Investigating the preference for green packaging in consumer product choices: A choice-based conjoint approach
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Abstract
Sustainable development is a fundamental concept which has been discussed over the past decades. Environmental concern has become not only a significant public issue but also an important topic in academic research. The interaction of business and environment is closely connected nowadays. In Malaysia, the combination of green and packaging would be a new choice for consumers. The current study conducted is an exploratory research which comprises two stages of research design. The first stage of the study seeks to investigate consumer preference for green packaging in consumers’ product choices by using choice-based conjoint approach. Meanwhile, in the second stage, survey using questionnaire is used to study on the extent to which the price sensitivity, attitude toward brand, convenience of use of the packaging, green packaging, label and product design influence on customer purchase intention based on real product choices. A total number of 180 hardcopies of personally administered questionnaire were distributed to the hypermarket consumers. Out of 180 hardcopies of personally administered questionnaire distributed, a number of 155 hardcopies were returned and only 145 hardcopies returned were useable for further analysis. The findings of the study show that only product label and product design are positively and significantly influencing consumer product choice. Green packaging, price, brand, and convenience of use were not influencing consumer product choices. This study also provides limitation and suggestion for future study.

INTRODUCTION
Background of Study
Sustainable development is a fundamental concept which has been discussed over the past decades. Environmental concern has become not only a significant public issue but also an important topic in academic research. An increased level of environmental awareness since 1970s has cause a positive change within consumers’ behavior towards environmental related products (Alwitt and Pitts, 1996). In addition, the issue of environment protection has been raised by awareness of the destruction of natural resources with increasing awareness of environmental issues, which eventually lead to “green consumerism” (Moisander, 2007). It was established that consumers do value environment-friendly and ethical product in their purchase decision. (Rokka & Uusitalo, 2008) Nowadays, with higher level of education, consumer awareness about their environmental responsibility is rising and willing to choose green product over a conventional one Mohammed & Amin (2012). However, previous studies concluded that consumer daily purchase behavior is often inconsistent with this. (Rokka and Uusitalo, 2008) In Malaysia, the concept of green packaging would be a new choice for consumers. The combination of green and packaging would be an interesting topic for marketers who are targeting a green segment of the market. According to Adenanjé (2000), powerful marketers seek greater demand on packaging in order to satisfy consumers’ needs. In order to raise companies’ reputation and customers’ purchase intentions towards company product, ethical marketing practices and corporate responsibility programs both are crucial for better marketing purposes. Packaging seems to be one of the most crucial factors in influencing consumers’ purchase decisions at the point of sale (Prendergast and Pitt, 1996).

Key words: Green packaging, Consumer Product Choice, Conjoint Approach, Malaysia

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Packaged food in Malaysia
Packaging plays an important role in preserving, protecting and marketing products during their storage, transport and use. However, used packaged product will eventually turn into plastic waste, which will lead to a significant impact to the environment. The environmental impacts caused by the generation and treatment of waste are raising serious concerns. (Eurostat, 2013) The process of recycling plastic material is more difficult and costly in comparison to other material. (Eurostat, 2013) Also, more landfill space is needed for an increasing amount of packaging wastes. According to Manoj (2010), land filling is the most preferred disposal method due to its relatively low cost and can be applied for many forms of waste, where the waste is secured into the ground. Packaging constitutes as much as one-third of the non-industrial solid waste stream in most part of the country (Manoj, 2010). Furthermore, a chemical widely used in plastic packaging and food containers may be toxic to the central nervous system by interfering with a key gene involved in the development of nerve cells. Scientists have found that bisphenol A (BPA), which is used in a variety of consumer products ranging from fizzy-drink cans to food mixers, affects the function of a gene called Kcc2 which is involved in the growth of neurons, or nerve cells, in the brain and spinal cord. (Connor, 2013) Limited studies have been done to examine the influence of green package towards actual product choices in Malaysia. Many earlier studies, focused on describing the underlying values, attitudes and intentions towards socially responsible products. (Rokka & Uusitalo, 2008) Environmental consumer behavior in a more realistic choice situation is a fairly under research area. This study intends to fill the previous research gap, by conducting the study based on actual product choices. Analysis on consumer choices on real product can possess the real perception of the consumers respond on a certain product. (Johnson, 1987) In addition, the Lancaster’s Theory of Consumer Demand will also be discussed to offer a fundamental understanding of this study to explain and validate relationship among variables.

METHOD
The current study conducted is an exploratory research which comprises two stages of research design. The first stage of the study seeks to investigate consumer preference for green packaging in consumers’ product choices by using choice-based conjoint approach. Meanwhile, in the second stage, survey using questionnaire is used to study on the extent to which the price sensitivity, attitude toward brand, convenience of use of the packaging, green packaging, label and product design influence on customer purchase intention based on real product choices. Thus, this chapter will explain on the methodological details of the study. The process of the study is shown in Figure 2

First Stage - Choice-based Conjoint Approach
A choice-based conjoint analysis is applied in the first part of the study to estimate the relative importance of selected product attributes and consumers’ preference for the product attributes. This is a type of research designed for consumer preference analysis. There are two main assumptions underlying conjoint analysis: consumer choice behavior is governed by maximization of preferences; a product can be viewed as a bundle of attributes from which consumers gain utility (Aljiosiene & Gudonaviciene, 2010) The main conjoint analysis phases are pointed out in Table 3.1 together with the most commonly used
alternative approaches. It is important to clarify that the stages are not independent; decisions made in every phase affect the next phases and next decisions (Gustafsson et al., 1999).

Table 1 Conjoint Analysis Phase

<table>
<thead>
<tr>
<th>Phase</th>
<th>Alternative approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Choosing the product attributes to be investigated</td>
<td>customer needs vs. interests of the company; less than 7 or more than 7 parameters</td>
</tr>
<tr>
<td>2. Choosing the data gathering method</td>
<td>full-concept or paired comparison</td>
</tr>
<tr>
<td>3. Composing the concept cards</td>
<td>all possible combinations or certain choice amongst them</td>
</tr>
<tr>
<td>4. Choosing the presentation format of product attributes</td>
<td>graphical or verbal (paragraphs or keywords)</td>
</tr>
<tr>
<td>5. Assigning a measurement scale</td>
<td>ranking, rating scale or paired comparison</td>
</tr>
<tr>
<td>6. Data gathering mainly interviewing</td>
<td>Personally or in groups</td>
</tr>
<tr>
<td>7. Modeling the preferences</td>
<td>vector ideal-point or part-worth model</td>
</tr>
</tbody>
</table>

Source: adapted from Gustafsson et al., 1999.

Phase 1 – Attribute Screening Study

As suggested by Alpizar, et.al. (2003), an attribute-screening study was conducted to obtain information about relevant attributes to be included in the choice experiment. 12 different attributes were chosen based on the previous study and actual product which can be found in the market. A simple 12 questions with 5 points Likert Scales range from extremely unimportant to extremely important are designed in order to clarify the most important attributes for consumers’ choices. Questionnaire survey is conducted to gather the data to examine the importance of each attribute before proceeding to Phase 2.

Phase 2 - Choice Experiment Design (in full-concept approach)

Based on the results produced in Phase 1, combination of six attributes with two levels each were chosen, which will generate 64 full-factorial designs. However, asking respondents to complete 64 choice sets was seen to be too intensive of a task likely to result in consumer fatigue (Hensher, Stopher, and Louviere, 2001). Thus, a total of eleven choice sets were selected by using the orthogonal design process which executed by using SPSS (Statistical Package of Social Science) version 21. The number of concept cards was reduced from 62 to 11, which still makes it possible to effectively estimate the main effect. A face to face interview is conducted for data collection in the first stage of the study. The respondents usually perceived the process of ranking and sorting the concept card is complicated. Each of them is asked to rank the card accordingly based on their personal interest. Interview is vital in guiding the respondents in their ranking process. Distrust can be avoided and better data can be collected eventually. The goodness of conjoint analysis is, the importance of the product attributes can be identified based on respondents’ sequential choices, and respondent’s response error can be minimized at the same time. A total number of 35 interviews were conducted where respondents were on the spot being explained the nature and purpose of the study. According to Green & Krieger (1991), the importance of various product attributes can be identified by using part-worth utilities. In the study, the part-worth utilities for the main products attributes is determined by using regression analysis. All the data collected from the respondents will be recorded and analyzed. Regression analysis was conducted to test the main effect among independent variables on each dependent variable (i.e., attitude toward the product attributes and the index ratio)(Kotri,2006) The statistical package employed for this analysis is Microsoft Excel 2007. An example of a concept cards is shown in Figure 3.
Theoretical Framework developed based on the result of Phase 1
Previous studies on consumer purchase intention have produced mix evidence. However, little research had been done on prediction of consumer purchase intention for green packaging on actual product choices in Malaysia context. As such, this study will try to examine the determination factors which influence consumer purchase intention on real product choices in Malaysia. The theoretical framework of the study described in schematic diagram is shown in Figure 1.

HYPOTHESES DEVELOPMENT
The hypotheses in this study are developed based on the studies conducted by Lancaster’s Theory of Consumer Demand. Based on the theoretical framework shown above, a total of six hypotheses will be tested in this study.

H1: Brand has a positive and significant relationship with preference for green packaging in consumer product choice.
H2: Green packaging has a positive and significant relationship with preference for green packaging in consumer product choice.
H3: Price has a positive and significant relationship with preference for green packaging in consumer product choice.
H4: Convenience of use has a positive and significant relationship with preference for green packaging in consumer product choice.
H5: Product Label has a positive and significant relationship with preference for green packaging in consumer product choice.
H6: Product Design has a positive and significant relationship with preference for green packaging in consumer product choice.
H4: Convenience of use has a positive and significant relationship in preference for green packaging in consumer product choice.
H5: Product label has a positive and significant relationship with preference for green packaging in consumer product choice.
H6: Product design has a positive and significant relationship with preference for green packaging in consumer product choice.

SECOND STAGE - QUESTIONNAIRES-BASED SURVEY
In the second section of the study, questionnaires-based survey is used. This section of the study seeks to investigate the extent to which the attitude toward brand, price, convenience of use, green packaging and product design has an influence on customer purchase intention when come to real product choices. The first section basically gathers demographic information to better describe the respondents which allowed for testing relationship and influence of the entities on the dependent variable. Background data were collected concerning gender, age, education, household size, place of living and frequency of product use. Description of the sample in terms of background variables can be found in Table 3. In the second section, respondents are shown with three types of different products (Nestle, Marigold & Tesco Yogurt Drink). In this case, they are asked to indicate the one they would be most likely to purchase product attributes which can be observed in the market were included.

The following six attributes, all with two or three various levels, were chosen for the study:
• **Brand.** Three alternatives representing the existing brands in the market - Nestle, Marigold, and Tesco
• **Price.** As a price attribute, the unit price of a drink pack was chosen. Three price levels were assigned around the average price on the market (RM 4.80; RM 4.39; RM 3.49)
• **Green Packaging.** Two alternatives included: carton package, plastic package. All of the packaging types can be found in the market.
• **Convenience of use.** The fourth attribute was convenience of use of the package; whether the drink bottle is easy to carry and easy to hold. This attribute was shown to be crucial for some of the functional drink users in the previous study.
• **Labeling.** The fifth attribute was product labeling; whether the product has the label such as “zero fat”, “25% more” which is important as part of consumers’ consideration, which can be found in the market.
• **Product design.** The sixth attribute was product design; which shows difference on product shape design, which can be found in the market. The example of the choice set is shown in Figure 4. The third section and fourth sections of the questionnaire is to examine the importance of 6 independent variables to the consumers, namely brand influence, price influence, green packaging, convenience of use, label and product design to evaluate respondents’ response toward the preference of green packaging in consumer product choices.

All of the data collected from respondents of Tesco consumer will be records and analyzed using SPSS (Statistical Package of Social Science) version 21. The following section will detail the statistical techniques used in the study to test on the relationship of the attitude toward brand, price, convenience, green packaging, labeling, product design and consumer product choices. The statistical techniques involved in the study are factor and Reliability Analysis, Descriptive Statistics and Multiple Regression analysis.

FINDINGS
Stage one
According to the result shown based on 35 respondents, card 10 is the most preferred combination for the respondents which is multinational brand yogurt drink with recyclable package and resalable package, low fat and S bottle shape design, which cost only RM4.39.
Figure 4: Example of choice set in questionnaire

Nestle
(Multinational brand)
Plastic Package
(Non Green package)
Easy to carry
Low Fat
S Shape design
RM 4.80

Marigold
(Local brand)
Carton Package
(Green Packaging)
Not convenience
Low fat & 25% More
Square Design
RM 4.39

Tesco
(Store brand)
Plastic Package
(Non Green Package)
Easy to carry
Low fat
Normal Design
RM 3.49

Table 2 Calculation of Preference Score

<table>
<thead>
<tr>
<th>No</th>
<th>Brand</th>
<th>Package</th>
<th>Price</th>
<th>Convenience</th>
<th>Label</th>
<th>Design</th>
<th>Rank</th>
<th>Model Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local</td>
<td>Carton</td>
<td>RM4.39</td>
<td>Resalable</td>
<td>Low fat</td>
<td>Square</td>
<td>2</td>
<td>2.55</td>
</tr>
<tr>
<td>2</td>
<td>Multinational</td>
<td>Plastic</td>
<td>RM4.80</td>
<td>Not Resalable</td>
<td>Low fat</td>
<td>Square</td>
<td>8</td>
<td>8.10</td>
</tr>
<tr>
<td>3</td>
<td>Local</td>
<td>Plastic</td>
<td>RM4.80</td>
<td>Resalable</td>
<td>Normal fat</td>
<td>S design</td>
<td>9</td>
<td>8.72</td>
</tr>
<tr>
<td>4</td>
<td>Multinational</td>
<td>Carton</td>
<td>RM4.39</td>
<td>Resalable</td>
<td>Normal fat</td>
<td>Square</td>
<td>4</td>
<td>4.08</td>
</tr>
<tr>
<td>5</td>
<td>Local</td>
<td>Carton</td>
<td>RM4.80</td>
<td>Not Resalable</td>
<td>Normal fat</td>
<td>S design</td>
<td>10</td>
<td>10.51</td>
</tr>
<tr>
<td>6</td>
<td>Local</td>
<td>Carton</td>
<td>RM4.39</td>
<td>Not Resalable</td>
<td>Low fat</td>
<td>S design</td>
<td>5</td>
<td>4.13</td>
</tr>
<tr>
<td>7</td>
<td>Multinational</td>
<td>Carton</td>
<td>RM4.80</td>
<td>Resalable</td>
<td>Low fat</td>
<td>Square</td>
<td>6</td>
<td>5.58</td>
</tr>
<tr>
<td>8</td>
<td>Multinational</td>
<td>Plastic</td>
<td>RM4.39</td>
<td>Not Resalable</td>
<td>Normal fat</td>
<td>Square</td>
<td>7</td>
<td>6.60</td>
</tr>
<tr>
<td>9</td>
<td>Local</td>
<td>Carton</td>
<td>RM4.80</td>
<td>Not Resalable</td>
<td>Normal fat</td>
<td>Square</td>
<td>11</td>
<td>11.09</td>
</tr>
<tr>
<td>10</td>
<td>Multinational</td>
<td>Carton</td>
<td>RM4.39</td>
<td>Resalable</td>
<td>Low fat</td>
<td>S design</td>
<td>1</td>
<td>1.06</td>
</tr>
<tr>
<td>11</td>
<td>Multinational</td>
<td>Plastic</td>
<td>RM4.39</td>
<td>Not Resalable</td>
<td>Low fat</td>
<td>S design</td>
<td>3</td>
<td>3.58</td>
</tr>
</tbody>
</table>
The relative Importance of product attributes

Overall, the result of this survey finds that price (with an overall importance score of 38%) is the leading factor followed by product label (23%). 21% of the respondents found convenience of use as an important factor and followed by 9% under consider product brand as crucial. The factor importance scores for design and package is 6% and 4% accordingly. The factor importance scores are derived from the collective set of individual within-factor utility scores and the overall results is shown in the Figure 5

![Figure 5 Average Importance of Product Attributes](image)

### Table 3 Consumers’ Product Choices

<table>
<thead>
<tr>
<th>Consumer Product Choices</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Nestle</td>
<td>111</td>
<td>76.6</td>
</tr>
<tr>
<td>1.1 Plastic Package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Easy to hold (Shape)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3 Low Fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.4 S Shape design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 RM 4.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Marigold</td>
<td>29</td>
<td>20.0</td>
</tr>
<tr>
<td>2.1 Carton Package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2 Hard to hold (Shape)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3 Low fat &amp; 25% More</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 Square Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 RM 4.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Tesco</td>
<td>5</td>
<td>3.4</td>
</tr>
<tr>
<td>3.1 Plastic Package</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2 Easy to hold (Shape)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3 Low fat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.4 Normal Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5 RM 3.49</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>145</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>
Stage 2: Questionnaires-based survey
A total number of 180 hardcopies of personally administered questionnaire were distributed to the Tesco consumers. Out of 180 hardcopies of personally administered questionnaire distributed, a number of 155 hardcopies were returned and only 145 hardcopies returned were useable for further analysis. Table 3 shows the demographic profile of 145 respondents.

Consumers’ Yogurt drink choices
Most of the respondents recognized Nestle Yogurt Drink as their favorite Yogurt drink that contributed 76.6% of the of the entire respondents surveyed, followed by Marigold Yogurt drink which contributed 20% of the entire respondents surveyed, followed by a percentage of 3.4% of the respondents surveyed recognized that Tesco Yogurt drink as their favorite Yogurt drink. Table 4 illustrated the consumers’ Yogurt drink choices in detail.

ANALYSIS
The 2nd stage of the research was analyzed by using SPSS (Statistical Package of Social Science) version 21. The proposed research hypothesis in this study was being tested by using the multiple regression analysis to examine the relationship between product attributes and preference for green packaging in consumer product choice.

Based on the result shown, the model was tested at a significant level of $p<0.001$ and $F = 9.102$. R square was 0.284 which indicated that 28.4% variations of preference for green packaging in consumer product choice can be explained by the independent variables – attitude toward brand, green packaging, price, convenience of use, label and product design. The adjusted R square was 0.252 while Durbin-Watson test was 1.972 which showed that there was no auto-correlation with the model and for variation inflation factor (VIF), it shown below 10 for attitude toward brand (1.18), green packaging (1.39), price (1.09), convenience of use (1.36), label (1.30) and product design (1.28). The result indicated multicollinearity does not exist. As a result, error terms were independent. Additionally, the histogram in Appendix J showed the bell shape for this relationship indicated its normality of distribution, $P-P$ plot also showed that there was normality in error term.

By referring to Table 4, among the 6 tested independent variables, only two independent variables were significant at $p<0.01$. The 4 independents variables were attitude toward brand, green packaging, price, and convenience of use that had a $p$ value more than 0.05 showed that there was no significant impact on preference for green packaging in consumer product choice. Price showed a negative relationship with consumer product choice ($\beta = -0.002$). The 2 independent variables which have significant influence toward consumer product choice were product label and product design with the standardized $\beta$ of 0.239 and 0.281 accordingly. The result indicated that only product label and product design are positively and significantly influence consumer product choice.

| Table 4 Multiple Regression Analysis between Independent variables and Dependent Variables |
|-----------------------------------------------|-------------------|
| Attitude toward Brand | .150 |
| Green packaging | .135 |
| Price | -.002 |
| Convenience of use | .081 |
| Product Label | .239** |
| Product Design | .281** |
| R² | 0.284 |
| Adjusted R² | 0.252 |
| F value | 9.102*** |
| Durbin- Watson | 1.859 |

Note:*$p<0.05$, **$p<0.01$, ***$p<0.001$
DISCUSSION
The study’s finding has shown that brand and preference for green packaging in consumer product choice (Hypothesis 1) was not well supported. Statistical result showed that there was a positive but not significant relationship at 5% confident level between brand and preference for green packaging in consumer product choice in terms of real product choices. A possible explanation is, as real product choices was used as a tool in this study, the respondents pay only little attention toward the brand of the yogurt drink itself. The respondents tend to focus more on nutrition facts and the product label rather than the brand. Some respondents responded the reason they pick Nestle Yogurt drink is because of the taste is good and less sweet. A study conducted by Alijosiene & Gudonaviciene, (2010), which indicates that brand has little importance in consumer yogurt drink choice, which shows a relatively low weighted sum compare to other product attributes.

As for Hypothesis 2, green packaging and preference for green packaging in consumer product choice, the result indicated that the hypothesis was not well supported. Statistical result showed that there was a positive but not significant relationship between green packaging and consumer product choice in terms of yogurt drink. The result was not consistent with previous studies conducted by Mohammad & Zakersalehi (2012), Rokka & Uusitalo (2008), Barber (2010) and Koutsimanis,et.al. (2012) have confirmed a significant relationship between green packaging and preference for green packaging in consumer product choice. A possible explanation, in term of the choice of yogurt drink, the respondents did not give priority to green packaging in their product choices. Green packaging was not the main consideration in respondents’ purchase decision. Also, there is lack of awareness and environmental knowledge towards green packaging and the concept of green packaging is consider new to the consumer. (Mohammad & Zakersalehi, 2012).

As for Hypotheses 3, price and preference for green packaging in consumer product choice, the finding in this study is different from the result achieved in previous studies. The finding from this study found that price showed a negative relationship with consumer product choice (Beta = -0.002) and no significant relationship with preference for green packaging in consumer product choice with the standardized beta value of -0.002 at significant level p>0.05. It means price does not influence preference for green packaging in consumer product choice. The result of this study is different from previous studies conducted that examine the relationship between price and consumer product choice. Karbala & Wandebori (2012) and Rokka & Uusitalo (2008) and Munnukka(2008) studies that examined the relationship between price and consumer product choices conclude that there is a positive and significant relationship with preference for green packaging in consumer product choice. However, there were also previous research conducted that validate the inverse relationship between price and consumer product choice. Based on the study conducted by Bachler (2004), price has less significant influence in consumer purchase decision if the customer has strong loyalty toward the brand itself. Consumers will continue buying the same brand although the price has increased. Besides, the reason for the inconsistent result derived from this study to those previous studies mainly due to the reason that the actual product choices were used as the main tools for the study. When comes to actual product choices, price become less important consideration compare to other attributes that eventually does not reflect the significant relationship between price and preference for green packaging in consumer product choice, which contributes to the different result in this study.

From this study, the findings showed that Hypothesis 4, convenience of use and preference for green packaging in consumer product choices was not well supported. Statistical result showed that there was a positive but not significant relationship between convenience of use and consumer product choice. The result indicate standardized beta of 0.081 at significant level p>0.05. The findings showed a different result compare to the study conducted by Rokka & Uusitalo (2008) on preference for green packaging in consumer product choices. In the study, convenience of use of packaging is a strongly preferred product attribute when consumers choose among functional drink products. The result of this study is different from previous studies conducted that examine the relationship between convenience of use and consumer product choice. A possible explanation, the respondents did not give priority to convenience of use in their choice of yogurt drink. Based on the study conducted by Alijosiene & Gudonaviciene,(2010),
which is to examine the relative importance of the product attributes, the result revealed that package functionality is a less important factor considered by the respondents compare to other product attributes such as expiration date, preservatives, ecologic product, increases, price and etc. The product attribute showed little importance in respondent’s choice of product. The result of this study show the standardized beta value of 0.239 at significant level p<0.01 concluded that label has a positive and significant relationship with preference for green packaging in consumer product choice where the more consumers prefer to have the label of low fat, the more tendency for the consumer to choose the products. It can be inferred as preference for green packaging in consumer product choice can be influence by product label.

Therefore, label and preference for green packaging in consumer product choice (Hypothesis 5) is supported. This finding has been supported by the study conducted by Jeddi & Zaiem (2010), where product label has a positive and significant relationship with consumer product choices. Norberg, et.al.(2011) and Shen & Tatsuyoshi (2009) also confirmed that product label has a positive and significant relationship with consumer product choices. In this study, Hypotheses 6, product design and preference for green packaging in consumer product choice is proposed based on research findings from the previous research to justify the relationship between product design and consumer product choices. The finding from this study added another evidence to the research ground that product design has a positive and significant relationship with consumer product choices where the R square = 0.123 at significant level p<0.001 explained that 12.3% of the variation of consumer product choices can be explained by product design at the significant level of p<0.001. Therefore, hypotheses 2 (H2) is supported. The finding is supported by previous studies conducted by Kuvykaite,et.al. (2009) and Rundh(2009), which have confirmed that product design is positively and significantly influencing consumer product choice.

**Theoretical and Practical Implications**

This study has proposed several theoretical relationships to be examined from the theoretical framework. These theoretical relationships have been empirical tested and supported to explain the influence of attitude toward brand, green packaging, price, convenience of use, product label and product design toward consumer product choices. However, in this study 4 out of 6 hypotheses proposed were not supported. From the findings, only 2 theoretical relationships were supported. This implies that the relationship between attitude toward brand, green packaging, price and convenience of use needed to be further research to determine its reliability and validity to influence consumer product choices in Malaysia context.

Furthermore, this study also implies that product label and product design have positive and significant influence on consumer product choices. This study also added evident to support the use of the Lancaster’s theory of consumer demand that proposed the structure lying between the goods and the consumer’s preferences is the main objective. Lancaster’s theory proposed that the good does not give utility to the consumer, it possesses characteristics, and these characteristics give rise to utility (Lancaster,1966) which will eventually influence consumer purchase behavior. From the study, a combination of 3 types of product choices was used as a guideline in directing the respondents to answer the questionnaires, which possess more than one characteristic, to identify consumer preference in product choices. By understanding the real intentions, concerns and needs of consumers will double their efforts to increase the safety benchmark to ensure long term business sustainability. This study could serve as good basic idea for marketers or organizations to better understand consumers’ need. This also could serve as the basic foundation for researchers who are interested to conduct a choice-based research in depth in future.

Practically, this study help marketer to aware of the products attributes which has the most significant influence on consumer purchase attention based on actual product choices. This study provide insight to the marketer by examines the influence of the attitude toward brand on consumer product choices has provides empirical evidence that the brand of the product is one of the important consideration in their product choices.
LIMITATION OF THE STUDY
In general point of view, the main limitation of this study was the geographical selection of the respondents. By taking into consideration of the time constraints, the convenience sampling method was applied and only accessed to limited number of Malaysian consumers. In the first stage of the study, only 35 respondents were interviewed. In the second stage of the study, only small amount of respondents were involved in the study which is a total of 145 respondents from Penang where the result might not be able to offer a generalized view of the findings. Thus, the sample of the respondents might not be able to produce an accurate picture generally. Furthermore, the study was conducted based on real product choices to identify consumer preference on product choices. Therefore, respondents’ perceptions toward product choice were basically referring to one type of product (Yogurt drink), hence, the findings might not able to produce a general finding toward consumer product choices as the scope will be limited within one product category and not representing the whole market segment. Due to time constraint, this study did not examine the effect of demographic variable such as gender, age, household income, and education level toward preference for green packaging in consumer product choices. Besides, in the first stage of the study, the respondents usually perceived the process of ranking and sorting the concept card is complicated. The process of interview is time consuming and limited number of respondents can be accessed.

RECOMMENDATION FOR FUTURE RESEARCH
This study recommended the future direction to a wider group of respondent which cover whole Malaysia that will eventually validate the validity of the study to explain the influence of product attributes on consumer product choices. As this study only examine the influence of product attribute on consumer product choices, future study should also include subjective norms and perceived behavior control, in order to give better understanding and overview of consumer product choice. Environmental responsible consumer behavior will serve as an interesting variable for future study. Also, it was suggested by the respondents, taste was the main consideration in their choice of yogurt drink. Thus, the taste of the product might serve as an interesting variable for future study. Secondly, control variables such as gender, age and other demographic variable should be included to further examine the influence of consumer actual purchase behavior in depth and comprehensive.

CONCLUSION
The objective of this paper is to move away from the traditional attitude-based studies of environmental consumer behavior and to examine consumer choices between realistic product alternatives when consumers have to balance their preference over different product attributes. On the basis of attribute preference, finding indicates that price (with an overall importance score of 38%) is the leading factor which the consumer most likely to consider in their product choices followed by product label (23%), based on hypothetical products which have a combination of a group of product attributes were describe in each card. Green packaging or ethical product aspects have no clear impact on consumer choice. However, in the second stage of the study, it was found that price is not significantly influence consumer product choice. Product label and product design found to demonstrate positive and significant influence in consumer product choices. In brief, this study is crucial and significant to both academicians and marketers to better understand the influence of price, attitude toward brand, attitude toward green packaging, convenience of use and label and product design on consumer purchase intention as well as better comprehend the effect of the products attributes in order to strategize a more strategic marketing communication to satisfy customer needs and satisfaction.

REFERENCES


