval shape. Product attributes, information sourced from a marketing program, historical experience, socioeconomic factors, and market constraints such as budget and product availability are the example of measurable inputs. For the direct measurable output, the examples are product purchase and switching between brands. McFadden (1986), mentioned several critical constructs in the cognitive decision-making process such as perceptions of the products, generalized attitudes or values, preferences among products, behavioural intentions for choice, and decision protocols that map preferences into choice.

Consumer beliefs or perception is affected by product attributes, and by marketing information (McFadden, 1986).

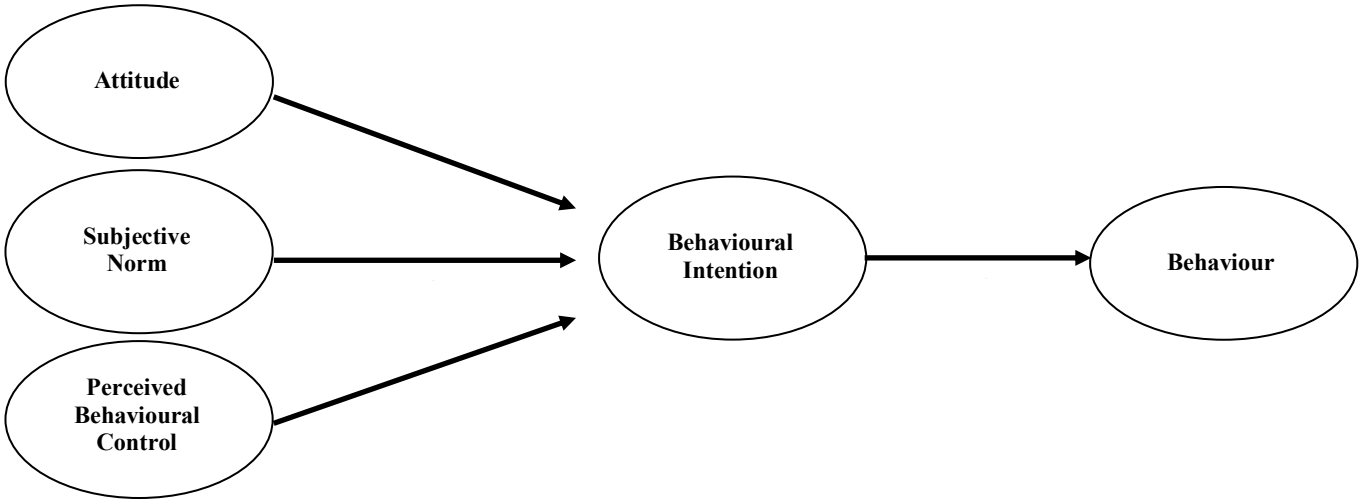


Black Box Model (McFadden, 1986)

2.4 Theory of Planned Behaviour

The theory of Planned Behaviour was introduced by Ajzen (1985), and the idea of intention is the base of this theory. According to Ajzen & Fishbein (1980), the definition of intention is the degree and the likelihood of an individual willing to commit in certain behaviour. There are several ways to predetermine factors that affect individual behavioural intentions. For instance, subjective norms, perceived behavioural control, and attitudes. People are likely to make an action when they have a stronger intention to do that action. However, other factors might inhibit an individual to act, such as non-motivational factors, the availability of money, skills, and time. These factors define the people's actual control over the behaviour. Thus, an action can be successfully performed when the motivation and ability are present.

Perceived behaviour control has a significant role in this theory; the differences between the theory of reasoned action and the theory of planned behaviour are the presence of perceived behaviour control. Self-evident is the crucial factor of actual behaviour control. The availability of capabilities and chance might determine the likelihood of an individual to achieve a certain behaviour. However, a stronger psychological motivation compared to actual control is the perception of behavioural control that affects individual action and intentions. The combination of intentions and perceived behaviour could significantly affect individual behaviour (Ajzen, 1991).



Theory of Planned Behaviour (Ajzen, 1991)

2.5 Environmentally Friendly

Due to the emergence of ecological issues, many firms start to implement more environmentally friendly business and marketing (Kotler, 2011). According to the Merriam Webster website, it defines environmentally friendly or eco-friendly as "not environmentally harmful".[6] On the other hand, products which are considered to harm the environment are most likely to contribute to

[6] Eco-friendly. (2011). In *Merriam-Webster.com*. Retrieved June 30, 2019, from https://www.merriam-webster.com/dictionary/eco-friendly

global warming and negative changes in the environment such as in the agriculture area (Paco and Raposo, 2019). As a result, consumers started to be more concerned about their purchasing behaviour since it would have a significant effect on the environment (Shyan, 2010). Additionally, it is followed by the growth of green marketing application. Green marketing is responsible for designing, developing and distributing eco-friendly products that least likely to harm the ecosystem (Brajesh and Priyanka, 2014).

The environmentally conscious individuals or consumers who select the product that does not harm the environment are called Green Consumers (Roberts, 1966). The behaviour of consumers who are aware of the environmental issues will affect their buying behaviour and preferences (Leal-Millan et al., 2018). This consumer segment act, acquire and consume the products or services that are eco-friendly and do not have any negative impacts on the environment and health (Hailes, 2007). Also, well-educated and well-trained individuals tend to have higher ecologically conscious since they have access to obtain knowledge (Paco and Raposo, 2019).

2.6 Consumer Preferences

Consumer preference is the decisive motive to acquire a product in which the quality of the products meets the needs of the consumers. Product attributes, such as the material substance, shape, colour, print) could form preferences (Voicu, 2013). Utility concepts or indifference curves are related to consumer preferences. Due to the unlimited wants of the individuals, they tend to spend the source to maximize their satisfaction. Also, products are purchased to satisfy the needs of humans (Salvatore, 2008).

Income and prices do not affect individual preferences since their capability to afford a product do not determine their taste. Product is purchased based on their product attributes, and it is the object of consumer preference or utility. Given the same standard, the utility derived from each consumer will be varied and subjective depends on their preferences (Lancaster, 1966). As mentioned above, the green consumer will prefer to purchase the products that least harm the environment and health (Hailes, 2007). The environmentally friendly characteristics from a product are shown through the labelling, such as biodegradable, recyclable, and compostable. Furthermore, the characteristics of the eco-friendly product will be discussed in the next sub-chapter.

2.7 Eco-friendly Product Attribute

In the decision making to choose a product, consumers have their considerations and preferences based on the products' characteristics. A product is made of a group of attributes, and each attribute level could be inferred into the utility (Lancaster, 1966,1971, 1979). The decision process of an individual in selecting a bundle of attributes is explained in the product attributes model. In the model, consumers are assumed to choose the product based on maximization utility or their satisfaction level. (Gwin et al, 2003). Producers and competitors are capable of utilizing product characteristic to differentiate themselves to obtain some degree of advantage (Coyne, 1986).

Based on Morris, Hastak, and Mazis (1995), the topic of eco-friendly products, there are some product attributes that should be included in reducing the environmental impact; recyclable, biodegradable, ozone friendly, renewable, reusable, and so on (Morris et al, 1995). In addition, as used in multiple prior studies (Choi and Ng 2011; Essoussi and Linton 2010; Koller, Floh, and Zauner 2011; Lin and Huang 2012; Papista, and Krystallis 2013; Olson 2011), there are some product attributes that are commonly used in determining preferences of eco-friendly products, those are functional performance and quality, economic costs, hedonic or emotional appeals, and convenient. The hedonic or emotional appeals illustrates how the attractiveness of the products that it would be able to give pleasures towards the buyer. Convenient value explains how accessible to purchase the product. The economic costs point out how the eco-friendly product costs more compared to the product and how the eco-friendly product could make the consumers save much money.

2.8 Hypothesis Formulation

2.8.1 Formulation of Hypothesis 1

To be able to deliver right product to the consumers, it is necessary to understand which eco-friendly product attributes that contribute a significant influence on consumers' decision making. In this research, respondents will be provided with multiple-choice sets design which has different utilities per set. Based on Random Utility Theory, respondents will choose a choice that has maximum utility (de Bekker-Grob et al, 2012). Furthermore, the respondents are required to

make the trade-off between attributes (Lancsar et al, 2008). The results will show the stated preferences of the consumers. This is in accordance with the Black Box Model, and product attributes contribute to the consumer decision-making process. This product attributes information is being used in the consumer buying process and consumer decision making process. As mentioned above, in the third stage of the consumer buying process, product attributes are being valued and weight. To be able to understand the impact each attribute contributes to overall utility and how it influences the consumer in determining their preferences, the hypotheses are made as follows:

Hypothesis 1: Eco-friendly product attributes have a significant influence in determining packaging product preferences.

Hypothesis 1A : *Functional Performance and Quality has a significant influence in determining preferences towards packaging products*.

Hypothesis 1B : *Economic Costs has a significant influence in determining preferences towards packaging products.*

Hypothesis 1C : *Hedonic or Emotional Appeals has a significant influence in determining preferences towards packaging products.*

Hypothesis 1D : *Access to buy has a significant influence in determining preferences towards packaging products.*

Hypothesis 1E : *Environmental Value has a significant influence in determining preferences towards packaging products.*

2.9.2 Formulation of Hypothesis 2

Level of Education and Income are the demographic variables included in this study. As discussed previously, one of the factors that affect consumer behaviour is personal factors (Rani,2014). In this research, the level of education and level of income variables will be studied as part of the personal factor. The research would examine whether these variables would affect customer preferences of packaging products. However, money and knowledge could become the inhibiting factors to demotivate someone to perform a behaviour (Ajzen and Fishbein, 1980). The availability of money and knowledge could determine the possibility of someone to perform a

certain behaviour. In order to have a deeper understanding of how the level of education and level of income affect the consumer preferences of packaging product, the hypotheses are made as follows:

Hypothesis 2: Personal factors have a significant influence in determining packaging product preferences.

Hypothesis 2A : *Level of Education has a significant influence in determining packaging product preferences.*

Hypothesis 2B :*Level of Income has a significant influence in determining packaging product preferences.*

Chapter 3
Research Methodology

3.1 Research Design

There are two sources of data, primary data, and secondary data. The primary data are originated by the researcher for a specific objective of approaching the current issue. This data sourcing is designed for decision-makers of organizations that pay for well-focused and exclusive support. However, this data is costlier and more time-consuming in analysing the data compared to secondary data. Secondary data are data that are readily available and collected for objects other than the problem at hand. The secondary data are more straightforward compared to primary data (Maholtra, 2017:92). In this research primary data were obtained by using an online survey and in-depth interview. Thus, the quantitative method and qualitative method are applied in this study. Primary data can be classified into two categories, quantitative and qualitative research. Qualitative research is usually unstructured research, which mainly focuses on the exploratory design on a small sample, with the purpose to generate depth, insight, and understanding. The quantitative research strives to quantify data with some application of measurement and statistical analysis. There are certain cases where quantitative measurement is capable of answering a specific hypothesis or research questions (Maholtra, 2017: 150).

Quantitative methods are usually started with data collection based on hypothesis or theory and will be continued with the application of descriptive or inferential statistics. The example of a data collection method that is commonly used and related to statistical analysis are surveys and observations. The quantitative research method is categorized as part of descriptive research. There are three types of descriptive research, observation studies, correlation research, and survey research (Perumal, 2014: 89). This study applied the questionnaire or survey data collection method, which is the quantitative method. The objective of the survey research is to study a large population by distributing the survey to a sample of it. Respondents were asked numerous questions about their preferences and how they valued the importance of eco-friendly packaging product attributes. The survey is distributed through online using Qualtrics as the platform to fill in the survey. An online survey was applied in order to reach all Indonesian consumers. In order to analyse consumer preferences, the conjoint analysis is applied in this study. The objective of

conjoint analysis is to identify the relative importance of respondent attach to salient attributes and the utilities, which are attached to the level to attributes. The respondents were required to evaluate the combination of attribute levels based on their preferences (Maholtra, 2017: 776).

In-depth interviews were conducted to answer several empirical questions of this study. According to Maholtra (2009), the interview includes a personal interview with an individual or participant. This data collection method involved asking questions and listen to participants answers. In-depth interviews are able to reveal the participants' motivation, beliefs, attitudes, and feelings on an issue (Maholtra, 2017: 209).

3.2 Data Collection

Desk research and exploratory research were conducted to obtain preliminary information regarding attribute and its levels. The data collection process was done by distributing the online questionnaire to respondents. The online questionnaire used Qualtrics as the platform to collect the data, as mentioned above. The targeted respondents for this survey were Indonesian people, age 18 - 50 years old. To achieve the objective of the research, which is to elicit the preferences of Indonesian consumers in eco-friendly packaging, respondents are provided with several choice sets made by JMP and respondents need to choose one set of choices in each question. Demographic questions were also included in the questionnaire to be able to determine the characteristics of the Indonesian consumer. The sample size for the survey was 240 people, and for in-depth interviews, ten people of Indonesian were interviewed.

3.2.1 Exploratory Qualitative Research

In-depth interviews with ten Indonesian people were conducted. Eight out of ten people were interviewed by face to face in the Netherlands, and two other people were interviewed through the video call. The in-depth interviews were started at 5th up to 9th of August 2019. The questions are based on the empirical sub-questions of this research, the interview was semi-structured. The interviews were digitally recorded by voice recorder and manually written in notes.

Qualitative research is conducted to be able to support the descriptive quantitative research, to create the hypothesis, and to determine which variables should be taken into quantitative research.

In this study, the funnelling approach was used for the interview technique. The interview was started with more general information and gradually become more specific to a particular topic. The recording files for the ten interviews are available to the examiners upon request, and these are the data of the interviewee:

No	Date of Interview	Name	Gender	City of Resident	Age	Occupation	Level of Education
1	05/08/2019	Muhammad Arief Wicaksono	Male	Rotterdam	26	Student	Master Degree
2	05/08/2019	Muhammad Akmal	Male	Rotterdam	20	Student	Bachelor Degree
3	05/08/2019	Antonius Randy Wicaksono	Male	Rotterdam	24	Student	Master Degree
4	05/08/2019	Grace Tanukusuma	Female	Rotterdam	23	Student	Master Degree
5	06/08/2019	Azizah	Female	Yogyakarta	21	Student	Bachelor Degree
6	06/08/2019	Nadia Salsabila Dewanta	Female	Cologne	22	Student	Bachelor Degree
7	06/08/2019	Grizhaldo Muhammad	Male	Rotterdam	23	Student	Master Degree
8	06/08/2019	Raditya Pradana	Male	Rotterdam	25	Intern	Master Degree
9	07/08/2019	Valdo Dellazepta	Male	Jakarta	23	Banker	Bachelor Degree
10	07/08/2019	Adisa Umari	Female	Jakarta	22	Student	Bachelor Degree

Due to the limited number of Indonesian people available for the interview, these people were selected as the interviewee. These people consist of five people from a bachelor degree and another five people from a master degree, in order to reveal how education affects their preferences towards packaging product.

3.2.2 Descriptive Quantitative Research

3.2.2.1 Discrete Choice Experiment

Discrete choice experiment method was included in this research, and it measures the true preferences of the respondents. This method generated preferences of the respondents through the product attributes. Respondents will be provided with multiple-choice set design; its attributes characterize each product. Also, each attribute has levels that have different utility. There will be several choice sets designed for a carrier bag and water bottle.

A discrete choice experiment is a quantitative technique to draw out consumers preferences by assigning the respondents in hypothetical alternative scenarios. Each hypothetical scenario consists of numerous product attributes and levels. Respondents are provided with two or three choice sets or alternatives, and they have to choose one to state their preferences and the choice set or the scenario described by the arrangement of attributes and their levels. As mentioned above, respondents are asked to make trade-offs between attributes to estimate the contribution of each level or attribute to the overall utility. Each level explains the ranges over which attributes vary across options (Lancsar et al, 2008). Thus, respondents' preferences were disclosed without asking them directly. A discrete choice experiment was designed by random utility theory, which presents an interpretation of the choice behaviour of humans (Louviere et al, 2010).

3.2.2.2 Random Utility Theory

The choice made in Discrete Choice Experiments (DCE) will be further study by using RUT. Thurstone developed the idea of random utility theory in 1927, and the theory is applied in order to elaborate on the inconsistency, which often observed in the choice experiments. Since, the subject or respondents in an experiment do not always select the same alternative (Smelser et al, 2001). In other words, consumers unconsciously make an error during the decision-making process (Astuti, 2018). Consumers can accidentally make perceptual or cognitive errors. Random utility theory presents that in a person's brain, a latent construct called "utility" present since researchers are unable to observe this. Each person has their valuation regarding utility in each choice set; however, the researchers are also incapable of analysing this. The random utility theory is divided into two parts the systematic or explainable component, and the unexplainable

or random component. Researchers are only able to analyse consumers' choice, not the utility. Although the researcher comprehensively knows which characteristics affecting the respondents' choice, there is always an error involved during the observation. In order to correspond with the error, a stochastic term is included in the utility model (McFadden, 1986). Once the utility becomes the stochastic function, the possibility of one alternative will be selected depends on its utility. The utility of the chosen alternative should be higher than other alternatives. The formula for random utility model is :

$$\mathbf{U}_j = \boldsymbol{x}_j' \, \boldsymbol{\beta} + \boldsymbol{\varepsilon}_j$$

$\mathbf{U}_j$: Utility of product j
$\boldsymbol{x}_j$: Product attribute utility
$\boldsymbol{\beta}$: Attribute coefficient
$\boldsymbol{x}_j' \, \boldsymbol{\beta}$: Systematic Utility
$\boldsymbol{\varepsilon}_j$: Error Term

For this research, the random utility equation is adjusted from the version of Putrityas (2016).

$$\mathbf{U}^{\text{packaging product}}_{\mathbf{j}} = \boldsymbol{x}_{\text{fpq}}\boldsymbol{\beta}_{\text{fpq}} + \boldsymbol{x}_{\text{eff}}\boldsymbol{\beta}_{\text{eff}} + \boldsymbol{x}_{\text{ec}}\boldsymbol{\beta}_{\text{ec}} + \boldsymbol{x}_{\text{hea}}\boldsymbol{\beta}_{\text{hea}} + \boldsymbol{x}_{\text{c}}\boldsymbol{\beta}_{\text{c}} + \boldsymbol{\varepsilon}_j$$

$\mathbf{U}^{\text{packaging product}}_{\mathbf{j}}$: Utility of watch j
$\boldsymbol{x}_{\text{fpq}}, \boldsymbol{x}_{\text{eff}}, \boldsymbol{x}_{\text{ec}}, \boldsymbol{x}_{\text{hea}}, \boldsymbol{x}_{\text{c}}$: Product attribute utility
$\boldsymbol{\beta}_{\text{fpq}}, \boldsymbol{\beta}_{\text{eff}}, \boldsymbol{\beta}_{\text{ec}}, \boldsymbol{\beta}_{\text{hea}}, \boldsymbol{\beta}_{\text{c}}$: Attribute coefficient
$\boldsymbol{x}_{\text{fpq}}\boldsymbol{\beta}_{\text{fpq}}, \boldsymbol{x}_{\text{eff}}\boldsymbol{\beta}_{\text{eff}}, \boldsymbol{x}_{\text{ec}}\boldsymbol{\beta}_{\text{ec}}, \boldsymbol{x}_{\text{hea}}\boldsymbol{\beta}_{\text{hea}}, \boldsymbol{x}_{\text{c}}\boldsymbol{\beta}_{\text{c}}$: Systematic utility
$\boldsymbol{\varepsilon}_j$: Error term

3.3 Measures and Data Analysis

The questionnaire was divided into two parts, and the first one is an agreement statement through a Likert scale to measure how interest Indonesian consumer to purchase eco-friendly packaging products. The Likert scale was using 7 points scale, and started with 1 as strongly agree up to 7 as strongly disagree.

Environmental Awareness and Interest Scale Items
1. It is important to me that the products I use do not harm the environment. 2. I would describe myself as environmentally responsible. 3. I often buy eco-friendly products. 4. I am willing to spend a higher amount of money to purchase packaging products that are more environmentally friendly. 5. I am willing to make extra effort to purchase packaging products that are more environmentally friendly.

The second part showed several alternatives, and it was designed based on five attributes. These attributes and levels were determined by exploratory research such as from literature review. The choice set will be designed based on these attributes. The likelihood ratio test in JMP will be used for data analysis in order to answer the first hypothesis question. Carrier bags and a water bottle were chosen based on the result of the qualitative data collection method. These packaging products are the most common, according to the interviewee.

Each product has five product attributes following eco-friendly product attributes, which were written in chapter two. The product attributes are functional performance and quality, economic costs, hedonic or emotional appeals, convenient or access to purchase, and lastly, the environmental feature itself. Each product attribute has three-level; for instance, the functional performance and quality, it has three categories to explain the level of quality and functional performance of the product. It started with low, medium, and high, and these levels are applied for carrier bags and water bottle. The economic costs for both packaging products also have three levels. Started from the lowest, up to Rp 5,000, Rp 5,000 – Rp 25,000, and the last one is more than Rp 25,000. The economic costs will tell how much a consumer is willing to spend to purchase a packaging product. The hedonic or emotional appeals attribute, explains the level of attractiveness of a product that influences a consumer to buy a packaging product to reach his/her pleasure. The levels are categorized by low, medium, and high. Convenient is the accessibility to purchase the product, whether the access is easy, medium, or hard. In this study, the definition of easy to access is meaning the packaging product can be purchased anywhere, starting from a

small store to a big store or even online. When the packaging products are only available in the supermarket, the access is considered as medium level of accessibility. Besides, when packaging products are only available in selected stores and web-stores, the level of access to buy is considered as hard. Lastly, the environmentally feature for each packaging products is different. For carrier bags, this study will have a non-eco-friendly plastic bag, biodegradable and compostable cassava bag, and reusable canvas bag. While for water bottle, the levels are a non-eco-friendly water bottle, recycled water bottle, and a stainless-steel water bottle.

Data analysis method for this study were using the Cronbach Alpha from SPSS to analyse and test reliability of the statements. Moreover, likelihood ratio test, effect marginals, utility profiler, and construct subject effect in JMP will be used in this study. The functions of this analysis will be further explained in the next chapter.

Chapter 4
Result Analysis

4.1 In-depth Interview Result

The in-depth interview consisted of twenty questions with several follow up questions for specific numbers. The first part of the interview is asking about the general interviewee data. The demographic result for the in-depth interview can be seen from the previous chapter. The next part discusses general knowledge of the environmental issue. From the interview, it can be concluded that all of the ten respondents are concern and have an awareness of environmental issue. Interviewee one answered that, He understands the issue very well, and he is aware that Indonesian is the second biggest producer of plastic waste. Also, he feels sad by the fact that a lot of countries have exported their waste product to Indonesia. Interviewee two also mentioned a lot of whales' inhale plastics, also plastic waste and trash caused flooding during rainy seasons in Jakarta. According to interviewee ten, Indonesia is facing a lot of environmental issues, such as plastic waste, pollution, dirty places and dirty rivers.

Most of the interviewee feel concern and sad regarding this condition. Interviewee seven concerns that environmental issue is a problem for both government and society, and the pollution could harm people and the ecosystem of the sea, for example, in Kuta beach, Bali. Interviewee ten said, "I think it is pathetic because there is no awareness of Indonesian people about the environmental issue". Other statements also came from interviewee one, explaining that environmental issue is caused by the habits of Indonesian citizen that have been happening over the years due to lack of awareness of the environmental issue, especially the bad waste management of Indonesia. This statement is in agreement with the answer of interviewee five and seven. Interviewee five believes this is caused by the delay of awareness among Indonesian people who do not understand the impact of their actions in everyday life. Interviewee seven also told the interviewer that many people do not realize their bad habits such as littering. Furthermore, interviewee two and three believes many Indonesian people prefer to use private vehicles rather than public transportation and this causes air pollution. Additionally, interviewee eight explained, "I think the most possible cause is the lack of education so since there is lack of education, there is lack of awareness of the issue, yes, I think that the most important one". Another statement

discussing about Indonesian characteristic is made by interviewee nine, “I would say many thing, the first one is because of the how to say, because people in Indonesia tend to find the easiest way possible, for example they do not like bring their own bag for example for shopping so they have to buy plastic carrier bag, and its everywhere I meant the total is amazing I think the main cause Is still about the price sensitive issue for example like people tend to find the most cheap solution in their life even though its creating a bad influence to the environment they just don’t care”.

In addition, most of the interviewee agree that plastic waste is a severe or huge problem in Indonesia. One of the reasons for this issue because the usage of a single-use plastic product is a common habit in Indonesia. The respondents are mostly mentioning the usage of a plastic bag and a plastic water bottle as the example of packaging product. For instance, interviewee one stated, “when I calculated for the benefit and cost ratio and also the hygienist of water resource in Indonesia, it must be cheaper to purchase a bottle of mineral water in a plastic”. He stated that he used to buy approximately ten up to fifteen bottles a week. Interviewee two also believes Indonesian people do not have the options to choose more eco-friendly packaging product in purchasing food and beverages. Interviewee four and three added, the example of common use of the plastic bag for shopping in the supermarket. The example of single-use products that the interviewees use are a plastic water bottle, plastic bag, plastic cup, and plastic straw.

During the interview, these interviewees were asked about their suggestions to tackle the plastic waste issue. Interviewee ten, three, nine, eight, six, and fix suggested that Indonesian people should bring their own shopping bag and water bottle. Interviewee two and three advised the producer should use more eco-friendly products such as bio-cassava to replace plastic. Lastly, the government should involve in this issue, according to interviewee one and seven. Nine out of ten respondents claimed that they already contribute to solving this issue by reducing the usage of plastic bag. Moreover, only eight out of ten interviewees would be considered themselves as a person with environmental awareness.

In the third part of the interview, which is the general knowledge about Environmentally Friendly Products, only one person does not feel familiar with eco-friendly products. However, all of the respondents were able to mention the example of eco-friendly products and eco-friendly

packaging products. The products that are mentioned during the interviews are paper straws, metal straws, stainless straws, bamboo toothbrush, the plastic bag made from cassava or sugarcane, tote bags, tumblers, the use of banana leaves, glass water bottle, packaging for eggs, raincoat, food utensils, paper cup and paper bag. Seven interviewees agree that eco-friendly packaging is a good idea.

Furthermore, in determining their interest level in purchasing eco-friendly products, five respondents have a high interest in purchasing eco-friendly packaging product. Four respondents have a medium interest, and only one person left, considered herself as having low interest in buying an eco-friendly packaging product. Based on their experience, only two respondents do not have any experience in purchasing eco-friendly packaging products. The reasons are due to a lack of awareness of the presence of eco-friendly and the price-sensitive. However, they explained if the price differences of eco-friendly products compared to non-eco-friendly is still reasonable, they would switch to eco-friendly products. For the other eight interviewees who have purchased eco-friendly packaging, they think that the design and environmentally friendly feature are the product attributes that they perceived as attractive.

The products that they bought are varied; for instance, interviewee one has purchased eggs with eco-friendly packaging at Eko Plaza in the Netherlands. The price €5 for 20 eggs, while it only costs €2 for the regular. It is €3 more expensive to buy eco-friendly packaging eggs. Interviewee five bought canvas bags, different kinds of straws and some bio-cassava plastic bags. She bought all of it in Indonesia through an online website, since the product is still uncommon and only available in big cities. She said “I bought it because I have this local event they invited the CEO of this new start-up called Avani in Bali and he actually created this cassava made a bag, I got curious and I searched him online and see the website and I got interested. I really want to have one of the products they said the plastic is eatable because the plastic is compostable and stuffs so I bought it.” Later, she also explained the design that has label said “I’m not plastic” and the quality is durable.

Based on the answers of three respondents, access to purchase eco-friendly products or eco-friendly packaging products in Indonesia is more limited compared to the Netherlands. However,

the products are started to be available at any stores such as supermarket, and everything can be purchased online. Only one person who does not feel to repurchase the shopping bag that he purchased before. According to him, he bought a reusable carrier bag because of its durability and sustainability. Lastly, all of them would recommend the product to their friends.

Eight out of ten interviewees believe that the presence of eco-friendly packaging could tackle the plastic waste issue. Because according to interviewee three, it would make people stop throwing plastic waste into the garbage. However, interviewee two thinks that this would not be able to solve the whole issue. According to interviewee one and ten, it would take time and giving education regarding environmental issue is necessary to help in order to solve the problems. Interviewee two believes government support is crucial. In the next questions, interviewees were being asked about their opinion regarding government regulation that supports the government. All of them agree that government regulation has the capability to support the movement of no single-use plastic. As interviewee three said, “Yes, because the government has power to make policy and policy is created to create guideline how the society behave”. Interviewee four and ten also added that the regulation should be consistent.

4.2 Survey Result

The survey was distributed online through Qualtrics, and the targeted respondents are Indonesian consumer with age 18 and above. The total recorded response was 416; however, some respondents did not finish the survey, and few of the respondents completed the survey in less than 5 minutes. Those respondents are screened out as it is irrational to finish the questionnaire in less than 5 minutes. Therefore, the total respondents in this analysis were 240.

Question		N	%
Gender	Male	94	39,17%
	Female	146	60,83%
	Total	240	100%
Age	18 - 26	179	74,58%
	26 or older	61	25,42%
	Total	240	100%
Level of Education	High School	12	5,00%
	Bachelor Degree (S1)	199	82,92%
	Master Degree (S2)	29	12,08%
	Doctoral Degree (S3)	0	0
	Total	240	100%
Level of Income	Less than Rp 2,700,000	70	29,17%
	Rp 2,700,001 – Rp 3,750,000	38	15,83%
	Rp 3,750,001 – Rp 4,300,000	19	7,92%
	Rp 4,300,001 – Rp 19,400,000	90	37,50%
	More than Rp. 19,400,001	23	9,58%
	Total	240	100%

Table 4.1 Demographic Questions Results

Given the result in table 4.1, there is more female who participated in this survey compared to male. Most of the respondents' age 18 up to 26 years old, and 83% of them are with the bachelor degree. The level of income is divided based on the data from BPS, by using quartiles method. There is a considerable gap between Rp 2,700,000 and Rp 19,400,001 due to the discrepancy between the lowest GDP per capita and the highest GDP per capita in Indonesia, as mentioned earlier in chapter one. SPSS is generated to obtain the result for Likert scale, and from the findings, it shows that most of the Indonesian consumers are environmentally conscious and have considerable interest in purchasing eco-friendly products or packaging products. This is in accordance with the previous interview result.

N	Minimum	Maximum	Mean
240	1	5,6	2.64584

Table 4.2 Level of environmental awareness and interest of Indonesian consumers

4.3 Surveys' Item Reliability

Environmental awareness and interest is examined in this research. Cronbach alpha is used to measure the scale of reliability, how close of the set of items in a group. The consistency and reliability of the survey items can be estimated with this tool. Cronbach alpha is necessary to be estimated whether the Likert scale's items are reliable or not. From SPSS, we can determine that the Cronbach alpha for these statements is 0.840 which means the survey items have high internal consistency or acceptable.

Environmental Awareness and Interest Scale Items	Mean	Std. deviation	Cronbach Alpha
It is important to me that the products I use do not harm the environment.	2.05	1.0133	0.840
I would describe myself as environmentally responsible.	2.575	0.97382	
I often buy eco-friendly products.	2.9667	1.15301	
I am willing to spend a higher amount of money to purchase packaging products that are more environmentally friendly.	2.8208	1.22610	
I am willing to make extra effort to purchase packaging products that are more environmentally friendly.	2.8167	1.22035	

Table 4.3 Survey Items' Reliability

4.4 Utility Analysis

As previously mentioned, JMP is used to be able to elicit the Indonesian consumer preferences towards the packaging product through the eco-friendly product attributes. JMP is capable to reveal how consumer value the utility of each product attribute. The analysis for the consumer preferences are done by using Likelihood Ratio Tests, Effect Marginals, Construct Subject Effect, and Utility Profiler.

4.4.1 Likelihood Ratio Tests

The likelihood ratio is used to test repeated effect or random effect covariance structures or both at the same time. The likelihood ratio tests are used to compare the fit of the model, including the attribute (Alternative hypothesis) with those of the model excluding the attribute (Null hypothesis). This is the analysis functions to test which product attribute that has a significant

impact on consumer preferences. For the base model of a carrier bag, all of the product attributes except the hedonic or emotional appeals are substantial. It can be seen by the p-value of these product attributes are $p < .0001$. The significant product attributes are; functional performance and quality, environmentally friendly feature, economic costs, and lastly emotional. The hedonic or emotional appeals are insignificant; the details can be seen in Appendix 4.

On the other hand, the base model for water bottle also has four eco-friendly product attributes that are statistically significant. These attributes are environmentally friendly feature, economic costs, hedonic or emotional appeals, and convenient. The only attribute that is insignificant is functional performance and quality with p-value of 0.0073. By adding variables, such as level of income and level of education into the construct subject effect of the water bottle, there is no significant effect of level of education to all of the product attributes. However, level of income has significant interaction with functional performance and quality of water bottle, and it has a p-value of <0.0437. While for carrier bags, the level of education also has no significant interaction with any product attributes. Only level of income has the most significant interaction to functional performance and quality with a p-value of 0.0345.

4.4.2 Marginal Analysis

The effect marginal describes how are marginal probabilities and marginal utilities for each primary influence in the model. The marginal probability explains the probability of an individual selects attribute A over B with all other attributes at their mean or default levels. The effect marginal is also possible to compare which attribute that has more importance according to the choice made by respondents.

Carrier bag

Eco-friendly Product Attributes	Levels	Marginal Utility	Marginal Probability
Functional Performance and Quality	Low	-0.44893	0.196
	Medium	-0.0775	0.2842
	High	0.52644	0.5198
Environmentally Friendly Feature	Biodegradable and compostable cassava bag	0.4871	0.376
	Non-eco-friendly plastic bag	-1.3831	0.0579
	Reusable Canvas Bag	0.896	0.566
Economic Costs	< Rp 5,000	0.70744	0.5462
	> Rp 25,000	-0.97688	0.1014
	Rp 5,000 - Rp 25,000	0.26944	0.3525
Hedonic or Emotional Appeals	Low	0.10639	0.3672
	Medium	-0.19922	0.2705
	High	0.09283	0.3623
Convenient	Easy	0.7048	0.5796
	Hard	-0.64688	0.15
	Medium	-0.05792	0.2703

Table 4.4 Marginal Analysis for Carrier Bag

Eco-friendly Product Attributes	Marginal Utility		Total Range
	Highest	Lowest	
Functional Performance and Quality	0.52644	-0.44893	0.97537
Environmentally Friendly Feature	0.896	-1.3831	2.2791
Economic Costs	0.70744	-0.97688	0.90666
Hedonic or Emotional Appeals	0.10639	-0.19922	0.75327
Convenient	0.7048	-0.64688	1.35168

Table 4.5 Marginal Effects for Carrier Bag

The broadest range of marginal effects for a carrier bag is owned by the environmentally friendly feature product attribute with a total of 2.2791. It can be concluded from Table 4.5 that reusable canvas tote bag is the most preferred by the Indonesian consumer. These are the product attributes that the Indonesian consumers more preferred, economic costs below than Rp 5,000, the low hedonic or emotional appeals, and easy access to purchase. The economic costs of < Rp 5,000, high level of functional performance and quality, and easy access to purchase are in line with the prior means which formulated earlier.

Water Bottle

Eco-friendly Product Attributes	Marginal Utility		Total Range
	Highest	Lowest	
Functional Performance and Quality	0.21854	-0.18678	0.40532
Environmentally Friendly Feature	0.66306	-0.88174	1.5448
Economic Costs	0.2671	-0.41437	0.68147
Hedonic or Emotional Appeals	0.33248	-0.44951	0.78199
Convenient	0.20585	-0.28947	0.49532

Table 4.6 Marginal Analysis for Water Bottle

Eco-friendly Product Attributes	Levels	Marginal Utility	Marginal Probability
Functional Performance and Quality	Low	-0.18678	0.2727
	Medium	-0.03176	0.3184
	High	0.21854	0.4089
Environmentally Friendly Feature	Non-eco-friendly plastic water bottle	-0.88174	0.115
	Recycled plastic water bottle	0.21867	0.3457
	Reusable stainless steel water bottle	0.66306	0.5392
Economic Costs	< Rp 5,000	0.2671	0.4179
	> Rp 25,000	-0.41437	0.2114
	Rp 5,000 - Rp 25,000	0.14727	0.3707
Hedonic or Emotional Appeals	Low	0.11703	0.3561
	Medium	0.33248	0.4418
	High	-0.44951	0.2021
Convenient	Easy	0.20585	0.4009
	Hard	-0.28947	0.2443
	Medium	0.08362	0.3548

Table 4.7 Marginal Effects for Water Bottle

Concerning the water bottle, the widest range for marginal effects also belongs to an environmentally friendly feature with a total range of 1,5448. From the table above, Indonesian consumers preferred reusable stainless steel water bottle compared to a non-eco-friendly plastic water bottle and recycled plastic water bottle. Besides, the cumulative range of marginal utility for functional performance and quality, environmentally friendly features, economic costs,

hedonic or emotional appeals, and convenient are 0.40532, 1.5448, 0.68147, 0.78199, and 0.49532. A reusable stainless steel water bottle, high level of functional performance and quality, medium level of hedonic or emotional appeals, economic costs less than Rp 5,000 and an easy access to purchase are the product attribute that Indonesian consumers more preferred. Besides, the value of marginal utility and probability of environmentally friendly feature, both have the highest utility. Hence, it can be seen that marginal utility and marginal probability has a direct relationship. These level of attributes are also in accordance with the prior mean that was designed in JMP.

4.4.3 Utility Profiler

Utility profiler can describe the predicted utility for different factor setting, and the utility itself is the predicted value based on the linear model. It shows the optimal alternative by subgroups of respondents depending on the inputted control variable. The optimal alternatives for carrier bag and water bottle are :

Eco-friendly Product Attributes	**Carrier Bag**	**Water bottle**
Functional Performance and Quality	High	High
Environmentally Friendly Feature	Reusable canvas bag	Reusable stainless steel water
Economic Costs	< Rp 5,000	< Rp 5,000
Hedonic or Emotional Appeals	High	Medium
Convenient	Easy	Easy

Table 4.8 Optimal Alternatives for Carrier Bag and Water Bottle

4.5 Hypothesis Result

4.5.1 Hypothesis Result for Carrier Bag

Hypothesis 1: Eco-friendly product attributes have a significant influence in determining packaging product preferences.

Hypothesis 1A : *Functional Performance and Quality has a significant influence in determining preferences towards packaging products*.

Hypothesis 1B : *Economic Costs has a significant influence in determining preferences towards packaging products.*

Hypothesis 1C : *Hedonic or Emotional Appeals has a significant influence in determining preferences towards packaging products.*

Hypothesis 1D : *Convenient has a significant influence in determining preferences towards packaging products.*

Hypothesis 1E :*Environmentally friendly feature has a significant influence in determining preferences towards packaging products.*

Eco-friendly Product Attributes	Chi-square	Prob>ChiSq
Functional Performance and Quality	80.387	<.0001
Environmentally Friendly Feature	666.491	<.0001
Economic Costs	296.619	<.0001
Hedonic or Emotional Appeals	9.827	0.0073
Convenient	110.439	<.0001

4.9 Likelihood Ratio Test for Carrier Bag

The likelihood ratio test is used to examine the first hypothesis, as explained previously, this test is used to understand product attributes impact on consumers choice. From the table above, it can be concluded that the product attributes which has p-value <.0001 are statically significant. From this result, it is clear that Indonesian consumers reflect functional performance and quality, environmentally friendly feature, economic costs, and convenient are essential attributes in selecting a buying decision. From the marginal effect analysis, Indonesian consumers prefer a

high level of functional performance and quality because they look for durable carrier bags. This is related with the environmentally friendly feature. Given that non-eco-friendly plastic bag has negative marginal utility value, and this is in contrast with reusable canvas bag that has the highest marginal utility. This result signals that Indonesian consumer has a high awareness of environmental friendly feature. Moreover, economic costs of less than Rp 5,000 is the most preferred level because carrier bag is not considered as luxury or superior goods; consequently, Indonesian consumers choose the lowest level of price. Easy access to purchase the carrier bag is necessary because in Indonesia there are a lot of small shops and the convenience for online shopping in this country is still low. Besides, only hedonic or emotional appeals do not have a significant effect. Thus, Indonesian consumers might consider the attractiveness of carrier bag is not a fundamental attribute, as they are more concern on the functionality and quality of the carrier bag. From this analysis, only hypothesis 1A, IB, ID, and IE are accepted, and only hypothesis 1C is rejected. Thus, in conclusion, hypothesis 1 is partly rejected.

Hypothesis 2: Personal factors have a significant influence in determining packaging product preferences.

Hypothesis 2A :*Level of Education has a significant influence in determining preferences towards packaging products*.

Hypothesis 2B :*Level of Income has a significant influence in determining preferences towards packaging products*.

Eco-friendly Product Attributes	Chi-square	Prob>ChiSq
Functional Performance and Quality	6.261	0.0437
Environmentally Friendly Feature	144.638	<.0001
Economic Costs	14.923	0.0006
Hedonic or Emotional Appeals	0,000	1.0000
Convenient	6.262	0.0437
Level of Education*Functional Performance and Quality	1.564	0.8153
Level of Education*Environmentally Friendly Feature	2.678	0.6131
Level of Education*Economic Costs	0.931	0.9201
Level of Education*Hedonic or Emotional Appeals	2.217	0.6960
Level of Education*Convenient	0.570	0.9663

4.10 Likelihood ratio test for carrier bag with level of education included

Level of Education	High School	Bachelor Degree	Master Degree
Functional Performance and Quality	High	High	High
Environmentally Friendly Feature	Biodegradable and compostable cassava bag	Reusable Canvas Bag	Reusable Canvas Bag
Economic Cost	Rp 5,000 - Rp 25,000	< Rp 5,000	< Rp 5,000
Hedonic or Emotional Appeals	Low	High	Low
Convenient	Medium	Easy	Easy
Utility	2.2756	3.2314	2.6972

4.11 Utility Profiler for Carrier Bag and level of education included

By adding the level of education through construct subject effect on JMP, consumers with the background of high school they favoured biodegradable and compostable cassava bag instead of the other options. While for bachelor degree and master degree consumers, they have the same favourites, which are reusable canvas bag. All of the respondents with different level of education prefer carrier bag, which has high functional performance and quality. In terms of economic costs and convenient, high school students chose the price of carrier bag ranging from Rp 5,000 to Rp 25,000, and medium access to purchase the bag. However, for a bachelor degree and master degree, they have similar preferences. The economic costs that they are willing to spend are less than Rp 5,000, and the access to purchase are easy.

Moreover, given the result of the likelihood ratio test in table 4.10, it shows there is no significant effect of level of education towards product attributes. Since carrier bag is considered as low-involvement decision-making purchase, consumers from any background of education might do not have any clear-cut preferences towards a carrier bag. Therefore, hypothesis 2A is rejected.

Eco-friendly Product Attributes	Chi-square	Prob>ChiSq
Functional Performance and Quality	12.758	0.0017
Environmentally Friendly Feature	323.245	<.0001
Economic Costs	29.930`	<.0001
Hedonic or Emotional Appeals	0,000	1.0000
Convenient	18.440	<.0001
Level of income*Functional Performance and Quality	16.607	0.0345
Level of income*Environmentally Friendly Feature	7.385	0.4957
Level of income*Economic Costs	11.122	0.1949
Level of income*Hedonic or Emotional Appeals	6.233	0.6212
Level of income*Convenient	0.180	1.0000

4.12 Likelihood ratio test for carrier bag with level of income included

Level of income	Less than Rp 2,700,000	Rp 2,700,001 - Rp 3,750,000	Rp 3,750,001 - Rp 4,300,000	Rp 4,300,001 - Rp 19,400,000	More than Rp 19,400,001
Functional Performance and Quality	High	High	High	High	Low
Environmentally Friendly Feature	Reusable canvas bag	Reusable canvas bag	Biodegradable and compostable cassava bag	Reusable canvas bag	Biodegradable and compostable cassava bag
Economic Cost	< Rp 5,000	< Rp 5,000	< Rp 5,000	< Rp 5,000	< Rp 5,000
Hedonic or Emotional Appeals	High	High	Low	Low	Low
Convenient	Easy	Easy	Easy	Easy	Easy
Utility	2.8019	3.8084	3.1356	2.7687	1.8357

4.13 Utility profiler for carrier bag and level of income included

From table 4.12, when level of income is included through construct subject effect, the result illustrates there is a statistically insignificant effect of the likelihood ratio test. Also, from the utility profiler table 4.13, the preferences of Indonesian consumers are identical. For respondents who earned monthly income more than Rp 19,400,000, they prefer low functional performance and quality of a carrier bag, compared to the other respondents with different amount of monthly

income. By earning the highest range of monthly income, these consumers are willing to repurchase the carrier bags with low quality. Only respondents with a monthly income of Rp 3,750,001 – Rp 4,300,000 and more than Rp 19,400,001 have the same preferences towards biodegradable and compostable cassava bag, and other group of respondents favoured reusable canvas bag. From these choices, it can be noticed that any consumer with different levels of monthly income is environmentally conscious. While for hedonic or emotional appeals, the low level of attractiveness is the most preferred level. Economic costs less than Rp 5,000, and the easy access to purchase are the most liked levels for all range of monthly income. As explained previously, since the carrier bag considered as necessary goods, the price of the product should be affordable and can be purchased anywhere. Hypothesis 2B is rejected due to level of income does not have significant influence of consumer preferences towards water bottle.

4.5.2 Hypothesis Result for Water Bottle

Hypothesis 1: Eco-friendly product attributes have a significant influence in determining packaging product preferences.

Hypothesis 1A : *Functional Performance and Quality has a significant influence in determining preferences towards packaging products*.

Hypothesis 1B : *Economic Costs has a significant influence in determining preferences towards packaging products.*

Hypothesis 1C : *Hedonic or Emotional Appeals has a significant influence in determining preferences towards packaging products.*

Hypothesis 1D : *Convenient has a significant influence in determining preferences towards packaging products.*

Hypothesis 1E : *Environmentally friendly feature has a significant influence in determining preferences towards packaging products.*

Product Attributes	Chi-square	Prob>ChiSq
Functional Performance and Quality	9.834	0.0073
Environmentally Friendly Feature	476.117	<.0001
Economic Costs	39.613	<.0001
Hedonic or Emotional Appeals	40.271	<.0001
Convenient	22.3	<.0001

4.14 Likelihood Ratio Test for Water Bottle

Indonesian consumers evaluate the functional performance and quality of water bottle is not as important as the other attributes. Considering this product attributes has a p-value of 0.0073, which is statistically insignificant. This is related to the habits of the Indonesian consumer in purchasing bottled water. The reason behind this habit is due to the limited access for hygiene tap water in Indonesia. Therefore, for health and safety reason, many people purchase bottled water frequently. On the other hand, all of the other product attributes are regarded as significant. From the findings, the other product attributes are statistically significant with a p-value of <.0001. These product attributes are environmentally friendly feature, economic costs, hedonic or emotional appeals, and convenient. Indonesian consumers value price, attractiveness of the product, access to buy, and eco-friendly feature that the product has importantly. Indonesian consumers prefer the price to be less than Rp 5,000. Additionally, water is public goods and the basic needs of a human; therefore, water bottle should be available in any stores. Hence, the hypothesis 1 for a water bottle is also partly accepted due to the hypothesis rejection for hypothesis 1A. The other hypothesis, such as 1B,1C,1D, and 1E, are accepted.

Hypothesis 2: Personal factors have a significant influence in determining packaging product preferences.

Hypothesis 2A : *Level of Education has a significant influence in determining packaging product preferences.*

Hypothesis 2B :*Level of Income has a significant influence in determining packaging product preferences.*

Product Attributes	Chi-square	Prob>ChiSq
Functional Performance and Quality	6.261	0.0437
Environmentally Friendly Feature	144.638	<.0001
Economic Costs	14.923	0.0006
Hedonic or Emotional Appeals	0,000	1.0000
Convenient	6.262	0.0437
Level of Education*Functional Performance and Quality	1.564	0.8153
Level of Education*Environmentally Friendly Feature	2.678	0.6131
Level of Education*Economic Costs	0.931	0.9201
Level of Education*Hedonic or Emotional Appeals	2.217	0.6960
Level of Education*Convenient	0.570	0.9663

4.15 Likelihood ratio test for carrier bag with level of education included

Level of Education	High School	Bachelor Degree	Master Degree
Functional Performance and Quality	High	High	High
Environmentally Friendly Feature	Reusable stainless steel water bottle	Reusable stainless steel water bottle	Reusable stainless steel water bottle
Economic Cost	< Rp 5,000	< Rp 5,000	< Rp 5,000
Hedonic or Emotional Appeals	Medium	Medium	Medium
Convenient	Medium	Easy	Easy
Utility	2.1418	1.6518	1.672

4.16 Utility profiler for water bottle and level of education included

Given the result from table 4.15, there is statistically insignificant of consumer choices towards water bottle and level of education. All of the consumers from high school, bachelor degree, and master degree have identical preferences. High functional performance and quality, reusable

stainless steel water bottle, costs less than Rp 5,000, and medium level of hedonic or emotional appeals are product attributes with the highest utility according to respondents from all education background. Only high school consumers perceive medium access to purchase water bottle provide the highest utility. The water bottle is also viewed as low-involvement goods; therefore, everyone from any background of education might not possess any specific preferences towards the product attributes in table 4.16. Thus, hypothesis 2A is rejected.

Product Attributes	**Chi-square**	**Prob>ChiSq**
Functional Performance and Quality	12.758	0.0017
Environmentally Friendly Feature	323.245	<.0001
Economic Costs	29.930`	<.0001
Hedonic or Emotional Appeals	0,000	1.0000
Convenient	18.440	<.0001
Level of income*Functional Performance and Quality	16.607	0.0345
Level of income*Environmentally Friendly Feature	7.385	0.4957
Level of income*Economic Costs	11.122	0.1949
Level of income*Hedonic or Emotional Appeals	6.233	0.6212
Level of income*Convenient	0.180	1.0000

4.17 Likelihood ratio test for water bottle with level of income included

Monthly Income	Less than Rp 2,700,000	Rp 2,700,001 - Rp 3,750,000	Rp 3,750,001 - Rp 4,300,000	Rp 4,300,001 - Rp 19,400,000	More than Rp 19,400,001
Functional Performance and Quality	High	High	High	Medium	High
Environmentally Friendly Feature	Reusable stainless steel water bottle	Reusable stainless steel water bottle	Reusable stainless steel water bottle	Reusable stainless steel water bottle	Reusable stainless steel water bottle
Economic Cost	< Rp 5,000	Rp 5,000 - Rp 25,000	< Rp 5,000	< Rp 5,000	Rp 5,000 - Rp 25,000
Hedonic or Emotional Appeals	Medium	Medium	Medium	Medium	Medium
Convenient	Easy	Medium	Easy	Easy	Easy
Utility	2.000	1.5609	2.3087	1.4749	3.0274

4.18 Utility profiler for water bottle with level of income included

Based on the likelihood ratio test when monthly income is added, there is no significant impact on consumer preferences. Supported by the table above, the choices of all the consumers are similar. Every respondent fancy reusable stainless steel water bottle with a medium level of attractiveness or hedonic or emotional appeals. Consumers with monthly income less than Rp 2,700,000, Rp 3,750,000 – Rp 4,300,000, and Rp 4,300,001 – Rp 19,400,000 they consider the economic costs less than Rp 5,000 has higher utility compared to the other price levels. While consumers with a monthly income of Rp 2,700,001 – Rp 3,7500,000 and more than Rp 19,400,00, they have a higher willingness to spend more money for a water bottle, which is ranging from Rp 5,000 to Rp 25,000. Only consumers with a monthly income of Rp 2,700,001 – Rp 3,7500,000 favour a medium level of convenient, and the other consumers prefer easy access to purchase. Therefore the hypothesis 2B is also rejected, and hypothesis 2 is rejected.

4.6 Summary of Results

Hypothesis for Carrier Bag		Results
1A	Functional Performance and Quality has a significant influence in determining packaging products	Accepted
1B	Economic Costs has a significant influence in determining preferences	Accepted
1C	Hedonic or Emotional Appeals has a significant influence in determining preferences towards packaging products.	Rejected
1D	Convenient has a significant influence in determining preferences towards packaging products.	Accepted
1E	Environmentally friendly feature has a significant influence in determining preferences towards packaging products.	Accepted
2A	Level of Education has a significant influence in determining preferences towards packaging products.	Rejected
2B	Level of Income has a significant influence in determining preferences towards packaging products.	Rejected

Hypothesis for Water Bottle		Results
1A	Functional Performance and Quality has a significant influence in determining packaging products	Rejected
1B	Economic Costs has a significant influence in determining preferences	Accepted
1C	Hedonic or Emotional Appeals has a significant influence in determining preferences towards packaging products.	Accepted
1D	Convenient has a significant influence in determining preferences towards packaging products.	Accepted
1E	Environmentally friendly feature has a significant influence in determining preferences towards packaging products.	Accepted
2A	Level of Education has a significant influence in determining preferences towards packaging products.	Rejected
2B	Level of Income has a significant influence in determining preferences towards packaging products	Rejected

Chapter 5
Conclusion and Recommendation

5.1 Conclusion

To conclude the result of this study, the objective of this research is to understand the preferences of Indonesian consumer towards packaging products through eco-friendly product attributes. The central research question of this study is *"Which eco-friendly packaging product attributes could possibly influence Indonesian people buying decision of packaging products?"* To answer this question, a qualitative and quantitative data collection method was conducted, and the data is analysed by using JMP and SPSS. The result from SPSS signals that Indonesian consumers have high awareness and interest towards eco-friendly product packaging, with a mean 2.64584 of from 7 points of the scale. This is aligned with the result of the interview, as all ten interviewees are concern and have an awareness of the environmental issue in Indonesia with 9 out of 10 have medium to high interest in eco-friendly packaging products. From the interview, it is found that interviewees who have purchased eco-friendly packaging products explained that environmentally friendly feature and design are the features that attracted them. Moreover, interviewees who do not have any experience in purchasing eco-friendly packaging products are willing to switch to more eco-friendly products if the price difference is still reasonable, and the quality is better than the regular product.

Furthermore, based on the Theory of Planned Behavior (Ajzen, 1991), the availability of money is one of the inhibiting factors towards the individual act. Personal factors such as economic situation and education background also influence individual shopping behaviour (Rani, 2014). These works of literature are in contrary to the findings of this study. The result shows that monthly income and level of education do not have any statistically significant influence towards Indonesian consumers in purchasing packaging products, specifically carrier bag and water bottle.

Moreover, during the consumer buying process, consumers value and weight the product attributes of a product. They will discover which product has the highest utility (Kottler, 2013). This theory is associated with the Black Box Model. In this model, product attributes serve as

input that will be measured and taken into account in the decision-making process (McFadden, 1986). From multiple studies, there are five eco-friendly product attributes, functional performance and quality, environmentally friendly feature, economic costs, hedonic or emotional appeals, and lastly, convenient. A study conducted by Lin and Huang (2012), stated that functional and economic value did not influence consumers preferences towards the eco-friendly product. However, the hedonic value does influence consumers choice. Lin and Huang's literature has the same outcome as the result of an in-depth interview conducted for this research. Five out of eight interviewees explained that design is the feature that motivates them to purchase the eco-friendly packaging product. Lin and Huang's study also shows similarity in the quantitative part of this study. Especially about how Indonesian consumer perceived the value of functional performance and quality in determining their preferences for a water bottle that is found statistically insignificant.

On the other hand, the outcome from the questionnaire for carrier bag has a contrary result with Lin and Huang, which means that Indonesian consumer values eco-friendly product attributes differently for different packaging products. Given the findings, all of the eco-friendly product attributes are statistically significant in determining Indonesian consumer preferences except for the hedonic or emotional appeals. Therefore, hypotheses one is partially accepted since four out of five eco-friendly product attributes have a significant influence in determining packaging product preferences.

As explained in the previous section, in this research consumers will face options to choose a product that they perceived provides the highest utility, however, each consumer will have their own taste and judgement on each product attribute. Therefore utility concept depends on consumer preferences (Salvatore, 2008). It is found that people with income higher than Rp 19,400,001 have different choices towards carrier bag compared to other monthly income categories. It can be seen from Table 4.13 that all income class chose high functional performance and quality, except for people with income higher than Rp 19,400,001 prefer low functional performance and quality feature. Another example taken from water bottle results found that people with high school as their education background chose medium level of convenient while others prefer easy access to purchase. Moreover, people with income higher than Rp 19,400,001

and income ranging from Rp 2,7000,001 to Rp 3,750,000 are willing to spend Rp 5,000 – Rp 25,000 to purchase a water bottle. The other groups have a lower budget to spend on a water bottle. Although the overall result shows that between groups, there are no significant differences. Therefore, we reject hypotheses two because of personal factors do not have any significant influence in determining packaging product preferences.

From this study, we can conclude that economic costs, environmentally friendly feature, and convenient have a significant influence on consumer choice in packaging products. Also, the level of education and monthly income are statistically insignificant towards Indonesian preferences in purchasing packaging product. Using the result of this study, it is expected that an alternate packaging product could be developed as a replacement of plastic packaging to solve multiple environmental issues caused by the excessive use of plastic packaging products.

5.2 Manager Implications

The findings of Indonesian consumers preferences towards packaging products could give insight for the managers. In this study, consumers are assigned in several scenarios or choice set, and they have to choose an alternative. During the decision-making process, the consumer might have a different valuation of utility for each product attributes. By knowing which product attributes that consumers perceived as important, managers could use this insight to differentiate their products among the other competitors. Managers will be able to understand what the consumers need and want, and this might positively affect the efficiency and effectiveness of the business in terms of marketing and designing the product. From the market research, it is found that the optimal bundle of attributes for a carrier bag is and for a water bottle is.

5.3 Limitations and Future Research Direction

During the research, several limitations should be considered. Firstly, packaging product is a general object, by taking only two types of packaging products might not be able to capture the true preferences of all kind of packaging products. On the other hand, having two packaging products that resulted in 20 choice sets it makes the questionnaire too lengthy. Consequently, around 169 respondents did not complete the survey. Secondly, there is a limitation in collecting

data from all level of educations due to location constraint, as the study was conducted in the Netherlands. To have a better result, a more suitable representative of respondents from all level of education should be included by sending an email or request to fill in the questionnaire to the targeted respondents. Furthermore, this research does not differentiate Indonesian consumers based on their international exposure, for example, completed their study abroad or working abroad. This factor might affect their view towards eco-friendly packaging product and worth to be studied too.

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Appendix 1

Qualitative Data Collection Method

In depth-interview

Interview Questions:

- Asking permission to record the interview
- Brief the interviewee the purpose of interview
- Explanation that interviewee is free to withhold answers

General interview data:

a. Date of interview:
b. Interviewee name:
c. Male of Female:
d. City of resident:
e. Age interviewee:
f. Occupation of interviewee:
g. Level of Education:

General Knowledge about Environmental Issue

1. How well do you know about the environmental issue in Indonesia?
2. How do you feel about the environmental issue in Indonesia?
3. What are the possible causes of this issue according to you?
4. What do you think about plastic waste in Indonesia?
5. How often do you use a single-use plastic product?
6. What are the single-use products that you use?
7. What are the possible solutions that you could suggest to solve this problem?
8. What are your actions to contribute to solving these issues?
9. Would you consider yourself as a person with environmental awareness?

General knowledge about Environmentally Friendly Products

10. Please describe what do you think about eco-friendly?

11. How familiar are you with eco-friendly products?
12. What is the example of eco-friendly products that you know in Indonesia?
13. What are the eco-friendly packaging products that you know in Indonesia?
14. What do you think about these eco-friendly packaging products?

Interest in buying eco-friendly products

15. Please describe your interest in purchasing an eco-friendly packaging product (High, Medium, Low)
16. Have you ever bought any eco-friendly packaging products?
17. **If yes,**
    a. What are the products that you bought?
    b. Where did you buy it?
    c. How easy it is to purchase or access the eco-friendly packaging products in Indonesia and in your current resident?
    d. How much does the product cost?
    e. Why did you buy it?
    f. What are the features that attract you?
    g. How important is the environmental value or eco-friendly label in a packaging product according to you?
    h. What do you think about the quality and design of the products?
    i. Would you re-purchase it?
    j. Would you recommend the products to a friend?
    k. Are you interested to purchase other eco-friendly packaging products?
18. **If no,**
    a. Why do you have not purchased any eco-friendly packaging products?
    b. What is your maximum budget to purchase a packaging product?
    c. Would you spend more to purchase an eco-friendly packaging product?
    d. What do you think about the price of eco-friendly packaging products that are available in the market?
    e. What do you think about the access to purchase eco-friendly packaging products?
    f. What do you think about the design of eco-friendly packaging products?

g. Would you switch to eco-friendly packaging products if :
    i. The price is the same as the non-eco-friendly product
    ii. The quality is better to compare to non-eco-friendly
    iii. The designed is more attractive compared to non-eco-friendly

19. Do you think the presence of eco-friendly packaging products could tackle the plastic waste issue, and why?
20. Do you think government regulation could support the movement of no single plastic use, and why?

- Making a closing statement, and thanking the interviewee

No	Name	Question 1: How well do you know about the environmental issue in Indonesia?
1	Muhammad Arief Wicaksono	Actually I know it very well, because I currently read about the news regarding the oil spilled in the Northern part of Java, because it will give the harmful effect to the environment and also I know Indonesia is the second biggest producer of plastic waste which is not good for the whole but honestly I am so sad to hear the news about a lot of countries have exported their waste product to Indonesia, specially port Tanjong Priok and Tanjung Perak. Fortunately, Indonesian obligators have already sent the waste product to the original of the country so it must important issue to discuss.
2	Muhammad Akmal	Not really mainly I only knew from the news and reading articles online.
3	Antonius Randy Wicaksono	It is quite famous.
4	Grace Tanukusuma	I am actually not a very huge fan of environmental issue, but I do know that a lot of whales' inhale plastics they thought that it was some kind of sea creatures that they usually eat and stuffs like that and I came from Jakarta, Indonesia and I do believe that plastic and trash that is drown into the lake and rivers in Jakarta also caused flooding during rainy season.
5	Azizah	For what I know currently Indonesia moving toward to like an environmentally friendly society where the people already aware about what is happening with the environment like they most especially the millennial already try to buy the sustainable products like straws etc., they know if they did not stop it like now it would like impact to the future.
6	Nadia Salsabila Dewanta	Environmental issue in general yes, I know, but in Indonesia not really in reality.
7	Grizhaldo Muhammad	Well I'm quite following the update about the environmental issue in Indonesia particularly about the pollution in Jakarta and plastic waste in Bali.

8	Raditya Pradana	I know some things but not so well, I do theoretically have issues in Indonesia related to waste and how do we handle the industrial waste.
9	Valdo Dellazepta	Well I guess being a person in a developing country we're facing so many environment issues in Indonesia, me myself I am living in Jakarta I can see there are a lot of plastic waste first, and secondly, we also have the pollution, and third about the dirty place dirty river and dirty places, so I think in Indonesia we face a lot of environmental issue.
10	Adisa Umari Yoniton	Pretty much known about the environmental issue right now.

No	Name	Question 2: How do you feel about the environmental issue in Indonesia?
1	Muhammad Arief Wicaksono	Well as I mentioned before, it is an urgent issue which has to be solved not only from the government side but also from the citizenship side, and they have to corporate and do the brainstorming for the solution.
2	Muhammad Akmal	I feel concern, because there is many negative news regarding the environmental issue.
3	Antonius Randy Wicaksono	Feeling saddening.
4	Grace Tanukusuma	It is quite different in Netherlands and in Indonesia I think people in Netherlands are very environmentally conscious they tend to choose more eco-friendly alternatives compared to Indonesia.
5	Azizah	Because Indonesia have a lot of people they like a lot of population what happen to our environment is that there is a lot of littering, it is not only plastic about the ocean, about the air pollution, car, I think it is quite horrible.
6	Nadia Salsabila Dewanta	In reality, I don't really know I think the most common problem is like the trash like the plastic use trash.
7	Grizhaldo Muhammad	I think it has been a big problem for Indonesian government and also the society because the pollution itself it harms people and the plastic waste like in Kuta beach in Bali in harms the ecosystem of the sea.
8	Raditya Pradana	I feel sad about it that we should do more things in order to take care of the environment. But I don't think the current government is a having that a priority.
9	Valdo Dellazepta	About environmental issue in Indonesia, of course I feel bad about the condition given the fact there is so many environmental issues that we are facing things so I feel there are so many things that we can improve
10	Adisa Umari	I think it is pathetic because there is no awareness of Indonesian people about the environmental issue.

No	Name	Question 3: What are the possible causes of this issue according to you?
1	Muhammad Arief Wicaksono	It is because of the habits which is happening over the years of the Indonesian citizen because we are not so aware with the environmental issue such as the garbage and usually we just want to spend all the waste in one place for waste and I don't think it is a good well actually the bad habits of waste management in Indonesia is the main issue.
2	Muhammad Akmal	Maybe it is from the human itself, we are using private transportation too much, and producing too much waste, and from the production manufacturers.
3	Antonius Randy Wicaksono	There are lots of cars, people prefer using their own cars and motorcycle instead of public transportations and plastic waste.
4	Grace Tanukusuma	It is actually because of the awareness maybe like in Netherlands, um also governmental, governmental regulation takes part in this kind of thing. Like in the Netherlands you must pay quite a lot to use plastic bags in the supermarket but in Indonesia for example, it doesn't have that way, you can just get a plastic bag for free every time you buy something from supermarket. So maybe the most powerful thing to do is by government regulation.
5	Azizah	For me I believe that one of the causes is that Indonesian is like a bit late to know this kind of issue like they did not the aware of the impact of what they are doing in the everyday life, like using the small things they did not know the impact like when one person use it is fine but when all of the population use it that's the start of the problem.
6	Nadia Salsabila Dewanta	I think it is caused by the people.
7	Grizhaldo Muhammad	Well maybe because of many people still don't realize that their bad habits of littering in anywhere, and people still don't realize that the pollution is a harming issue, because they do not really aware about the pollution issue.

8	Raditya Pradana	I think the most possible cause is the lack of education so since there is lack of education, there is lack of awareness of the issue, yes ,I think that the most important one.
9	Valdo Dellazepta	I would say many thing, the first one is because of the how to say because people in Indonesia tend to find the easiest way possible, for example they do not like bring their own bag for example for shopping so they have to buy plastic carrier bag, and its everywhere I meant the total is amazing I think the main cause Is still about the price sensitive issue for example like people tend to find the most cheap solution in their life even though its creating a bad influence to the environment they just don't care.
10	Adisa Umari	I think it is because they just do not care about the money that they spent on plastic that harm the environment.

No	Name	Question 4: What do you think about plastic waste in Indonesia?
1	Muhammad Arief Wicaksono	It is so huge, I meant from the Bantar Gebang and from the TPS Piyungan in Yogyakarta, we already know that 80% or 90% of garbage there consist of the plastic materials which should be managed wisely because it can't be solute in land for over or thousand years.
2	Muhammad Akmal	I think it is a huge problem because we generate so much plastic and the recycling facilities is not that enough.
3	Antonius Randy Wicaksono	Plastic waste in Indonesia is horrible, I mean Indonesia has beautiful natural resources, also natural scenery and it is being jeopardized by the usage of plastics.
4	Grace Tanukusuma	I do not know the data. But I think it is still a very serious problem, as I mentioned before I came from Jakarta and there are a lot of plastic waste thrown in the rivers and lakes, and it contributes a lot to the flood during rainy days.
5	Azizah	The plastic waste is from what I read form an article, plastic waste like is one of the 3rd most things that actually pollute Indonesia like plastic cigarette filters and other type of packaging the thing is that the plastic is actually harming the environment like from also what some article that I read in Bali now people are not allowed to use plastic because like several months back the ocean condition in Bali is like very like horrible.
6	Nadia Salsabila Dewanta	Many people do not aware of the effects of single usage plastics.
7	Grizhaldo Muhammad	This issue has been a big problem for government and society because it makes the beach become dirty and it harms the ecosystem.
8	Raditya Pradana	I think quite often.
9	Valdo Dellazepta	Well I think I have said it previously, living in Jakarta, given the fact there is so many people in Jakarta and the city is very very packed the presence of plastic waste in Jakarta tremendously big I meant in our daily life we use plastic product for example in plastic carrier bag and also the plastic cup for water I think the plastic waste in Indonesia is very big and threatening.

10	Adisa Umari	It is depressing because I have heard that we are the most plastic waste producer as a country.

No	Name	Question 5: How often do you use a single-use plastic product?
1	Muhammad Arief Wicaksono	Well, when I was in Indonesia actually I use my own bag for shopping specially in minimarket, because I think I have to be the agent of change for environmental issue and also, I purchased the tote bag from supermarket Mirota, because it will give the compensation for the points as the member card it will be good as the compensation for the consumer. Actually, for bottle, when I calculated for the benefit and cost ratio and also the hygienity of water resource in Indonesia, it must be cheaper to purchase a bottle of mineral water in a plastic but usually I use my reusable bottle when I work to the office. But when I go somewhere, that I cannot find a clean water then I purchased one. In weekly basis I think I buy it around 10 - 15 bottles a week.
2	Muhammad Akmal	Actually, often because usually you don't have no choice when you buy your food and drink you get the package but you cannot eco-friendlier package.
3	Antonius Randy Wicaksono	In Indonesia it's a lot of time, every time I do grocery shopping or any kind of shopping basically we use I use plastic bags. But here in Rotterdam, since we need to pay for extra plastic bags therefore I have my own shopping bags and yeah.
4	Grace Tanukusuma	A lot I would say, because I tend to buy things from the supermarket compared to going to traditional market, in supermarket as you know we use a lot of single use plastic product for food and beverages. For example, plastic water bottle and stuffs so that's all.
5	Azizah	Quite often because I shop quite a lot and sometimes I did not bring my own shopping bag and I need to use the single use plastic bag.
6	Nadia Salsabila Dewanta	I oftenly use when in Indonesia.
7	Grizhaldo Muhammad	Not very often.

8	Raditya Pradana	I think in Indonesia in particular, we should charge people in buying plastic so we could deter them actually in using single use plastic and encourage people to actually bring their own bag.
9	Valdo Dellazepta	It's quite often when I buy many things usually I will be using use single use plastic product, but when I buy only very small amount of things I rarely ask for plastic bags. Also, when I buy the take-away coffee.
10	Adisa Umari	Probably, once a week right now.

No	Name	Question 6: What are the single-use products that you use?
1	Muhammad Arief Wicaksono	A bottle of mineral water in a plastic.
2	Muhammad Akmal	Most of them are for food and drinks
3	Antonius Randy Wicaksono	Back in Indonesia I often buy plastic water bottle like a bottle water which is using plastic as a packaging
4	Grace Tanukusuma	For food and beverages.
5	Azizah	Plastic bag and plastic straw.
6	Nadia Salsabila Dewanta	Definitely plastic bags for grocery shopping.
7	Grizhaldo Muhammad	Maybe like plastic bag.
8	Raditya Pradana	Single use product that I use maybe a cup whenever buy coffee, or shopping bags.
9	Valdo Dellazepta	Plastic carrier bag, plastic cup for coffee and in addition to that another plastic packaging product is mineral bottle because I don't know in Indonesia almost all of mineral bottle products are packaged in bottle.
10	Adisa Umari	A bottle for water.

No	Name	Question 7: What are the possible solutions that you could suggest to solve this problem?
1	Muhammad Arief Wicaksono	Well, because there is a huge amount of consumption for plastic bottle, I think its needs to be recycled, because when we want to change the Indonesian citizen habits, the government has to provide more facilities, more infrastructure to produce the hygiene water like in Netherlands or around Europe. It's still not manageable for government side so this is what difficult for solving the problem.
2	Muhammad Akmal	Maybe from the producer they could use more eco-friendly packaging.
3	Antonius Randy Wicaksono	Well, In the sense of plastic bottle, it is better to have your own water bottle which is like in the usage and it can sustain for years to instead of buying another one.
4	Grace Tanukusuma	I think it's very interesting thing because I think nowadays, it is still widely uses in every part of the world just my thought, but maybe the industry y should search for more eco-friendly packaging alternative. Based on what I know for example is the use of bio-cassava in producing plastic, maybe that could be the alternative for the future because it degrades more easily than the current plastic.
5	Azizah	First of course we can bring our own shopping bag, and lots of substitutes of straws, like bamboo straws, and also stainless straw and we can use it because it would really help to reduce the amount of straws and plastics that we use daily.
6	Nadia Salsabila Dewanta	By using canvas bag.
7	Grizhaldo Muhammad	There should be a strict rule enacted by the government to eliminate the use single use product such as plastics.
8	Raditya Pradana	I think in Indonesia in particular, we should charge people in buying plastic so we could deter them actually in using single use plastic and encourage people to actually bring their own plastic bag or bag.

9	Valdo Dellazepta	Quite easy as long people are willing to use their own bag during shopping or bring their own tumbler when it comes to mineral water consumption this is going to be helpful in solving the plastic waste issue.
10	Adisa Umari	I think I just have to bring my own bottle to Starbucks or stores in Indonesia.

No	Name	Question 8: What are your actions to contribute to solve these issues?
1	Muhammad Arief Wicaksono	By using my own shopping bag and bottle.
2	Muhammad Akmal	Maybe as individual I could minimize the single-use of plastic packaging
3	Antonius Randy Wicaksono	By using my own bottle and bring my own shopping bag. Also, in Jakarta it is now a movement to reduce the usage of single use plastic like straws as well, like if you go to fast food or any kind of restaurant now, instead of giving customer plastic straws they use paper straws.
4	Grace Tanukusuma	I'm not a very environmental conscious person actually. But since I came to the Netherlands, because for example the government required the supermarket to charge for quite a lot for a plastic bag. I use tote bags every time I go to the supermarket and I also use a lot of my own water bottle here compared to Indonesia, because the single-use plastic bottle in here is quite expensive.
5	Azizah	For me I did not start like with big habits changes, I only start with changing my shopping behaviour using like a canvas bag, whenever I go shopping whether is it going to supermarket or stores clothing stores I'm bringing my canvas bag so yes, I can use that.
6	Nadia Salsabila Dewanta	As I said earlier, I live in Germany so I obligated to bring your own canvas bag to shop and take all the groceries with our own bag.
7	Grizhaldo Muhammad	I usually do my groceries by bringing my own bag so I don't have to use the plastic bag from the supermarket both in Netherlands and Indonesia.
8	Raditya Pradana	I try whenever I Shop I try to bring my own bag so I don't use plastic.
9	Valdo Dellazepta	Well apparently, even though I'm quite aware of the problem I didn't do a lot of actions to solve this problem, given the fact with my knowledge and the condition that I'm sad with the current environmental issue sometimes I just neglect that I need a product which is more healthy in terms of environment without giving any bad effects to the environment.

10	Adisa Umari	I would say, the same (referred to the previous question).

No	Name	Question 9: Would you consider yourself as a person with environmental awareness?
1	Muhammad Arief Wicaksono	Yes, a little as long as I don't use the plastic straws and also, I use the tote bag for shopping, I think I can be the agent of change and also, I invite more people around me to reduce plastic consumption specially in shopping they just need to hold in their hands or maybe hold in bags it will help.
2	Muhammad Akmal	Yes, but not really.
3	Antonius Randy Wicaksono	I do.
4	Grace Tanukusuma	No.
5	Azizah	I moving towards it.
6	Nadia Salsabila Dewanta	Right now yes, but not when I was Indonesia.
7	Grizhaldo Muhammad	Not really since I do not really follow the trend of environmental awareness.
8	Raditya Pradana	I do.
9	Valdo Dellazepta	I would yes, I am environmentally aware even tough at the moment I have not done any a lot of effort in order to be able to create more sustainable environment.
10	Adisa Umari	Maybe a little bit, but it is getting better now.

No	Name	Question 10: Please describe what do you think about eco-friendly?
1	Muhammad Arief Wicaksono	Eco-friendly consists of 3 factors, it has to be reuse, recycle, and also reduce.
2	Muhammad Akmal	Regarding product, eco-friendly from production process it does not use single usage materials, and in the packaging itself it does not use much plastics.
3	Antonius Randy Wicaksono	Well, Eco-friendly is basically can be recycle, and it does not harm environment.
4	Grace Tanukusuma	It is doing something that do not harm people and environment.
5	Azizah	The term eco-friendly for me actually it is kind of new because for me personally I only know these eco-friendly things only 5 years back and actually like this kind of things need to be planned or delivered like Indonesia or other countries since like kindergarten or something so the government can do something by like giving early education for this kind of things so that it could grow with them.
6	Nadia Salsabila Dewanta	Eco-friendly for me is aware for the environment.
7	Grizhaldo Muhammad	Eco friendly is a term for referring to the goods that do not harm the environment.
8	Raditya Pradana	Eco friendly is any product that has awareness of the environment put whenever you made the product, talking about the waste.
9	Valdo Dellazepta	For me eco-friendly is the conditions in which the actions are able to create a better impact to the environment or maybe in other words without giving like any bad toll to the environment.
10	Adisa Umari	Eco-friendly is something that is easily to decompose.

No	Name	Question 11: How familiar are you with eco-friendly products in Indonesia and in your current resident?
1	Muhammad Arief Wicaksono	Well, I actually I quite familiar with eco-friendly products. Especially when I got into a seminar from the Zero Waste CEO in the Netherlands in the February, because he increased our awareness to consume the eco-friendly products specially for food and beverages.
2	Muhammad Akmal	Quite familiar, because mostly in Netherlands there are so many options to switch to eco-friendly products but in Indonesia it's not widely available but I think its emerging and the society itself accepting it positively maybe in the future it will grow broader.
3	Antonius Randy Wicaksono	Not that familiar.
4	Grace Tanukusuma	Based on what I know is about the cassava plastic as I mentioned earlier, and there a lot of in traditional market in Asian countries, a lot of the market use for example banana leaves to wrap vegetables and stuffs, and then could actually be thought of to be used in the future.
5	Azizah	Right now, I'm already familiar eco-friendly products because it is on our everyday life it is a strength encourage the user consumer to use eco-friendly products.
6	Nadia Salsabila Dewanta	Back in Indonesia I was not familiar with that because it's not easily to be obtained, but here in Germany very commonly in supermarket like bamboo toothbrush and canvas bag and also these small bags for vegetables.
7	Grizhaldo Muhammad	I'm quite familiar by that.
8	Raditya Pradana	Quite familiar.
9	Valdo Dellazepta	I saw many eco-friendly products there is currently offered like in supermarket or in convenient store there are many products available.

10	Adisa Umari	The eco-friendly products, like a tumbler you use in a Starbucks rather than using a plastic cup or plastic water bottle.

No	Name	Question 12: What is the example of eco-friendly products that you know in Indonesia?
1	Muhammad Arief Wicaksono	Well, I am going to give you an example when I was travelling in Morocco every trader provides us with not a plastic bag material (similar as cotton) or reusable and it can be solved in the lands. The government, especially the kingdom force the traders to use this kind of bags for the tourist they served on daily basis otherwise they will get fined for a huge amount of money, it is the strict regulation I think it needs to be implemented in Indonesia for example because both of them are developing countries and there is really a lot of tourists visiting Indonesia and basically when I watched the tourists that captured Bali sea, ocean I think it's quite embarrassing. Well I think I am not really aware in Indonesia because it is only the statement but it is not already executed in daily basis, especially for the traders. For example, in Malioboro, actually they produce a huge amount of plastics or the tourists want to be served.
2	Muhammad Akmal	For plastic bags, because in the supermarket usually they in Indonesia they give plastic bags for free, but now you need to pay if you want a plastic bag and there is option to use paper bag and bring your own bag
3	Antonius Randy Wicaksono	Paper straws or the metal straws.
4	Grace Tanukusuma	The cassava plastic bag and the usage of banana leaves.
5	Azizah	Canvas bag, bamboo straw, stainless straw, lot of food packaging with they use these new ingredients bio degradable that’s the thing really common in Indonesia.
6	Nadia Salsabila Dewanta	I think right now is very popular is bamboo tooth brash, and also plastic bag from sugarcane or from cassava.
7	Grizhaldo Muhammad	Tumblers and tote bags.

8	Raditya Pradana	Maybe tumbler, food box, I think anything could be eco-friendly products.
9	Valdo Dellazepta	First of course, the carrier bags nowadays I meant like people are nowadays people are more shifting not just a single use plastic bag but for like multiple time use bag so yeah, I think this is the product that I oftenly see in a store.
10	Adisa Umari	It is the shopping bag and the Aqua, the water company in Indonesia right is using the glass water bottle.
No	Name	Question 13: What are the eco-friendly packaging products that you know in Indonesia?
1	Muhammad Arief Wicaksono	So far, I know in Netherlands, for the eggs especially when I purchased the eggs at Eko Plaza they give so called the eco-friendly packaging, I think it comes from the paper I think its reusable. In Indonesia, I'm still not ordinary with any eco-friendly packaging products in Indonesia.
2	Muhammad Akmal	Maybe use of cartoon or paper that is more sustainable, and the traditional packaging when you buy food they use banana leaf its way more sustainable that using plastic.
3	Antonius Randy Wicaksono	Shopping bag and bottle for water.
4	Grace Tanukusuma	The cassava plastic bag and the usage of banana leaves.
5	Azizah	Like in supermarket we use plastic that have really fast compostable stuffs and lots of company that actually made from eco-friendly packaging for like fork, spoon, glass, etc. even rain coat everything that they made with plastic they need to substitute it with another more sustainable product and I found them in Indonesia.
6	Nadia Salsabila Dewanta	The simplest packaging that is eco-friendly is from paper, cartoon, moving to more advanced packaging made by cassava.
7	Grizhaldo Muhammad	Tumblers and tote bags.
8	Raditya Pradana	Tumblers and food boxes.

9	Valdo Dellazepta	I think I once find a paper cup, once I saw carrier bags made by herbal things in convenient store, so it can easily to degradable and compostable.
10	Adisa Umari	I might say, I think the three of it that I mentioned earlier the glass water bottle and we have to use our shopping bags rather than plastic shopping bags and the tumbler in the Starbucks.

No	Name	Question 14: What do you think about these eco-friendly packaging products?
1	Muhammad Arief Wicaksono	I think it costs a lot of money, because the price is much more expensive than the usual product, that sometimes when I have the urge to save the world I just purchase it, it is once a month.
2	Muhammad Akmal	Yes, I think it's really good something from nature and its easily to recycle and for example you can use it for cooking or for recycle it for another use.
3	Antonius Randy Wicaksono	I think it's good, well because Jakarta is very very polluted its very polluted that is why eco-friendly would contribute in preserving the environment.
4	Grace Tanukusuma	I think it is good opportunity for the near future, but the researchers should develop more and more eco-friendly packaging over time, but maybe government could regulate more on this kind of plastic to be implemented in the whole cities of Netherlands and in Indonesia as well to help degrade the plastic.
5	Azizah	I think it is fine, whenever I use more sustainable product I feel being more responsible to our environment by not trying to damage it by using non-plastic product.
6	Nadia Salsabila Dewanta	It is brilliant.
7	Grizhaldo Muhammad	I think this is a good initiative because it will help to reduce the harm for the environment.
8	Raditya Pradana	I think I have high interest.
9	Valdo Dellazepta	I think it is quite good idea to have it because its environmentally friendly but I do not know the price and function.
10	Adisa Umari	It is great but I think Indonesian people should have been more aware of more having a training maybe to use more eco-friendly packaging.

No	Name	Question 15: Please describe your interest in purchasing an eco-friendly packaging product is it high, medium or low?
1	Muhammad Arief Wicaksono	For now, I can say it is medium because it still produced quite expensive.
2	Muhammad Akmal	I think high, but it depends and of course as a consumer we using price as decision making factor, but if there is no significant difference I would choose the eco-friendly product.
3	Antonius Randy Wicaksono	High.
4	Grace Tanukusuma	For me what matter the most is the price, if it is just as cheap as the non-eco-friendly product, I would definitely choose the eco-friendly product. But if it is more expensive I would say my interest is low.
5	Azizah	Would be medium because eco-friendly products tend to be more expensive so I need to see the cost and benefit of that, but its medium to high.
6	Nadia Salsabila Dewanta	High.
7	Grizhaldo Muhammad	For me it is medium.
8	Raditya Pradana	I think I have high interest.
9	Valdo Dellazepta	I would say medium, so I would considered myself as a person with environmental awareness, but if buying eco-friendly product would costs me a lot I would re-consider my decision.
10	Adisa Umari	High, I think.

No	Name	Question 16: Have you ever bought any eco-friendly packaging products?
1	Muhammad Arief Wicaksono	Yes.
2	Muhammad Akmal	Yes.

3	Antonius Randy Wicaksono	Yes but only in Netherlands.
4	Grace Tanukusuma	I have personally not bought eco-friendly packaging product, um product packaging before but I do have several of them. I got them when I bought something from supermarket in Indonesia, they already use the cassava plastic.
5	Azizah	Yes.
6	Nadia Salsabila Dewanta	Yes, and also given by a friend.
7	Grizhaldo Muhammad	Yes, I have.
8	Raditya Pradana	Yes.
9	Valdo Dellazepta	No.
10	Adisa Umari	Yes.

No	Name	Question 17: "Yes" What are the products that you bought?
1	Muhammad Arief Wicaksono	Eggs with eco-friendly packaging
2	Muhammad Akmal	Instead of using plastic bags, I buy like a grocery bag.
3	Antonius Randy Wicaksono	Tote bag or shopping bag.
4	Azizah	Canvas bag, many kinds of straws, some of the plastic bags from cassava.
5	Nadia Salsabila Dewanta	Small bag for snacks, bamboo toothbrush, simple dental paste, many of canvas bag, trash bags for different categories.
6	Grizhaldo Muhammad	Tumblers.
7	Raditya Pradana	Bottle for water, tumbler.
8	Adisa Umari	I bought my own shopping bag.

No	Name	Question 17: "Yes" Where did you buy it?

1	Muhammad Arief Wicaksono	at Eko Plaza.
2	Muhammad Akmal	In the supermarket, both are available in Indonesia and Netherlands. But in the Netherlands, it is more available
3	Antonius Randy Wicaksono	Hema supermarket.
4	Azizah	I bought it online.
5	Nadia Salsabila Dewanta	For the tote bag I got it, mainly from Instagram in Indonesia. For the snack bag, a friend gave it for me.
6	Grizhaldo Muhammad	At Starbucks coffee.
7	Raditya Pradana	In the supermarket.
8	Adisa Umari	In Ranch Market.

No	Name	Question 17: "Yes" How easy is it to purchase or access the eco-friendly packaging product In Indonesia and your current resident?
1	Muhammad Arief Wicaksono	Easier to find it in Netherlands rather in Indonesia. In Indonesia is quite hard.
2	Muhammad Akmal	It is easier right now in Netherlands, its available everywhere, but in Indonesia it is starting to available.
3	Antonius Randy Wicaksono	I think it's easy since everything can be done through online shops.
4	Azizah	For the cassava plastic bag, it is not as easy as purchasing the ordinary plastic because it's not that common and we only found it in big cities like Jakarta Bali Surabaya and stuffs and in my cities the options are limited.
5	Nadia Salsabila Dewanta	Right now, it is easier now to obtain the stuffs rather like in the past.
6	Grizhaldo Muhammad	It is quite easy now because there are a lot of eco-friendly products, we can find it in every store or café. think both in Indonesia and Netherlands already provide eco-friendly products but in the Netherlands is better.

7	Raditya Pradana	I think it is quite easy now they sell those in many places.
8	Adisa Umari	At the Ranch Market it was really easy because they provide the shopping bags we have to purchase it in the cashier.

No	Name	Question 17: "Yes" How much does the product cost?
1	Muhammad Arief Wicaksono Wicaksono	€5 for 20 eggs, while It is only €2 for the regular. It is €3 more expensive to buy eco-friendly packaging eggs
2	Muhammad Akmal	In the Netherlands I think the grocery bag costs around €2, in Jakarta I think Rp 20,000- 30,000.
3	Antonius Randy Wicaksono	In the Rotterdam, €5. I did not aware the price in Indonesia
4	Azizah	For 12 pcs, the cassava plastic bag cost me of Rp 30,000 - 50,000
5	Nadia Salsabila Dewanta	Rp 50,000 for a tote bag.
6	Grizhaldo Muhammad	Rp 200,000.
7	Raditya Pradana	Rp 30,000.
8	Adisa Umari	I think it was Rp 5,000

No	Name	Question 17: "Yes" Why did you buy it?
1	Muhammad Arief Wicaksono	Well, because in some occasions we think that in our house we are lack of eggs, we just see the shops around that is close to our residents so the closer distance really means a lot. So, the access it the reason.
2	Muhammad Akmal	Because its more sustainable and I'm trying to decrease the usage of single use product.
3	Antonius Randy Wicaksono	Because its expensive to buy single use plastic bag everything I grocery shopping.

4	Azizah	I bought it because I have this local event they invited the CEO of this new start up called Avani in Bali and he actually created this cassava made bag, I got curious and I searched him online and see the website and I got interested. I really want to have one of the products they said the plastic is eatable because the plastic is compostable and stuffs so I bought it.
5	Nadia Salsabila Dewanta	Because it is cute and also eco-friendly.
6	Grizhaldo Muhammad	Because the design is interesting.
7	Raditya Pradana	I buy solely because I want it something to be packaging for anything.
8	Adisa Umari	Because I think it is important to reduce the plastic bag, because in my house I already have a bunch of plastic bags so I need to reduce it.

No	Name	Question 17: "Yes" What are the features that attract you?
1	Muhammad Arief Wicaksono	Because it is a plastic less, I think It is 100% of reusable paper or bio-material and it is really nice.
2	Muhammad Akmal	The reusable feature.
3	Antonius Randy Wicaksono	The sustainable, it is good.
4	Azizah	Love the texture of the plastic first, also yes, they have the big writing say “I’m not plastic” feels like when I use it and when people see it, it increases people awareness.
5	Nadia Salsabila Dewanta	Design and the label eco-friendly, and also 100% cotton.
6	Grizhaldo Muhammad	The design.
7	Raditya Pradana	I think the design and the quality and the fact its eco-friendly.
8	Adisa Umari	Probably the fun colours.

No	Name	Question 17: "Yes" How important is the environmental value or eco-friendly label in a packaging product according to you?
1	Muhammad Arief Wicaksono	It is really meaningful because if we just use it only once, it is not really sustainable it is not worth of money so it has to be reusable in another occasion.
2	Muhammad Akmal	Yes, because I want to be more sustainable.
3	Antonius Randy Wicaksono	It is important, because then using a sustainable product you can use over and over again that you could less harm the environment.
4	Azizah	Yes, it is pretty important because it gives us like mark, that this product is actually bio degradable like give us guarantee this is sustainable product.
5	Nadia Salsabila Dewanta	Yes, it is important.
6	Grizhaldo Muhammad	It is very important if we want to initiate the campaign of saving the environment or something like the feature of design is very important.
7	Raditya Pradana	It is quite important.
8	Adisa Umari	I think it is really important.

No	Name	Question 17: "Yes" What do you think about the quality and design of the product that you bought?
1	Muhammad Arief Wicaksono	It is good
2	Muhammad Akmal	It is good and they usually provide incentives if you don’t use the single plastic bag.
3	Antonius Randy Wicaksono	The design and quality are great.
4	Azizah	I love quality because it is not breakable its quite tough, and for the design probably I prefer a transparent design because the one I got from Avani have this green colour I think white or transparent will be better.
5	Nadia Salsabila Dewanta	The design is cute.

6	Grizhaldo Muhammad	As far as I know I don't know much about the quality, I found some design of the products are quite interesting for me.
7	Raditya Pradana	It is quite good.
8	Adisa Umari	The quality is average, but I just love the design.

No	Name	Question 17: "Yes" Would you re-purchase it?
1	Muhammad Arief Wicaksono	Yes, I think so because of access, even it is more expensive that the usual one but there is a trade off with the transportation cost.
2	Muhammad Akmal	Yes
3	Antonius Randy Wicaksono	No, I have it already. That why it is called sustainable.
4	Azizah	I will.
5	Nadia Salsabila Dewanta	Yes.
6	Grizhaldo Muhammad	In the future yes.
7	Raditya Pradana	I think so.
8	Adisa Umari	I already have it, probably if it is get broken I would repurchase it.

No	Name	Question 17: "Yes" Would you recommend the products to a friend?
1	Muhammad Arief Wicaksono	Yes, I would recommend to you, because you are the agent of change.
2	Muhammad Akmal	Yes.
3	Antonius Randy Wicaksono	Yes.
4	Azizah	Yes.
5	Nadia Salsabila Dewanta	Yes.
6	Grizhaldo Muhammad	Of course.
7	Raditya Pradana	Yes.

8	Adisa Umari	Yes I would.

No	Name	Question 17: "Yes" Are you interested to purchase other eco-friendly packaging products?
1	Muhammad Arief Wicaksono	I do interested. For example, for the food and beverages, because as far as I concern it consumes a lot of plastic materials and Styrofoam specially in Indonesia.
2	Muhammad Akmal	Maybe.
3	Antonius Randy Wicaksono	Yes.
4	Azizah	Of course.
5	Nadia Salsabila Dewanta	Yes.
6	Grizhaldo Muhammad	If there are eco-friendly products that really interesting like the design or the high-quality products, maybe I will purchase it.
7	Raditya Pradana	I think so, yes.
8	Adisa Umari	Yes.

No	Name	Question 18: "If no" Why do you have not purchased any eco-friendly packaging products?
1	Grace Tanukusuma	Because I am not environmental conscious person, so I don’t really do research every time I want to buy a certain product all I can see is the price whether is it reasonable or not, and I don’t really care whether the packaging is actually eco-friendly or not.
2	Valdo Dellazepta	First thing first, event tough that I saw eco—friendly products before I don’t really aware of the presence of these eco-friendly products as It is not easily find somewhere else.

No	Name	Question 18: "If no" What is your maximum budget to purchase a packaging product?
1	Grace Tanukusuma	For carrier bags, it depends on what kind of bags. For reusable bag the maximum budget is Rp 10,000
2	Valdo Dellazepta	I don't mind to spend Rp 2000-3000 for a single use packaging product for more environmentally compared to plastic.

No	Name	Question 18: "If no" Would you spend more to purchase an eco-friendly packaging product?
1	Grace Tanukusuma	If it is just like Rp 1,000 - Rp 2,000 different, I think it is still okay, but if its more than 1Rp 10,000 I don't think I will.
2	Valdo Dellazepta	Yes of course I meant like it is better for the environment.

No	Name	Question 18: "If no" What do you think about the price of eco-friendly packaging products that are available in the market?
1	Grace Tanukusuma	I do think it is more expensive, because I think these days people are making profits out of eco-friendly label products. So, they tend to make it like a premium product and it is not that affordable I think.
2	Valdo Dellazepta	I don't really have enough information but given the fact that I can see several people are using it I guess the products are not that expensive or affordable.

No	Name	Question 18: "If no" What do you think about the access to purchase eco-friendly packaging products?
1	Grace Tanukusuma	I think in Indonesia, it is not really accessible to everyone um like right now there are a lot of steel straw something like that, it usually market through social media and stuffs but I don't think it could reach the older generation.
2	Valdo Dellazepta	I once saw it in convenience store but I don't think it also available in other stores compared to the plastic carrier, it is more regular thing that you can find in store or mini stores.

No	Name	Question 18: "If no" What do you think about the design of eco-friendly packaging products?
1	Grace Tanukusuma	I think the bio cassava plastic bags, it is just the same with the current plastic bags
2	Valdo Dellazepta	Usually eco-friendly packaging product offer like a better design, for example I also once saw the bag which can be folded into small thing so the creativity of this folded bag is creating more attractiveness towards the eco-friendly product itself.

No	Name	Question 18: "If no" Would you switch to eco-friendly packaging products if: the price is the same as the non-eco-friendly product?
1	Grace Tanukusuma	Yes, I do. but please put something or a label explaining this is eco-friendlier product. Label is important because I don't really know which one is eco-friendly.
2	Valdo Dellazepta	Of course.

No	Name	Question 18: "If no" Would you switch to eco-friendly packaging products if: the quality is better to compare to non-eco-friendly?
1	Grace Tanukusuma	Yes, if it's with reasonable price.
2	Valdo Dellazepta	Yes, of course.

No	Name	Question 18: "If no" Would you switch to eco-friendly packaging products if: the designed is more attractive compared to non-eco-friendly?
1	Grace Tanukusuma	For me design is not important, but for other people it might be important.
2	Valdo Dellazepta	Definitely.

No	Name	Question 19: Do you think the presence of eco-friendly packaging products could tackle the plastic waste issue and why?
1	Muhammad Arief Wicaksono	Yes I think so but it needs time because we have to campaign for climate change awareness especially for Indonesian citizen from the urban to the village so it is need massive campaign and also we need to provide them with the facilities.
2	Muhammad Akmal	I think it would help to decrease the problem but not solved the whole problem why because plastic bags usage is like very massive when you buy something you get the plastic bag, so using your own bag will reduce the use of plastic bag.
3	Antonius Randy Wicaksono	Yes, and people won't throwing plastic to the garbage.
4	Grace Tanukusuma	I don’t know about Indonesia actually, if the government do not take part in this thing I don’t think really thing it would. Because, for example, in several years ago the government ever have a regulation to buy plastic bags with a certain of money. But I don’t know really why I doesn’t work.
5	Azizah	Yes, I think this is the start of this new movement so when people start to realize another they have another option rather than plastic and they will actually choose it would really help to decrease what our environment having right now.
6	Nadia Salsabila Dewanta	Because 1 is the simplest solution is using your own shopping bag as it canvas, and it is cute so I believe it could solve the plastic waste.
7	Grizhaldo Muhammad	Of course, It will tackle plastic waste issue, but it will take a long time to tackle this issue because year by year the plastic waste by ocean are increasing.
8	Raditya Pradana	It depends actually because, buying is a single let’s say eco-friendly product does not mean that it directly contributes that the fact the single use plastic is decreasing so I don’t think it is helping.

9	Valdo Dellazepta	I think this might help in reducing the amount plastic waste issues but however I believe there are a lot variable to considers for example like the government need to be socialize this issue and educate the people that we need to switch from non-environment product even tough creating environmental product would be helpful but I think the government still have to educate the market to switch to eco-friendly product.
10	Adisa Umari	I think yes along with the self-awareness about the environmental issue to make more Indonesian people to be more open minded about that.

No	Name	Question 20: Do you think government regulation could support the movement of no single plastic use, and why?
1	Muhammad Arief Wicaksono	The government should applied the regulation as in Morocco, because it can reduce the plastic consumption. Also, the bag can be used in other occasion also the colour is not as bright as in Indonesia and it is more elegant.
2	Muhammad Akmal	I think so, because currently there is issue to give like tax for single plastic bag and it will of course decrease the consumption.
3	Antonius Randy Wicaksono	Yes, because the government has power to make policy and policy is created to create guideline how the society behave.
4	Grace Tanukusuma	I think so, but they must be consistent not like the past regulations I don't know why.
5	Azizah	Yeah, these things will not possible without the help of our government, for example in Bali they banned the use of plastic and its really help in a count of day people stop of using plastic and then yeah it's become better.
6	Nadia Salsabila Dewanta	Yes, if it is a must people to bring your own canvas bag it will definitely reduce the use of single plastic bag.
7	Grizhaldo Muhammad	Of course, if government enacted the strict rules for no single plastic use then it will help the environment yes because the society will follow the rules that has enacted by the government.

8	Raditya Pradana	Yes, I do think that political will and government regulation the most important thing in order to improve the eco-friendly.
9	Valdo Dellazepta	Yes but to some extent because as long the regulation is consistent and also widely deliver to people and also industry player then it's going to be helpful.
10	Adisa Umari	I think they could, but it is a bit hard for now cause half of Indonesian people are close minded they did not really see about the damage of it.

Appendix 2

Quantitative Data Collection Method

The attributes and levels are shown below:

Carrier Bags

Functional and Performance Quality	Low	Medium	High
Environmentally Friendly Feature	Non-eco-friendly plastic bag	Biodegradable and compostable cassava bag	Reusable canvas bag
Economic Costs	< Rp 5,000	Rp 5,000 – Rp 25,000	> 25,000
Hedonic or Emotional Appeals	Low	Medium	High
Convenient (Access to Buy)	Easy	Medium	Hard

Water Bottle

Functional and Performance Quality	Low	Medium	High
Environmentally Friendly Feature	Non-eco-friendly plastic water bottle	Recycled water bottle	Stainless steel water bottle
Economic Costs	< Rp 5,000	Rp 5,000 – Rp 25,000	> Rp 25,000
Hedonic or Emotional Appeals	Low	Medium	High
Convenient (Access to Buy)	Easy	Medium	Hard

Qualtrics Questionnaire

Dear Respondent,

Thank you for your willingness to fill in this survey. The purpose of this survey is for my Bachelor Thesis at Erasmus School of Economics at Erasmus University Rotterdam. The focus of this survey is to reveal Indonesian consumer preferences towards packaging product buying decision through the eco-friendly product attributes.

The survey consists of three parts:

- Demographic questions
- Several statements
- 10 choice sets for each product; carrier bags and water bottle

This survey will take approximately 10 minutes of your time. The survey is conducted only for academic purpose, thus all answers will be kept confidential.
A total of Rp 500,000 Go-Pay balance would be given to 10 lucky respondents selected randomly. For further question and concern regarding this survey please contact me at birgittapuspa@gmail.com.

Thank you for your participation and time.

Best wishes,
Birgitta

Consumer Demographic

In this first part of this survey, you will be asked several demographic questions. Your phone number will be required for the Go-Pay prize purposes only and your answer will be kept confidential and be only used for this academic purpose.

Gender:

- Male
- Female

Age:

- 18 up to 25
- 26 or older

Level of Education:

- High School
- Bachelor Degree (S1)
- Master Degree (S2)
- Doctoral Degree (S3)

Monthly Income:

- Less than Rp 2,700,000
- Rp 2,700,001 – Rp 3,750,000
- Rp 3,750,001 – Rp 4,300,000
- Rp 4,300,001 – Rp 19,400,000
- More than Rp. 19,400,001

Phone number for Go-Pay:

Agreeableness Statements

In the next part of the survey, you will be provided with several statements about your interest in buying eco-friendly packaging product. You have to choose whether you agree or disagree with the statements, please answer truthfully.

	Strongly Agree	Agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Disagree	Strongly disagree
It is important to me that the products I use do not harm the environment.	○	○	○	○	○	○	○
I would describe myself as environmentally responsible.	○	○	○	○	○	○	○
I often buy eco-friendly products	○	○	○	○	○	○	○
I am willing to spend a higher amount of money to purchase packaging products that are more environmentally friendly.	○	○	○	○	○	○	○
I am willing to make extra effort to purchase packaging products that are more environmentally friendly	○	○	○	○	○	○	○

Choice Sets

In this last part of the survey, you will be asked to choose between two options with different product attributes for a carrier bag and water bottle. Down below you will find 10 choice sets for your comparison.

Please think carefully what are the features that you perceived most important and choose one option that attracts you the most in each choice set.

These are the attributes that will be provided in the choice set, please read the explanation carefully:

1. Functional Performance and Quality: the level of quality and functional performance of the packaging product
    - Low Quality
    - Medium Quality

- High Quality

2. Environmentally Friendly Feature:
    - Non-eco-friendly plastic bag
    - Biodegradable and compostable cassava bag
    - Reusable canvas tote bag
3. Economic Costs (Price) : the amount that consumers are willing to spend to purchase a carrier or shopping bag
    - < Rp 5,000
    - Rp 5,000 - Rp 25,000
    - > Rp 25,000
4. Hedonic or Emotional Appeals (Level of Attractiveness) : the level attractiveness of the design that influences the consumer to reach their own pleasure
    - High
    - Medium
    - Low
5. Convenient (Access to Buy) : the accessibility to purchase the packaging product.
    - Easy = can be purchased in any store
    - Medium = can be purchased only in the supermarket or big stores
    - Hard = only can be purchased in selected stores and web store.

Example of Carrier Bags:

Non-eco-friendly plastic bag

Biodegradable and compostable cassava bag

Canvas tote bag

Example of Water Bottle:

Non-eco-friendly water bottle

The recycled plastic water bottle

The stainless-steel water bottle

Choice Sets Questions for Carrier Bag:

Question 1

	Option 1	Option 2
Functional Performance and Quality	High	High
Environmentally Friendly Feature	Non-eco-friendly plastic bag	Reusable canvas bag
Economic Costs (Price)	< Rp 5,000	Rp 5,000 - Rp 25,000
Hedonic or Emotional Appeals (Level of Attractiveness)	High	High
Convenient (Access to Buy)	Hard	Medium

Please choose an option that you prefer:

Option 1 ○ Option 2 ○

Choice Set	Functional Performance and Quality	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient
1	High	Non-eco-friendly plastic bag	< Rp 5,000	High	Hard
	High	Reusable canvas bag	Rp 5,000 - Rp 25,000	High	Medium
2	Medium	Reusable canvas bag	< Rp 5,000	Medium	Hard

	Low	Non-eco-friendly plastic bag	< Rp 5,000	Low	Medium
3	Low	Reusable canvas bag	> Rp 25,000	Low	Easy
	Medium	Biodegradable and compostable cassava bag	Rp 5,000 - Rp 25,000	Medium	Easy
4	Low	Reusable canvas bag	Rp 5,000 - Rp 25,000	High	Hard
	High	Reusable canvas bag	> Rp 25,000	High	Medium
5	Medium	Non-eco-friendly plastic bag	> Rp 25,000	Low	Hard
	Low	Biodegradable and compostable cassava bag	> Rp 25,000	High	Hard
6	Low	Non-eco-friendly plastic bag	< Rp 5,000	Medium	Medium
	Medium	Biodegradable and compostable cassava bag	< Rp 5,000	Low	Medium
7	Medium	Biodegradable and compostable cassava bag	Rp 5,000 - Rp 25,000	Medium	Easy
	Medium	Biodegradable and compostable cassava bag	> Rp 25,000	Medium	Medium
8	Medium	Non-eco-friendly plastic bag	Rp 5,000 - Rp 25,000	High	Medium
	Low	Biodegradable and compostable cassava bag	Rp 5,000 - Rp 25,000	Medium	Medium
9	Medium	Non-eco-friendly plastic bag	> Rp 25,000	Medium	Easy
	High	Non-eco-friendly plastic bag	Rp 5,000 - Rp 25,000	Low	Hard
10	High	Reusable canvas bag	> Rp 25,000	High	Hard
	High	Reusable canvas bag	< Rp 5,000	High	Medium

Choice Sets Questions for Water Bottle

Question 1

	Option 1	Option 2
Functional Performance and Quality	Medium	Low
Environmentally Friendly Feature	Non-eco-friendly plastic water bottle	Non-eco-friendly plastic water bottle
Economic Costs (Price)	Rp 5,000 - Rp 25,000	< Rp 5,000
Hedonic or Emotional Appeals (Level of Attractiveness)	Low	Medium
Convenient (Access to Buy)	Easy	Hard

Please choose an option that you prefer:

Option 1 ○ Option 2 ○

Choice Set	Functional Performance and Quality	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient
1	Medium	Non-eco-friendly plastic water bottle	Rp 5,000 - Rp 25,000	Low	Easy
	Low	Non-eco-friendly plastic water bottle	< Rp 5,000	Medium	Hard
2	Medium	Non-eco-friendly plastic water bottle	Rp 5,000 - Rp 25,000	Medium	Medium
	Low	Reusable stainless steel water bottle	> Rp 25,000	Low	Medium
3	Medium	Non-eco-friendly plastic water bottle	< Rp 5,000	Low	Hard
	High	Reusable stainless steel water bottle	Rp 5,000 - Rp 25,000	Medium	Medium

4	Low	Recycled plastic water bottle	Rp 5,000 - Rp 25,000	Low	Hard
	Medium	Recycled plastic water bottle	> Rp 25,000	Medium	Medium
5	Medium	Reusable stainless steel water bottle	< Rp 5,000	Medium	Hard
	Low	Non-eco-friendly plastic water bottle	< Rp 5,000	Medium	Medium
6	Low	Reusable stainless steel water bottle	< Rp 5,000	Medium	Easy
	High	Non-eco-friendly plastic water bottle	< Rp 5,000	Low	Easy
7	High	Non-eco-friendly plastic water bottle	> Rp 25,000	Low	Hard
	High	Reusable stainless steel water bottle	< Rp 5,000	Low	Medium
8	High	Recycled plastic water bottle	< Rp 5,000	High	Easy
	High	Reusable stainless steel water bottle	< Rp 5,000	Medium	Easy
9	Medium	Recycled plastic water bottle	< Rp 5,000	Low	Medium
	Low	Recycled plastic water bottle	< Rp 5,000	Medium	Easy
10	High	Recycled plastic water bottle	> Rp 25,000	Low	Medium
	High	Non-eco-friendly plastic water bottle	> Rp 25,000	High	Medium

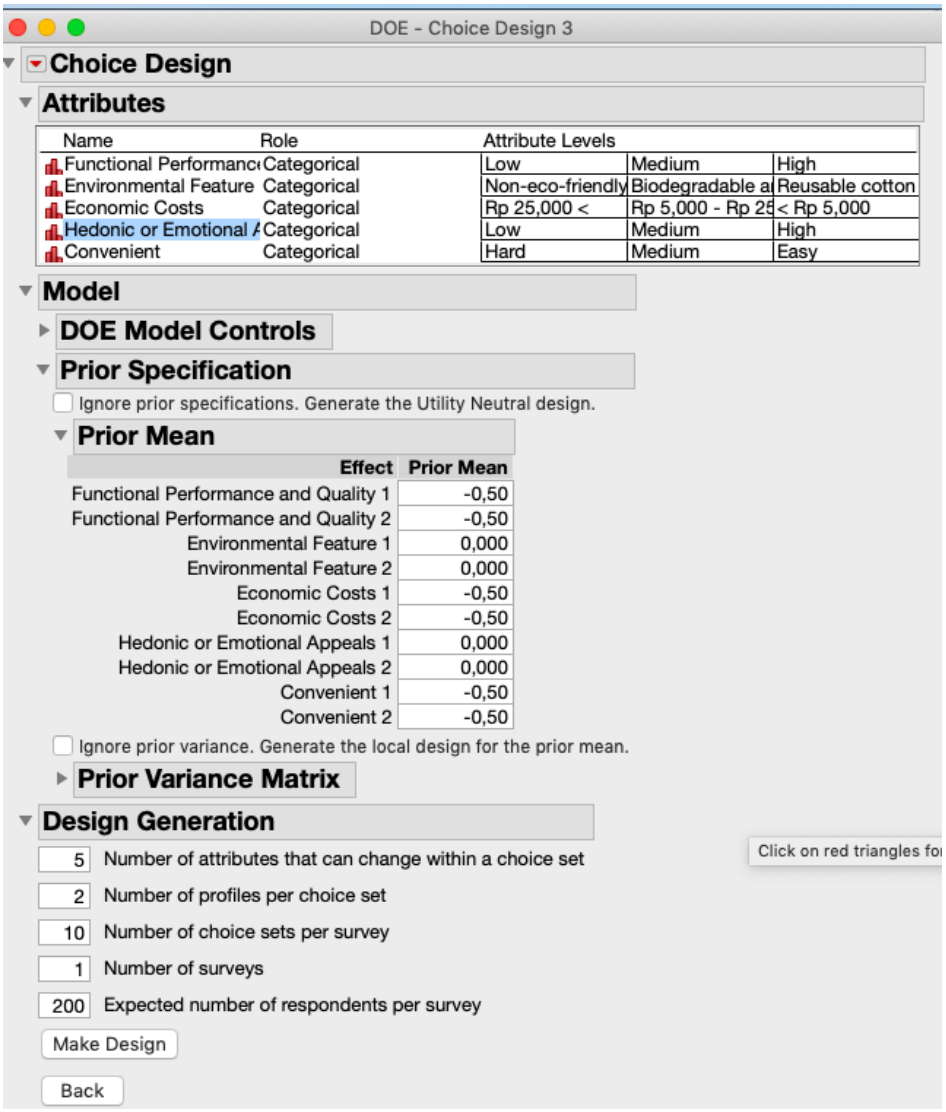
This is the end of the survey. Thank you for taking your time to complete the questionnaire!
Your respond would mean so much for me :)
The lucky respondents for Go Pay prize will be contacted through WhatsApp by the end of the month.

Best of luck,
Birgitta

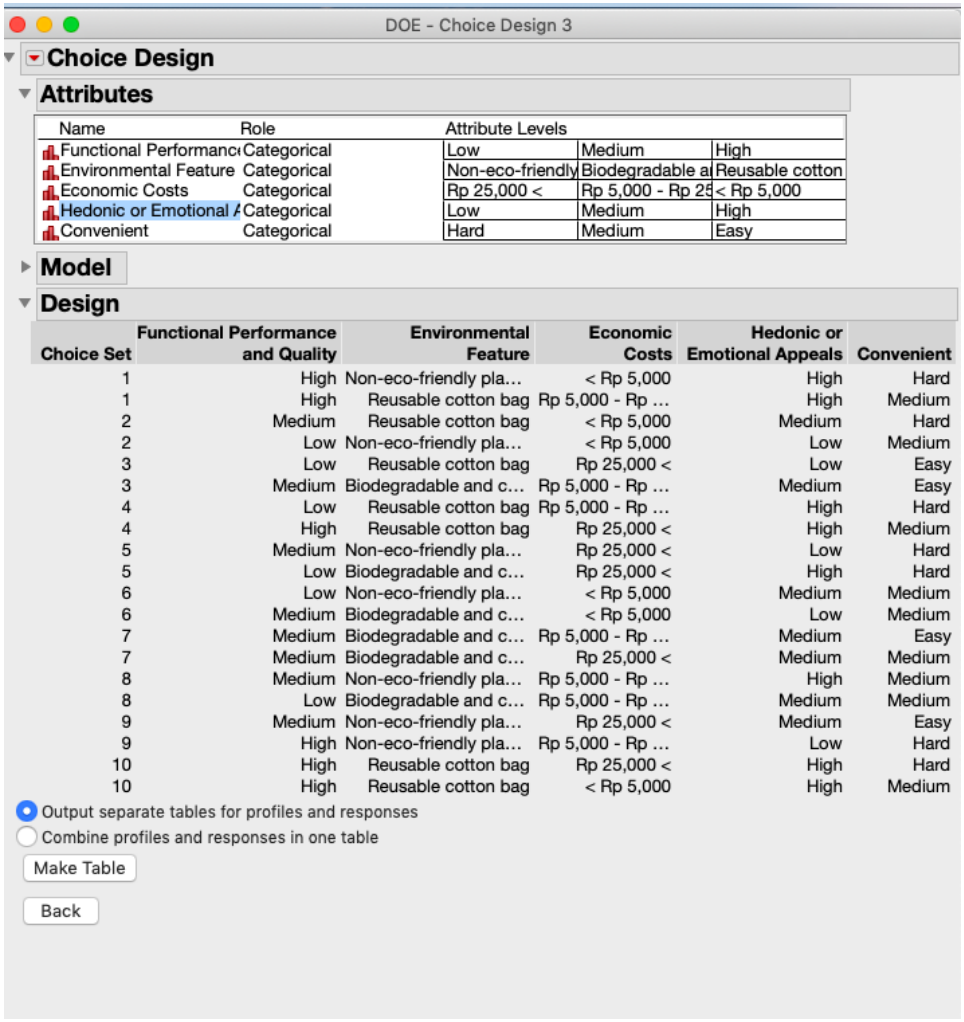
Appendix 3

Research Methodology – JMP Formulation

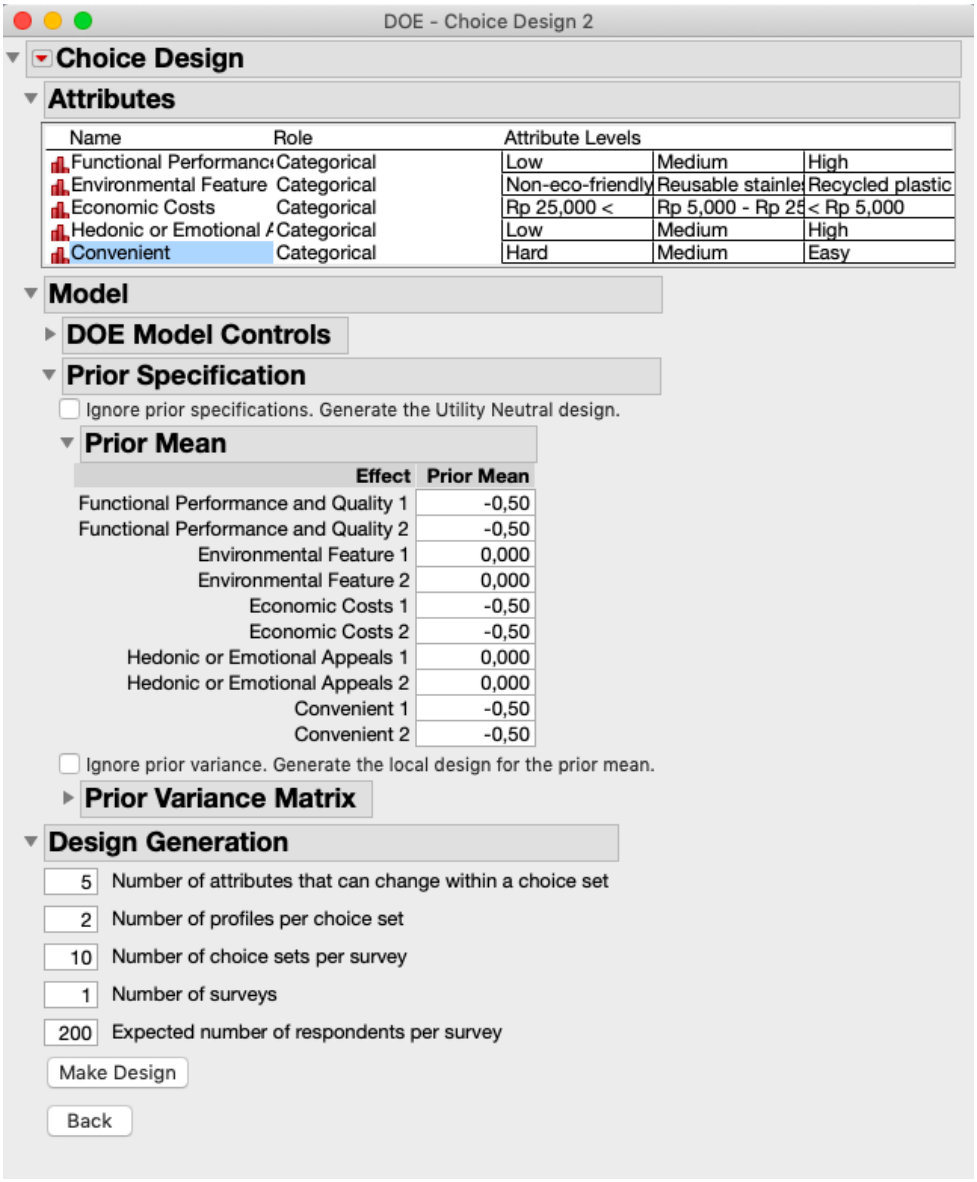
During the process of designing the questionnaire, some words are changed in order to avoid any confusion of the respondents. (Environmental feature became Environmentally friendly feature, Rp 25,000 < became > Rp 25,000 and Reusable cotton bag changed to canvas bag to be more specific).



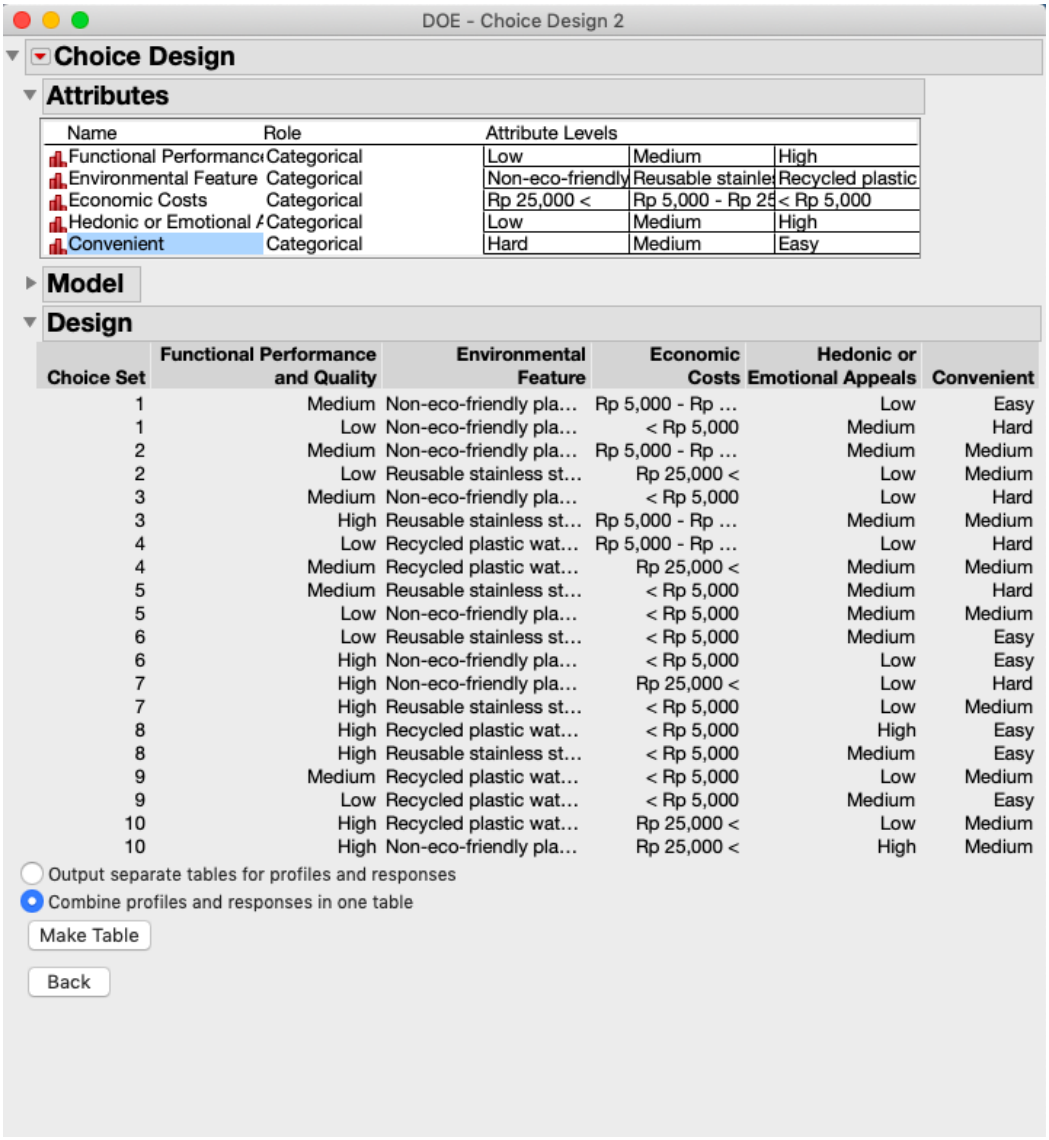
Appendix 3.1 Choice Design Formulation for Carrier Bag



Appendix 3.2 : Choice Design generated by JMP.



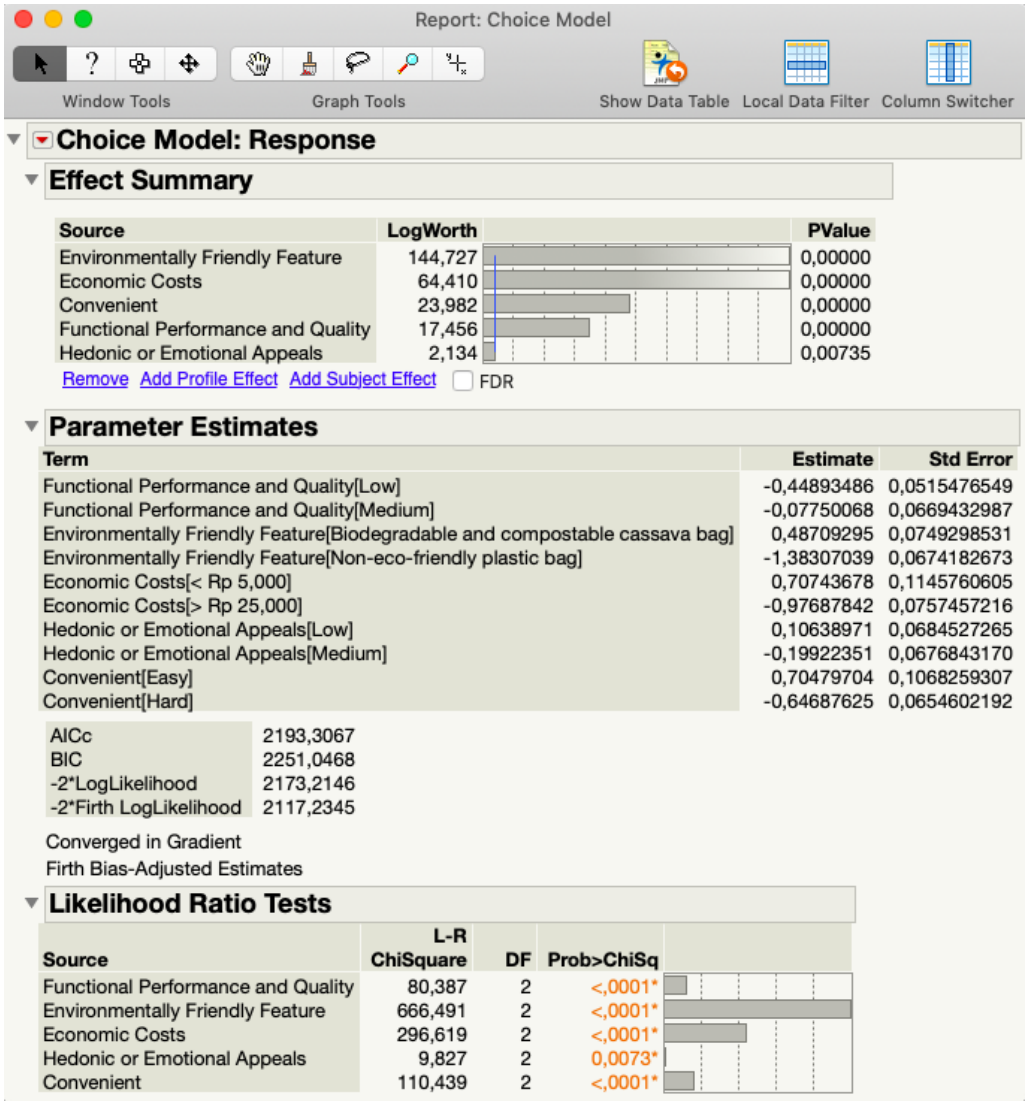
Appendix 3.3 Choice design formulation for water bottle



Appendix 3.3 Choice design formulation for water bottle

Appendix 4

Results – JMP



Appendix 4.1.1 Result for carrier bag base model

Choice Model: Responses

Effect Summary

Source	LogWorth	PValue
Environmentally Friendly Feature	103,387	0,00000
Hedonic or Emotional Appeals	8,745	0,00000
Economic Costs	8,602	0,00000
Convenient	4,842	0,00001
Functional Performance and Quality	2,135	0,00732

Remove Add Profile Effect Add Subject Effect FDR

Parameter Estimates

Term	Estimate	Std Error
Functional Performance and Quality[Low]	-0,188410932	0,0621776404
Functional Performance and Quality[Medium]	-0,018525961	0,0538131094
Environmentally Friendly Feature[Non-eco-friendly plastic water bottle]	-0,885237276	0,0579915447
Environmentally Friendly Feature[Recycled plastic water bottle]	0,227230616	0,0803796782
Economic Costs[< Rp 5,000]	0,287359925	0,1033306182
Economic Costs[> Rp 25,000]	-0,419697694	0,0788395670
Hedonic or Emotional Appeals[Low]	0,114198242	0,0515533573
Hedonic or Emotional Appeals[Medium]	0,319217269	0,0519108213
Convenient[Easy]	0,218703420	0,0791760897
Convenient[Hard]	-0,289458594	0,0646177176

AICc	2548,914
BIC	2606,6542
-2*LogLikelihood	2528,8219
-2*Firth LogLikelihood	2470,5708

Converged in Gradient

Firth Bias-Adjusted Estimates

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Functional Performance and Quality	9,834	2	0,0073*
Environmentally Friendly Feature	476,117	2	<,0001*
Economic Costs	39,613	2	<,0001*
Hedonic or Emotional Appeals	40,271	2	<,0001*
Convenient	22,300	2	<,0001*

Appendix 4.1.2 Result for water bottle base model

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Functional Performance and Quality	12,758	2	0,0017*
Environmentally Friendly Feature	343,245	2	<,0001*
Economic Costs	29,930	2	<,0001*
Hedonic or Emotional Appeals	0,000	2	1,0000
Convenient	18,440	2	<,0001*
Monthly Income*Functional Performance and Quality	16,607	8	0,0345*
Monthly Income*Environmentally Friendly Feature	7,385	8	0,4957
Monthly Income*Economic Costs	11,122	8	0,1949
Monthly Income*Hedonic or Emotional Appeals	6,233	8	0,6212
Monthly Income*Convenient	0,180	8	1,0000

Appendix 4.2.1 Likelihood ratio test for water bottle with level of income included

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Functional Performance and Quality	6,261	2	0,0437*
Environmentally Friendly Feature	144,638	2	<,0001*
Economic Costs	14,923	2	0,0006*
Hedonic or Emotional Appeals	0,000	2	1,0000
Convenient	6,262	2	0,0437*
Level of education*Functional Performance and Quality	1,564	4	0,8153
Level of education*Environmentally Friendly Feature	2,678	4	0,6131
Level of education*Economic Costs	0,931	4	0,9201
Level of education*Hedonic or Emotional Appeals	2,217	4	0,6960
Level of education*Convenient	0,570	4	0,9663

Appendix 4.2.2 Likelihood ratio test for water bottle with level of education included

Likelihood Ratio Tests

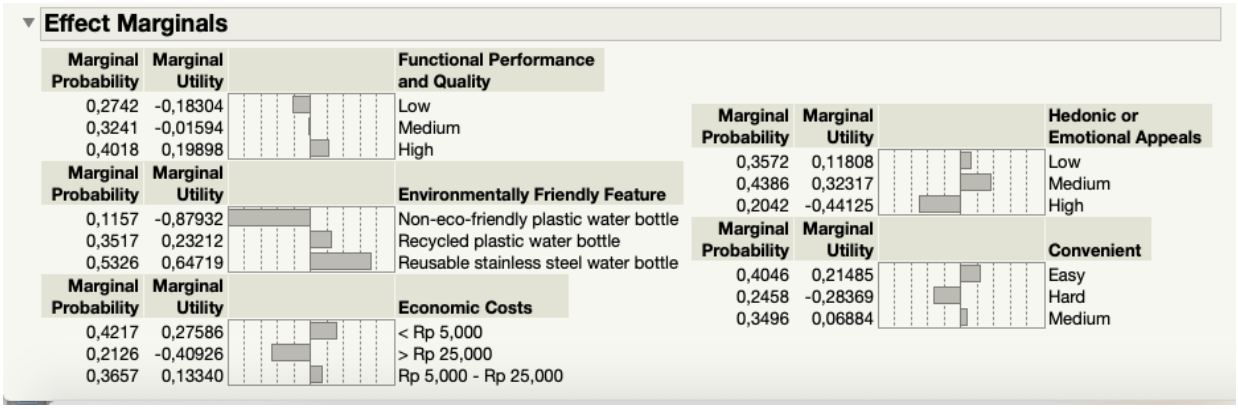
Source	L-R ChiSquare	DF	Prob>ChiSq
Functional Performance and Quality	6,261	2	0,0437*
Environmentally Friendly Feature	144,638	2	<,0001*
Economic Costs	14,923	2	0,0006*
Hedonic or Emotional Appeals	0,000	2	1,0000
Convenient	6,262	2	0,0437*
Level of education*Functional Performance and Quality	1,564	4	0,8153
Level of education*Environmentally Friendly Feature	2,678	4	0,6131
Level of education*Economic Costs	0,931	4	0,9201
Level of education*Hedonic or Emotional Appeals	2,217	4	0,6960
Level of education*Convenient	0,570	4	0,9663

Appendix 4.2.3 Likelihood ratio test for carrier bag with level of education included

Likelihood Ratio Tests

Source	L-R ChiSquare	DF	Prob>ChiSq
Functional Performance and Quality	12,758	2	0,0017*
Environmentally Friendly Feature	343,245	2	<,0001*
Economic Costs	29,930	2	<,0001*
Hedonic or Emotional Appeals	0,000	2	1,0000
Convenient	18,440	2	<,0001*
Monthly Income*Functional Performance and Quality	16,607	8	0,0345*
Monthly Income*Environmentally Friendly Feature	7,385	8	0,4957
Monthly Income*Economic Costs	11,122	8	0,1949
Monthly Income*Hedonic or Emotional Appeals	6,233	8	0,6212
Monthly Income*Convenient	0,180	8	1,0000

Appendix 4.2.4 Likelihood ratio test for carrier bag with level of income included



4.3.1 Effect marginal for water bottle

4.3.2 Effect marginal for carrier bag

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Biodegradable and ...	Rp 5,000 - Rp ...	Low	Medium	1	2,2758383798
2	High	Biodegradable and ...	Rp 5,000 - Rp ...	Low	Easy	1	2,2537629433
3	High	Biodegradable and ...	Rp 5,000 - Rp ...	Low	Hard	1	2,0080380909
4	High	Reusable canvas bag	Rp 5,000 - Rp ...	Low	Medium	1	1,9755874805
5	High	Reusable canvas bag	Rp 5,000 - Rp ...	Low	Easy	1	1,9535120439

4.4.1 Utility Profiler of carrier bag with High School included and included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Reusable canvas bag	< Rp 5,000	High	Easy	2	3,2313706651
2	High	Reusable canvas bag	< Rp 5,000	Low	Easy	2	3,1950707789
3	High	Reusable canvas bag	< Rp 5,000	Medium	Easy	2	2,9071916486
4	High	Biodegradable and ...	< Rp 5,000	High	Easy	2	2,6827895211
5	Medium	Reusable canvas bag	< Rp 5,000	High	Easy	2	2,6619369301

4.4.2 Utility Profiler of carrier bag with Bachelor Degree included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Reusable canvas bag	< Rp 5,000	Low	Easy	3	2,6971679421
2	High	Reusable canvas bag	< Rp 5,000	High	Easy	3	2,5769268575
3	High	Biodegradable and ...	< Rp 5,000	Low	Easy	3	2,5726652748
4	High	Reusable canvas bag	< Rp 5,000	Medium	Easy	3	2,456685773
5	High	Biodegradable and ...	< Rp 5,000	High	Easy	3	2,4524241902

4.4.3 Utility Profiler of carrier bag with Master Degree included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable canvas bag	< Rp 5,000	High	Easy	1	2,8019386651
2	High	Reusable canvas bag	Rp 5,000 - Rp ...	High	Easy	1	2,7682452553
3	High	Reusable canvas bag	< Rp 5,000	Low	Easy	1	2,6467861717
4	High	Reusable canvas bag	Rp 5,000 - Rp ...	Low	Easy	1	2,6130927619
5	High	Reusable canvas bag	< Rp 5,000	Medium	Easy	1	2,4095443462

4.4.4 Utility Profiler of carrier bag with income less than Rp 2,700,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable canvas bag	< Rp 5,000	High	Easy	2	3,8084293791
2	High	Biodegradable and ...	< Rp 5,000	High	Easy	2	3,5644416613
3	High	Reusable canvas bag	< Rp 5,000	Low	Easy	2	3,3349555817
4	High	Reusable canvas bag	Rp 5,000 - Rp ...	High	Easy	2	3,2776224923
5	High	Reusable canvas bag	< Rp 5,000	Medium	Easy	2	3,2427939697

4.4.4 Utility Profiler of carrier bag with income Rp 2,700,001 – Rp 3,750,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Biodegradable and ...	< Rp 5,000	Low	Easy	3	3,1355603944
2	High	Reusable canvas bag	< Rp 5,000	Low	Easy	3	2,8766586158
3	High	Biodegradable and ...	Rp 5,000 - Rp ...	Low	Easy	3	2,8294406285
4	Medium	Biodegradable and ...	< Rp 5,000	Low	Easy	3	2,7647924225
5	High	Reusable canvas bag	Rp 5,000 - Rp ...	Low	Easy	3	2,5705388499

4.4.4 Utility Profiler of carrier bag with income Rp 3,750,001 - Rp 4,300,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable canvas bag	< Rp 5,000	Low	Easy	4	2,7686874586
2	High	Reusable canvas bag	< Rp 5,000	High	Easy	4	2,6119283736
3	Medium	Reusable canvas bag	< Rp 5,000	Low	Easy	4	2,4655167149
4	High	Reusable canvas bag	< Rp 5,000	Medium	Easy	4	2,3952139072
5	High	Biodegradable and ...	< Rp 5,000	Low	Easy	4	2,3328081703

4.4.4 Utility Profiler of carrier bag with income Rp 4,300,001 - Rp 19,400,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	Low	Biodegradable and ...	< Rp 5,000	Low	Easy	5	1,8357057733
2	Low	Biodegradable and ...	< Rp 5,000	Low	Hard	5	0,3605191022
3	Low	Biodegradable and ...	< Rp 5,000	Low	Medium	5	1,0754362791
4	Low	Biodegradable and ...	< Rp 5,000	Medium	Easy	5	1,661851878
5	Low	Biodegradable and ...	< Rp 5,000	Medium	Hard	5	0,1866652069

4.4.4 Utility Profiler of carrier bag with income More than Rp 19,400,001 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	1	2,1417526742
2	High	Reusable stainless steel water ...	< Rp 5,000	Low	Medium	1	2,1393706228
3	High	Reusable stainless steel water ...	< Rp 5,000	High	Medium	1	2,1062629312
4	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	1	1,7681590531
5	High	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	1	1,7657770018

4.4.5 Utility Profiler of water bottle with High School included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	2	1,651785959
2	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	2	1,549401357
3	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	2	1,4866191834
4	High	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	2	1,4340772657
5	Medium	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	2	1,4329177177

4.4.6 Utility Profiler of water bottle with Bachelor Degree School included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Level of education	Utility
1	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	3	1,6720317776
2	Medium	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	3	1,6714583864
3	High	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	3	1,4696416059
4	Medium	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	3	1,4690682148
5	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	3	1,4424739387

4.4.7 Utility Profiler of water bottle with Master Degree included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	1	2,0001470962
2	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	1	1,9218151843
3	High	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	1	1,828990314
4	High	Reusable stainless steel water ...	< Rp 5,000	Low	Medium	1	1,7506584021
5	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	1	1,7231922639

4.4.8 Utility Profiler of water bottle with income less than Rp 2,700,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Medium	2	1,5608948216
2	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	2	1,5569146653
3	Low	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Medium	2	1,372223211
4	Low	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	2	1,3682430547
5	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Low	Medium	2	1,3127299572

4.4.9 Utility Profiler of water bottle with income Rp 2,700,001 - Rp 3,750,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	3	2,3086026076
2	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	3	2,221186313
3	High	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	3	2,1737499343
4	High	Reusable stainless steel water ...	< Rp 5,000	Low	Medium	3	2,0863336397
5	High	Reusable stainless steel water ...	< Rp 5,000	High	Easy	3	2,05747331

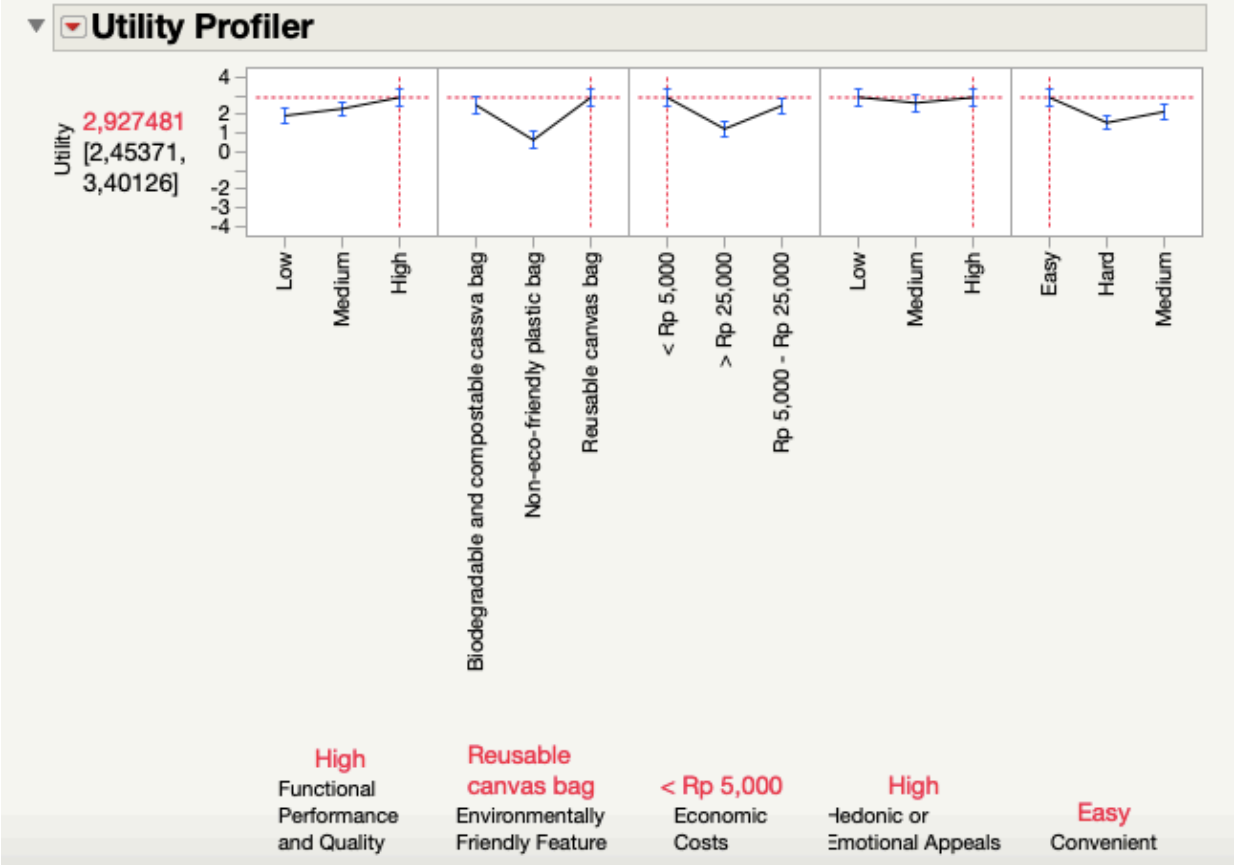
4.4.10 Utility Profiler of water bottle with income Rp 3,750,001 - Rp 4,300,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	Medium	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	4	1,4748950082
2	Medium	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	4	1,3588557707
3	Medium	Reusable stainless steel water ...	< Rp 5,000	Medium	Medium	4	1,3426093248
4	Medium	Reusable stainless steel water ...	< Rp 5,000	Low	Easy	4	1,2640115763
5	Medium	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Medium	4	1,2265700872

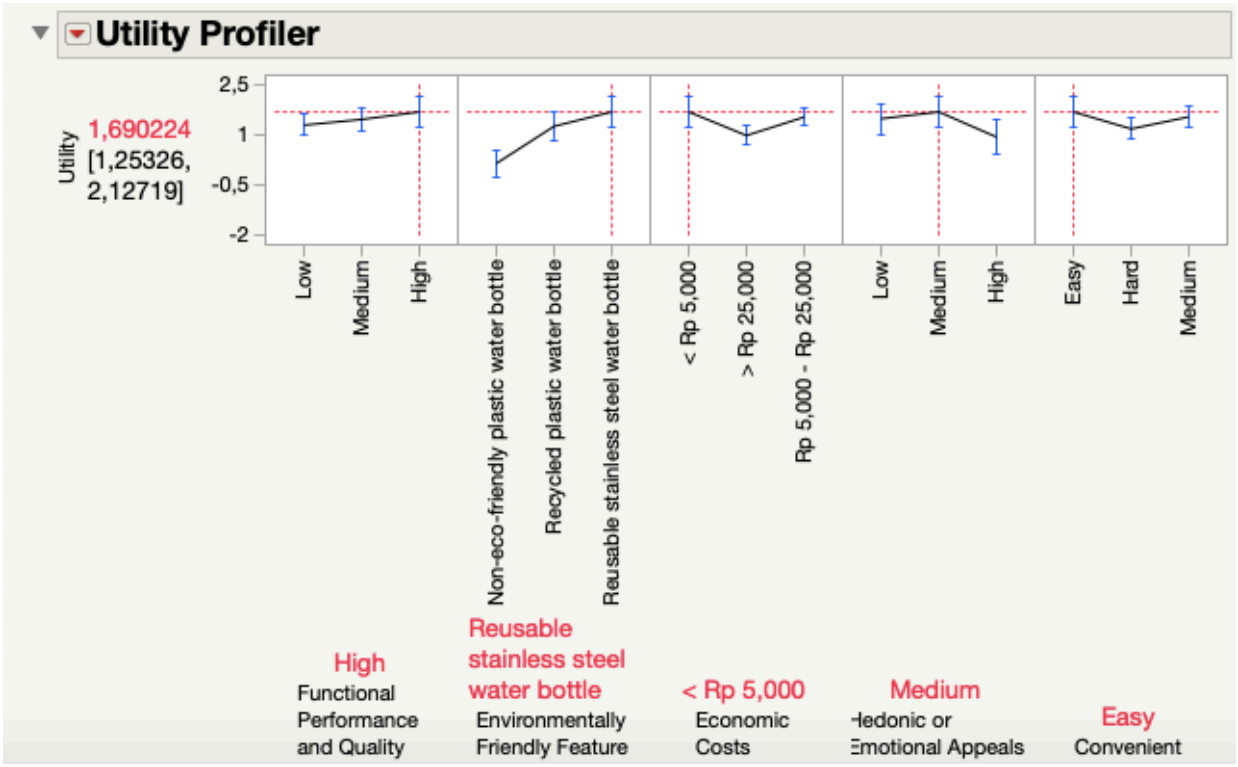
4.4.11 Utility Profiler of water bottle with income Rp 4,300,001 - Rp 19,400,000 included and sorted by the highest utility

	Functional Performance ...	Environmentally Friendly Feature	Economic Costs	Hedonic or Emotional Appeals	Convenient	Monthly Income	Utility
1	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Easy	5	3,0274102583
2	High	Reusable stainless steel water ...	> Rp 25,000	Medium	Easy	5	2,8174413327
3	High	Reusable stainless steel water ...	< Rp 5,000	Medium	Easy	5	2,7519098465
4	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Low	Easy	5	2,6467898692
5	High	Reusable stainless steel water ...	Rp 5,000 - Rp ...	Medium	Medium	5	2,5737218078

4.4.12 Utility Profiler of water bottle with income More than Rp 19,400,001 included and sorted by the highest utility



4.5.1 Optimal utility of Carrier bag



4.5.2 Optimal utility of Water Bottle

Appendix 5

Results – SPSS

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	240	100.0
	Excluded[a]	0	.0
	Total	240	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.840	5

Item Statistics

	Mean	Std. Deviation	N
Q1	2.0500	1.01330	240
Q2	2.5750	.97382	240
Q3	2.9667	1.15301	240
Q4	2.8208	1.22610	240
Q5	2.8167	1.22035	240

5.1 Analysis for Likert Scale