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Factors Affecting Consumers' Perception Toward Renewable Energy Among Adults in Kuala Lumpur

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Abstract

As Malaysia still heavily rely on crude oil and natural gasses as the main source of energy generation, renewable energy has seen better days in other countries. Malaysian consumers was not supportive to the development of renewable energy as a result minimal progress throughout the years. The study focuses on understand the relationship between few factors such as global and local economic factors, personal characteristics, perceived price and perceived product benefits to consumers' perception toward renewable energy. The main mode of data collection is through survey questions where Kuala Lumpur residents between 21 and 50 are targeted. Data received will be processed through SPSS and several analysis techniques such as Reliability test, Pearson's Correlation and Multiple regression were used to analyse the data. A total of 200 valid responses were received. Through the analysis, it is found that global & local economic factors contributes most to consumers' perception toward renewable energy while perceived product benefits has little to none relationship. The result of this study suggest that economic factors is a main concern among Malaysians. Given the stagnant poor economic outlook, adoption of renewable energy will be met by reluctance.

Keywords: Renewable energy, consumers' perception

1. INTRODUCTION

This research project studies the factors affecting consumer perception towards household renewable energy products such as solar panel, mini wind turbine, micro-hydropower system and biomass power generator. This study aims to understand how Malaysian adults perceive this new source of energy and study their reaction and behaviour toward the concept of renewable energy.

1.1 Research Background

When a country continues to grow, its demand for energy will similarly grow as stated by Muhammad, Nanthakumar, Rashid and Talat (2015). Malaysia Energy Statistics Handbook (2015) shows that, in 1993, 53% of energy consumed is generated by crude oil and 44% are from natural gas while the remaining few percent came from coal, biodiesel and hydropower. However, this amount changed significantly in 2013 where natural gas accounted for 66% of total energy, 29% from crude oil and only 2.7% from hydropower. From this, we can assume that Malaysia is still relying mostly on non-renewable energy such as crude oil and natural gas for energy production, while renewable sources are neglected.

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Ever since the industrial revolution in late 1800s, the demand for more energy has increased and has caused the depletion of fossil fuel. This has driven the world to seek other alternative sources of energy and that is where renewable energy comes in (Foo, 2015). Foo (2015) also stated that Malaysia is a country that is blessed with abundant natural resources and could possibly become a role model in the utilization of renewable energy. However, the quest on producing a reliable and sustainable energy poses a challenge as the renewable energy industry in Malaysia lacks the appropriate knowledge and technology.

Therefore, the Malaysian government has implemented several energy policies to develop sustainable energy sources and has also funded renewable energy research projects as stated by Foo (2015). These policies include the National Biofuel Policy 2006 that focused on harnessing energy from palm oil, the Tenth Malaysia Plan (2011-2015) which was proposed to further promote the usage of renewable energy and several future plans, all heading towards the direction where Malaysia's future energy production becomes highly dependent on renewable energy. However, those policies are often too fragmented in opinion between the government and the people as this issue is not the major concern of Malaysian citizens. However, Hafiz and Syed (2013) stated that the way to control a country's energy crisis must first begin with the understanding of the importance of energy supply and demand of the country and then develop alternative energy sources that are sustainable for current and future generations.

1.2 Research Problems

It is clear that efforts have been put into research of renewable energy by the Malaysian government as several policies have been proposed and executed for the development of renewable energy. However, Malaysia is still heavily relying on non-renewable energy such as coal and natural gas. Therefore, there must be a reason that halts the progress of developing renewable energy in Malaysia. Brohmann, Heinzle, Rennings, Schleich & Wüstenhagen (2009) have proposed an idea where renewable energy consumption activities can be categorized into 3 areas namely, individual area of action, supply-side and structural area of action and social-political area of action. Simply put, this idea explains that the demand for renewable energy is dependent on actions taken by consumers, suppliers and the government. Although supports from government and corporate agencies can speed up the progress of changing Malaysia's energy production to renewable energy sources, it all boils down to consumer's decision to purchase and consume the products provided that will leave a larger impact on the development of renewable energy.

Therefore, in order to quicken the development of renewable energy, energy-related corporations and the government must first understand how consumers perceive renewable energy. To be more specific, it refers to consumer's understanding and experiences toward renewable energy products. This definition is supported by Wilson, Zeithaml, Bitner and Gremler (2008) whom describes consumers' perception as a built up experience and satisfaction towards the perceived product.

To sum up, the technology for renewable energy has been in development for a long time, to the extent that some countries are able to substitute a large part of their energy consumption with renewable energy sources. However, despite having the blessing of natural resources, Malaysia was not able to adopt such technology and is still heavily relying on natural gases and crude oil. Malaysia citizens play the biggest role in the consumption of energy and their perception toward renewable energy possess a great influence towards the development of renewable energy.

1.3 Research Objectives

- To study the relationship between consumers' personal characteristics and consumer's perception toward renewable energy.
- To study the relationship between global and local economic factors and consumer's perception toward renewable energy.
- To study the relationship between perceived product price and consumer's perception toward renewable energy.
- To study the relationship between perceived products benefits and consumer's perception toward renewable energy.

2. LITERATURE REVIEW

2.1 Consumer Perception

The definition for consumer perceptions is very broad and there are a number of models and theories that describe consumer perception. Kotler, Armstrong, Brown and Adam (1998) briefly explain that consumer perception is the acting reacting one what one sees. Another explanation by Wilson, Zeithaml, Bitner and Gremler (2008) views

consumer perception as being built up customer experiences, how they view the service and finally by whether they are satisfied with their experience. Among these explanations, two models that better describe consumer perception are the cognitive theory and affective theory (Liligeto, Singh and Naz, 2014). The cognitive theory refers to the thought-related reactions generated by stimuli (Blackwell, Miniard & Engel, 2001). On the other hand, the affective theory refers to feelings and arousal induced by stimuli (Dubé, Cervellon, & Jingyuan 2003; Yoo & MacInnis, 2005). These two theories show that when a consumer is exposed towards a product, his or her response would be to cognitively conceptualize or think about what they see, and identify themselves with the product if they are affectionate about it, in which the chance for a positive reaction is high (Liligeto et al, 2014). On the contrary, negative cognition or perception towards the product will cause disinterest and unfavorable self-identity, where the possibility of negative consumer reaction towards the product is high (Liligeto et al, 2014). It should also be noted that by knowing customer's perception towards the product and service offered, customer's satisfaction and the success of a business can be affected (Aspfors, 2010).

Although there are many variables that affect consumer's perception towards renewable energy, it is not methodologically sound and practical to include all variables into the research. Therefore, only four selected variables will be examined to determine their relationship with consumer's perception towards renewable energy in Malaysia.

The factors selected that affect consumer perception towards renewable energy in Malaysia are: (1) Consumer's Personal Characteristics, (2) Global and Local Economic Factors, (3) Perceived Product Price, (4) Perceived Product Benefits.

2.2 Proposed of Conceptual Framework

Figure 1: Proposed Conceptual Framework

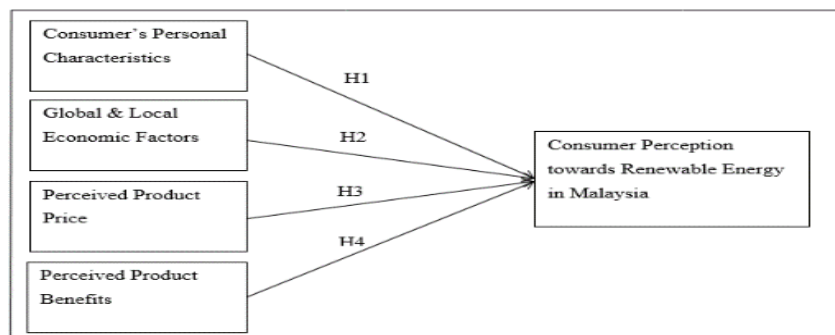


Figure 1 shows the relationships between the 4 identified independent variables (Consumer's Personal Characteristics, Global and Local Economic Factors, Perceived Product Price, Perceived Product Benefits) with the sole independent variable of this research (Consumer Perception towards Renewable Energy in Malaysia).

2.3 Hypotheses of the Study

- H1: There is a significant relationship between consumer's personal characteristics and consumer's perception toward renewable energy.
- H2: There is a significant relationship between global and local economic factors and consumer's perception toward renewable energy.
- H3: There is a significant relationship between perceived product price and consumer's perception toward renewable energy.
- H4: There is a significant relationship between perceived products benefits and consumer's perception toward renewable energy.

3. METHODOLOGY

3.1 Research Design

Based on the purpose of the research, this is a descriptive and quantitative research. Descriptive research is used because it explain the feature of target audience, predict the amount of people who might show certain behavior, understand attitude toward product attributes and study associations between marketing variables (Malhotra, 2010).). The finding of the study will be expressed in numerical manner to explain the relationship between

variables. Quantitative research is adopted simply because of time constraints of the research and it is easier to interpret numerical data than word data.

3.2 Data Collection Method

Primary data of this research will be collected through distributing questionnaire online as it is much more convenient and cost efficient. A set of questions addressing the factors affecting consumers' perception will be asked through questionnaires. Database such as EBSCOhost, Emerald and Wiley Online can provide useful information to support the study. Data such as statistics, figures, and facts from various sources was adopted to justify the credibility of the study, building theoretical framework, literature review and etc.

3.3 Sampling Design

The respondents of this research are targeted at adult aged from 18 to 60 who stays in Kuala Lumpur. The reason for this selection is because adults have higher influencing power when it comes to energy usage. This research is carried out at Kuala Lumpur, one of the most urbanized and technology-advanced city in Malaysia (Theworldbank, 2015) as urban citizens are more likely to have prior knowledge on renewable energy. Respondents are limited to those who are categorized as adult (18 and above). This is because respondents within those ages are adults who possess sufficient purchasing power on renewable energy products and are the major user in household electricity consumption.

For this research, nonprobability convenient sampling is adopted where respondent are chosen at the most convenient, accessible and low-cost method possible. Questionnaires will be distributed through online and respondent may choose to answer at their convenience. Roscoe (1975) suggested that the simple rule of thumb for an appropriate sample size should be at least 30 but not more than 500. Therefore, a sample size of 200 respondents is expected as it is within the appropriate range and 30 set of questionnaires will be distributed beforehand for pilot testing.

3.4 Questionnaire Design

The questionnaire is stated in English and it consists of a cover page and 2 sections, namely Section A and Section B. The cover page contains the introduction, objective of the survey and names of the research group members. Section A consists of 5 questions that address the respondent's demographic profile. Respondents are required to provide information such as their age, gender, races, professions and monthly income. Section B consists of 4 parts with a total of 27 questions. Each part represent a variable namely Consumers' Perception (CP), Global and Economic Factors (GEF), Consumer's Personal Characteristics (PC), Perceived Price (PP) and Perceived Product Quality (PQ). This section require respondents to answer by selecting one of the number in five-point likert scale based on the situation illustrated by the question.

Survey questions were developed based on several past studies. Table 1 highlight the origin of questions used for the survey in this research.

Table 1. Origin of construct

Construct	Adapted from
Consumers' Perception	Teoh, Chong, Lin & Chua (2013)
Global & Local Economic Factors	Lautiainen (2015)
Personal Characteristic	Navarwan and Prattana (2016)
Perceived Price	NREL (2011)
Perceived Product Benefits	Gibbons and Rosemary (2017)

3.5 Data Processing and Analysis

Data collected from questionnaires will be tabulated to summarize the result. Graph and chart are used to illustrate the findings such as gender, age and races in a way that it ease the process for analyze and interpretation. It is important for a research to undergo a reliability test to ensure the study meet the certain level of reliability. For this research, Cronbach's Alpha is used to measure the internal consistency. It works in a way that it explain the whether the items in the test have positive relationship with each other, in other word, it measure their correlation with each other.

Pearson's correlation was used to test the association between the independent variables (global and economic factors, personal characteristics, perceived price and perceived product quality) and dependent variable

(consumers' perception). With the confidence level of .95, hypothesis will be either accepted or rejected based on the p-value result.

Multiple regression refers to regression that measures relationship between a dependent variable and multiple independent variables (Hair et al., 2007). Zikmund et al (2013) explained that multiple regression analysis is a type of statistical technique that test the significant relationship between independent variables and dependent variable where both variables must be of metric values.

4. DATA ANALYSIS

4.1 Pilot Testing

Since parts of the questionnaires are adopted from previous studies, modification has to be made in order to match the research objectives. Therefore pilot test is carried out as a pretest to minimize errors. 30 questionnaires were distributed to suitable candidates face-to-face and feedback was collected to improve the questionnaire. Table 2 shows the result of pilot testing and all the variables are reliable.

Table 2. Pilot testing

Construct	Cronbach's Alpha	Number of Items
Consumers' Perception	.866	5
Global & Local Economic Factors	.834	6
Personal Characteristic	.860	7
Perceived Price	.818	5
Perceived Product Benefits	.827	9

4.2 Pearson Correlation Test

Table 3 shows the correlation of variables. The values represent the strength of association between independent variables (global and economic factors, personal characteristics, perceived price and perceived product benefits) and dependent variable (consumers' perception). From the result, the strongest association is global and economic factor with the correlation value of 0.716 and the weakest association is perceived price with the value of 0.445. All the independent variables have positive association with the dependent variable (>0).

Table 3. Pearson correlation

		ACP	AGEF	APC	APP	APQ
ACP	Pearson Correlation	1				
	Sig. (2-tailed)					
AGEF	Pearson Correlation	.716**	1			
	Sig. (2-tailed)	.000				
APC	Pearson Correlation	.584**	.584**	1		
	Sig. (2-tailed)	.000	.000			
APP	Pearson Correlation	.445**	.429**	.393**	1	
	Sig. (2-tailed)	.000	.000	.000		
APQ	Pearson Correlation	.492**	.575**	.529**	.420**	1
	Sig. (2-tailed)	.000	.000	.000	.000	

** Correlation is significant at the 0.01 level (2-tailed).

N = 200

ACP = Average Consumer's Perception (Dependent variable)

AGEF = Average Global and Economic Factors

APC = Average Personal Characteristics

APP = Average Perceived Price

APQ = Average Perceived Product Benefits

4.3 Multiple Linear Regressions

Table 4 shows an R value of 0.754, which mean 75.4% of the dependent variable (Consumers' perception) can be explained by all the independent variables (Global and economic factor, personal characteristics, perceived price, and perceived product benefits).

Table 4. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.754 ^a	.568	.559	.43040

a. Predictors: (Constant), Global and economic factor, personal characteristics, perceived price, perceived product benefits

Table 5 shows that global and economic factor have the most influencing power with the highest Beta value of 0.522, followed by personal characteristics (0.213) then perceived price (0.121) and lastly perceived product benefit has the lowest Beta value of 0.024 hence being the least important factor. The unstandardized coefficients from table 5 show the B value, which can be used to construct the Multiple Regression equation.

Consumers' Perception toward renewable energy = 0.298 + 0.553 (global and economic factors) + 0.213 (personal characteristics) + 0.121 (perceived price) + 0.03 (perceived product benefits)

Furthermore, the significant value from Table 5 can be used to determine whether the selected independent variables are the significant predictor for dependent variable. The table shows that global and economic factor (0.000), personal characteristics (0.000) and perceived price (0.021) are the significant predictors of consumer's perception because their significant level is less than 0.05.

Table 5. Coefficient

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.298	.254		1.174	.242
Global and economic factor	.553	.068	.522	8.165	.000
1 personal characteristics	.213	.060	.216	3.541	.000
perceived price	.121	.052	.126	2.328	.021
perceived product benefits	.030	.075	.024	.399	.690

a. Dependent Variable: Consumers' perception

5. DISCUSSION, CONCLUSION AND IMPLICATIONS

5.1 Summary of Statistical Analyses

From the total of 200 respondents, 90 (45%) of them are male while remaining 110 (55%) are female. There are 166 respondent aged between 21 and 30 (83%), 14 respondents aged between 31 and 40 (7%) and lastly 20 respondent aged between 41 and 50 (10%). Furthermore, the majority of the respondents are Chinese with a total number of 172 (86%), followed by 17 Indians (8.5%), 10 Malays (5%) and lastly 1 respondent whose race is other than those three races stated. Besides that, 127 respondents are students (63.5%), 53 respondents are employed with wages (26.5%), 19 respondents are self-employed (9.5%) and lastly 1 respondent is a homemaker (0.5%). The income of the respondents is divided into 108 respondents with incomes lower than RM1, 000 per month (54%), 30 respondents with monthly income between RM 2, 001 and RM 3, 000 (15%), 29 respondents with income between RM 1, 001 and RM 2, 000 monthly (14.5%), 16 respondents with monthly income between RM 3, 001 and RM 4, 000 (8%), 11 respondents with monthly income between RM 4, 001 and RM 5, 000 (5.5%) and lastly 6 respondents with monthly income higher than RM 5, 000 (3%).

5.2 Summary of Inferential Analyses

The strongest association is global and economic factor with the correlation value of 0.716 and the weakest association is perceived price with the value of 0.445. Consumer's personal characteristics has correlation value of 0.584 whereas perceived product benefits has a value of 0.492. All the independent variables have positive association with the dependent variable (>0). Referring to Table 4, R value is 0.754, which indicate that 75.4% of the dependent variable (Consumers' perception) can be explained by all the independent variables (Global and economic factor, personal characteristics, perceived price, and perceived product benefits). Furthermore, global and economic factor have the most influencing power with the highest Beta value of 0.522, followed by personal characteristics (0.213) then perceived price (0.121) and lastly perceived product benefit which has the lowest Beta value of 0.024 hence being the least important factor.

5.3 Hypothesis Testing

Table 6. Summary result of research hypothesis

Hypothesis	Beta	Significant level	Result
H1 There is a significant relationship between consumer's personal characteristics and consumers' perception toward renewable energy.	.216	.000	Supported
H2 There is a significant relationship between global and local economic factors and consumers' perception toward renewable energy.	.522	.000	Supported
H3 There is a significant relationship between perceived product price and consumers' perception toward renewable energy.	.126	.021	Supported
H4 There is a significant relationship between perceived products benefits and consumers' perception toward renewable energy.	.024	.690	Rejected

5.4 Discussions of Major Findings

5.4.1 Consumer's personal characteristics

The multiple regression analysis indicated that *there is a significant relationship between consumer's personal characteristics and consumers' perception toward renewable energy* as the value is 0.000, which is lower than $p < 0.05$. Therefore, H1 is supported. This result is in line with the studies done by Liligeto et al (2014) and Henry (2006), whom stated that consumers identify themselves with the product based on their individual personal characteristics as a way to fulfill or satisfy one-self where such desire to achieve a personal identification with a product is a universal need and consumers will look for ways to satisfy such need. In addition, Bhasin (2006) also stated that consumers are inherently concerned about their image and status in society which indicates that such a concern would also be transferable into their purchasing behavior in deciding what products they should consume to maintain a favorable image.

5.4.2 Global and local economic factors

The multiple regression analysis indicated that *there is a significant relationship between global and local economic factors and consumers' perception toward renewable energy* as the value is 0.000, which is lower than $p < 0.05$. Therefore, H2 is supported. The result is in line with several studies conducted by Dorota (2013), Nguyen and Gizaw, (2014) and Liligeto et al. (2014) which showed that income is a superior determinant of purchasing behavior as it affects the purchasing power of consumers which can change consumers' lifestyle as well as their attitude, as seen when changes in the global and local economic environment such as recession, inflation, or devaluation of the Malaysian Ringgit greatly influence consumers' income level and ultimately their purchasing power, and causes changes that would either hinder or enable consumers' to behave accordingly towards the usage of renewable energy.

It is important to note that global and local economic factors have the most influencing power on consumers' perception toward renewable energy with the highest Beta value of 0.522. This may be due to the recent economic condition in Malaysia which has been in recession for the past few years. Such fact may cause Malaysian citizens to be especially aware of the economy of Malaysia and the changes it may cause to their lives. In fact, it would not be surprising if global and economic factors is the major concern of Malaysian citizens when adopting renewable energy as this study aims to research a future where the entire Malaysia relies heavily on renewable energy sources for energy production.

5.4.3 Perceived product price

The multiple regression analysis indicated that *there is a significant relationship between perceived product price and consumers' perception toward renewable energy* as the value is 0.021, which is lower than $p < 0.05$. Therefore, H3 is supported. The concept of perceived price refers to what consumers are willing to sacrifice in exchange for the perceived value of the product and where such sacrifice can be understood as the cost absorbed by the consumers to adopt renewable energy such as installation and maintenance of renewable energy technologies, which plays an important role in a decision-making process (Hotel Energy Solutions, 2011; Zeithaml, 1988). This sacrifice is how consumers generally comprehend the value of using renewable energy and try to justify the reasons for having paid that cost, which proves the results of this study that perceive product price does have an effect on consumer's perception towards renewable energy products (Liligeto et al., 2014).

5.4.4 Perceived product benefit

The multiple regression analysis indicated that *there is no significant relationship between perceived products benefits and consumers' perception toward renewable energy* as the value is 0.690, which is higher than $p < 0.05$. Therefore, H4 is rejected. Previous studies have shown that when consumers evaluate products, they often search for diagnostic information on specific product benefits where such actions can be explained as the way a product assist the consumer in building a visible, unique and personal representation of himself or herself (Wu and Hsing, 2006; Meyvis and Jeniszewski, 2002). Liligeto et al. (2014) further prove this statement by indicating that consumers try to identify themselves with a product they use to construct their own desired self-image and this can be much easily achieve when they perceive that a product is beneficial to them.

However, the results of this study has shown that this may not be the case where perceived product benefits play an important role in affecting consumer's perception towards renewable energy. This means that the product benefits of renewable energy has insignificant effect in helping consumers in building a representation of their desired self-image. This may be due to the recent economic recessions in Malaysia which has caused Malaysians to be more affected by global and local economic factors instead of the perceived product benefits of renewable energy.

5.5 Implications of the Study

According to the analysis, global and local economic factors have the most influencing power on consumers' perception toward renewable energy. This means Malaysian consumers are more affected by economic conditions both local and global than their own personal characteristics, product benefits or product price towards renewable energy. Therefore, as long as Malaysian consumers view economic condition to be unfavorable, it can be deduced that they will not view adopting renewable energy in a positive light. The best time to promote renewable energy among Malaysian consumers would be when they have absolute confidence in the stability of global and local economic conditions. Furthermore, the analysis has indicated that perceived product benefits of renewable energy has an insignificant relationship with how Malaysian consumers perceived renewable energy. This implies that Malaysian consumers have little in common with the benefits of renewable energy in building their self-image. However, having insignificant relationship does not mean that perceived product benefits have no relationship with consumer's perception towards renewable energy at all. It only implies to energy-related corporations and the Malaysian government that they would need to find other benefits or features of renewable energy that may better help Malaysian consumers build a representation of themselves.

5.6 Limitation of Study

There were only four independent variables identified and tested in this research (Consumer's Personal Characteristics, Global and Local Economic Factors, Perceived Product Price, Perceived Product Benefits). It is highly possible that there are other factors that have a major impact on consumer's perception towards renewable energy among adults in Kuala Lumpur. For example, according to Liligeto et al. (2014), consumer's perception is not only affected by the variables identified in this research, but also product information and attributes as well as socio-cultural factors. These three factors there were not included in this research is a limitation of this research.

Besides that, the time given to complete this research was very limited and there were no financial funding to support this research. The scale of this research which aims to identify what Malaysian perceived about a future where all Malaysian households uses renewable energy is enormous. Given enough time and financial support to travel around Malaysia for the purpose of conducting more detailed research may produce better results. For example, under the right support, this research could include the perception of experts in the field of renewable energy or major energy corporations in Malaysia. Therefore, though there are several previous studies that research similar topics such as done in this research, time and financial constraints has affected the ability of this research to address the limitations of previous studies.

Last of all, the main respondents of this research are adults. This has caused the research to exclude other demographic segment of the Malaysian population. In order to obtain more refined results, it is advisable that future researches also include the perceptions of university students and elders to get a better understanding of what Malaysians perceive regarding renewable energy.

5.7 Recommendation and Conclusion

Firstly, there are many factors identified in previous studies that affect consumer perception. For example, Liligeto et al. (2014) stated in their study that product information and attributes such as product country of origin, product popularity and product company image influence consumer perception. Socio-cultural factors which were not included in this study were also stated by Liligeto et al. (2014) to influence consumer perception. Socio-cultural factors which include religious beliefs, values and norms can affect an individual's decision-making and behavior (Liligeto et al., 2014). Therefore, it is advised for future researches to expand scale of the research to include other factors that may have an effect on consumer's perception towards renewable energy. Secondly, this research aims to discover the perceptions of Malaysians towards renewable energy as the country slowly follows the world in a trend of changing energy consumption from fossil fuels to renewable energy. Therefore, the potential of this research is huge and future researches may request for financial aid from energy companies or sponsorships from government agencies to obtain more detailed data and improve upon the results of this research. Lastly, this research has only addressed the perceptions of adults in Kuala Lumpur. Future researches can use this research as a basis to find out about the perceptions of adults or other demographic groups in other parts of Malaysia or even better, the whole of Malaysia.

To conclude, out the four hypotheses developed, only one hypothesis (H4) which states "There is a significant relationship between perceived products benefits and consumer's perception toward renewable energy" was not supported by the results. The study shows that the independent variable with the greatest impact on consumer's perception towards renewable energy is global and local economic factors. The hypotheses of this study and their subsequent results were proven to be valid and reliable by previous studies. The results have also shown two managerial implications for energy-related corporations and the Malaysian government regarding how Malaysian citizens view renewable energy. Unfortunately, there are limitations in this study that should be attended to in future studies in order to produce new and better results.

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