Selangor Consumers Perception and Attitudes on Plastic Usage, Impact on the Environmental and Recycling

By

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Project Paper Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Business Administration Universiti Tun Abdul Razak

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DECLARATION

I hereby declare that the case study is based on my original work except for quotations and citations that have been duly acknowledged. I also declare it has not been previously or concurrently submitted for any other degree at Universiti Tun Abdul Razak (UNIRAZAK) or other institution.

Signature :

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Date :

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Abstract of the project paper submitted to the Senate of Universiti Tun Abdul Razak in partial fulfilment of the requirements for the Master of Business Administration.

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ABSTRACT

Malaysia Consumers specifically have been using normal plastic for a long time as they perceive it is flexible and cost-effective. The great majority of consumers use single-use plastic, and poor recycling results in environmental pollution. Furthermore, the use of plastic is disturbing in Malaysia; pollution has become one of the factors that impacting the environment, and consumers' perceptions and attitudes regarding plastic use have become a concern in recent years. The amount of plastic trash has increased significantly even in countries with relatively well-developed waste management systems. This study focused on consumers' perceptions and attitudes as well as the impact on environmental and recycling as a result of plastic usage in Selangor. The survey carried out via an online questionnaire which mainly focusing on Selangor consumers perception and attitude on plastic usage and impact on the environmental and recycling. The frequency table based on the outcome of the survey aids in identifying Selangor consumers on the impact of plastic. We can conclude that 80% of consumers have a favorable attitude and behaviors to reduce plastic waste. It's a good sign that we could make a difference in few years times by reducing plastic usage while simultaneously increasing recycling. Furthermore, this survey reveals that individuals in Selangor prefer to use biodegradable plastic because it is more easily disposable than regular plastic, implying that a plastic substitute is required, even if it is not banned anytime soon. The outcome of the research reflects the significant and insignificant of each variable and the impact towards the environmental sustainability. The environmental knowledge variable has strong relationship towards environmental impact hence it is considered as significant hypothesis. Consumers in Selangor may reduce their plastic usage as a result of their environmental awareness and understanding. However, each individual should take responsibility for educating and raising awareness so that each and every one is motivated to reduce their plastic usage rather than relying solely on government initiatives.

Keywords: Plastic; Recycle; Knowledge and Environmental impact

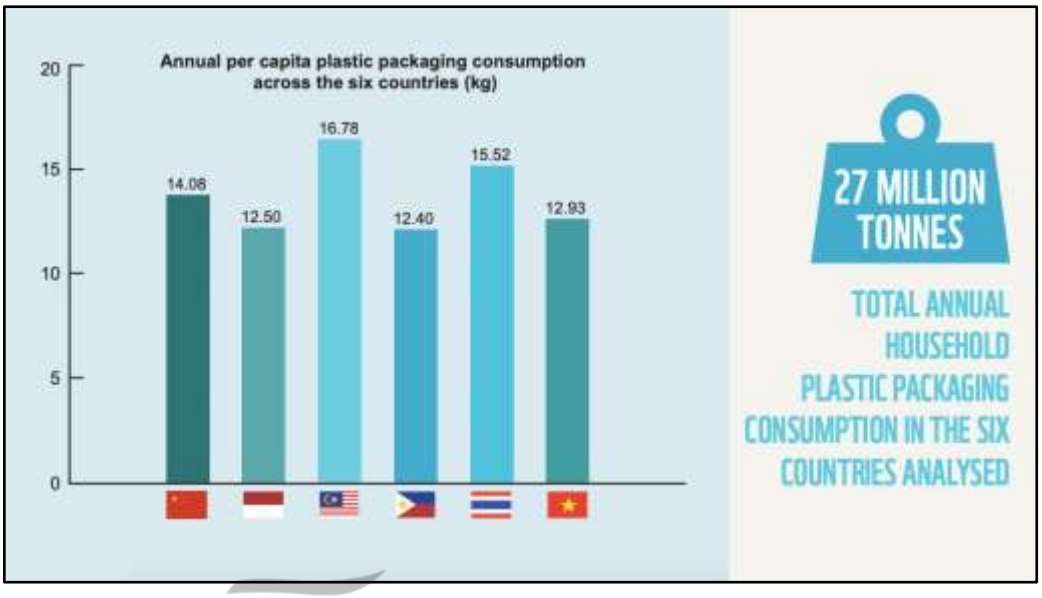
CHAPTER 1: INTRODUCTION

1.1 Background of study

Since 2000, the plastic manufacturing business has experienced one of the fastest growth rates of any industry. Malaysia has one of the world's major plastic manufacturing businesses, with over 1,300 plastic firms, and resins worth 30 billion (MYR) were shipped to plastic companies across the world in 2016. The Subjective norms, in which people adopt the behaviour and attitude of those around them, have a greater impact on the environment. Despite being aware of the negative effects and consequences of plastic use, some consumers remain hesitant and continue to use it. It has become a chain, with the habit spreading throughout Malaysian society. Plastic bags and other types of plastics have become a concern due to improper disposal or poor recycling among consumer.

The Malaysian government is closely monitoring illegal plastic operations. The government has decided to close 218 factories between 2019 and 2020 due to illegal plastic recycling. The government also works with international countries to reduce illegal plastic garbage, but the public's attitude is concerning; they not only use it in their daily lives, but it is also one of the highest manufacturing businesses in Malaysia. Despite widespread awareness of plastic, recycling, and other initiatives, the government is still unable to reduce plastic usage and ensure a high number of people recycle plastic. Indeed, there is a lack of recycling, so we need to figure out the major causes that prevent people from recycling. It is difficult to change people's opinions and attitudes, but self-awareness is critical since it has a substantial impact on the environment and human health. Due to internal and external constraints, the government will not be able to ban plastic immediately. Nonetheless, strong action should be taken to boost the recycling process and reduce the use of plastic by gradually developing alternative solutions.

Table 1:Annual per capital of plastic consumption



1.2 Problem statement

Plastics cannot be removed completely from the environment when disposed of in landfills, which is a major concern in the solid waste management cycle. Plastics, also known micro-plastics, take hundreds to thousands of years to degrade into microscopic plastic particles (i.e., plastics that are smaller than 5 mm in length) As a result, plastics will build up on Earth, reducing landfill space while also contributing to a nearly irreversible degradation of the natural ecosystem. Current landfills are nearing capacity due to rapidly expanding population and its effects for consumption patterns. Land scarcity and associated environmental problems limit the number of additional waste sites that can be identified. South East Asia recorded for the highest global plastic consumption and an average Malaysian in general, unfortunately we still not fully aware that the country has one of the highest per capital plastic consumption globally. Government of Malaysia under MESTECC & KPKT, is vigorously driving the message across. Corporations such as Nestle has already started raising the bar for corporate sustainability.

According to Sian, in 2020 the State collected over RM6.6 million, whereas for this year until June it had collected over RM2.5 million, he reiterated that if the collection rate increases every year, it would mean that they have failed to increase social awareness on the usage of plastic. Hema S. Mahadevan, a public engagement campaigner with Greenpeace Malaysia, said the Selangor government's initiated plastic ban, the objective of the initiative is to reduce

the use of plastic bags and straws, there are positive outcome among consumer however the compliance was poor due to a lack of enforcement. While public awareness of plastic waste, particularly imported plastic, has grown, she claims that this seems to have little impact on personal habits.

1.3 Research Objective

The goal of this study is to learn and examine Selangor consumers' perceptions and attitudes regarding the environment and recycling as a result of plastic use. There have been numerous initiatives and programme undertaken by the government and other private organization, but there have been no substantial behavioural changes to limit the use of plastic. The environmental impacts that we may encounter due to plastic usage are land pollution, where soil becomes less productive if the plastic disposal is not done properly, and it may take more than 100 to 1000 years to break into tiny pieces, which slowly release toxic chemicals that gradually absorb the nutrients of the land. Secondly, plastic is harmful to marine life. Animals such as sea turtles, seabirds, and other marine mammals consume plastic that is exposed in the ocean and to some extent, get entangled in it. Thirdly, air pollution due to plastic usage due to incineration of plastic waste in open space is capable of releasing toxic gases such as mercury, polychlorinated and dioxins, which are harmful to the environment. The researchers stated that the incineration of plastic may increase more than 850 million tonnes of greenhouse gases into the atmosphere and that by 2050 it could reach approximately 2.8 billion tonnes. The study focused on Selangor consumers' perceptions and attitudes around plastic usage, environmental issues, and recycling by taking into account these three major environmental issues.

The independent and dependent variables are fundamental conceptual model used to create a survey questionary that covers the following objective;

I. To examine the variable of subjective norms and how consumer behaviour affects the environment

II. To gain a better understanding of consumer perceptions of plastic and recycling, as well as how this affects the environment in the long run.

III. To examine how consumer daily routines influence perceived behaviour control and how this influences environmental effect.

IV. To determine the extent to which customers are aware of environmental issues and how this knowledge might contribute to environmental sustainability.

1.4 Research Question

The research question is based on four variable that has strong relationship with the selected topic, there are 5 questions for each variable and most of the question is obtained from previous literature review that related to plastic usage.

1) The first variable is subjective norms, which it's associated with the behaviour and influences that contribute to the use of plastic. Subjective norms pertain to people's perceptions or opinions, and they are primarily concerned with whether the majority of people approve or disapprove of a particular behaviour. This variable has a high link with environmental impact; it could also be used to better understand Selangor consumers' present attitudes regarding plastic and predict how these attitudes relate to environmental damage.

2) The second variable is plastic and recycle knowledge; the questionnaire based on this variable is about Selangor consumers' level of awareness about plastic and recycling. There have been multiple researches concentrating on consumer attitudes towards reducing the adverse effects of plastic, including recycling; a similar question can be applied to quantify and evaluate Malaysian consumers in this study.

3) Perceived behavioural control is the third variable, it corresponds to people's perceptions of their capacity to accomplish a specific behaviour. People prefer to follow simple and easy processes. Recycling involves a few steps in which people must sacrifice time and knowledge to complete the process. The question related to perceived behavioural control variable will identify the consumer tolerance level and adaptation to the recycling process.

4) The fourth variable is environmental knowledge; the question established to determine the level of information that consumers have about the environment as a result of use of plastic. According to a previous literature review, the researcher discovered that behaviour and knowledge are unrelated to some extent; that is, consumers may be aware of the environmental impact of plastic, but still continue to use it because it is convenient.

5) Impact on environment variable: Consumer perception and attitude have a substantial impact on the environment; therefore, the variable focuses on how consumers understand the impact on the environment and whether they are exploring or executing any activity as part of environmental sustainability.

1.5 Significant of Study

In Malaysia, significant research on the use of plastic and its influence on the environment have been done. however, we are still unable to diminish the use of plastic among consumers. The major objectives of this paper are to understand the present perception and attitude of consumers related to plastic usage. Although there are initiatives and various programme implemented by government and private organization to reduce plastic usage while simultaneously raising awareness about the impact on the environment, consumers continue to use plastic whenever possible, with some outlets, shopping complexes, and grocery stores providing plastic to customers as well. Consumers have a plethora of choices for obtaining plastic, and it has also grown widespread.

The study is necessary to comprehend customer perceptions and attitudes toward recycling and the environment. Recycling is one of the methods for reducing plastic usage, however consumer awareness and understanding of recycling is inadequate. As a result, this study will assist to understand why recycling is not given as much attention as it should be. Nonetheless, there is a lack of research concentrating on consumer perceptions and attitudes concerning affordable plastic usage, recycling, and the environment. The goal of this study is to identify and connect the dots in our understanding of the issues involved with plastic consumption. This study adds to our knowledge of consumer behavior in the area of plastic usage.

1.6 The Organization of the study

The research paper covered the primary three chapters from the research methodology module, which defined the process, how research should be conducted, and what are the elements that we should consider before writing a research proposal. Below is the brief description about chapter;

Chapter 1: Introduction

Chapter 1 focusing on the brief explanation about the topic of plastic usage: perception and attitude of the consumers towards recycling and environmental and what are the challenges and impact that arise due to the usage of plastic. The research also focused on problem statement, research objective, research questioner and significant of the study. A research methodology refers to the theoretical analysis with the methods that are appropriate for the field of study and formulating the methods and principles for branching the knowledge. It involves specific techniques that are used for adopting the research process (Mackey & Gass, 2015).

Chapter 2: Literature review

Chapter 2 covered empirical research, to support our current research we are required to go through the previous literature review and find the gap and problem based on the topic selected. The literature review helps to obtain relevant information, data, idea and evident to prepare the conceptual frame work from stretch. The literature review was mainly focused on the perception and attitude of the Malaysian consumer towards recycling and environment due to plastic usage. Furthermore, literature review is required to identify each variable and label it correctly.

Once we obtained the variable, subsequently, we need to state the relationship among the variable. This topic narrow down all the variable such as independent, dependant and moderator which contribute to formulate the hypothesis. Finally, our hypothesis should be able to explain on how and why we expect all these variables drive the relationship one and another.

Chapter 3: Research design

The research design mainly creates to measure the variable and hypothesis according to the conceptual framework, as well as provide evidence in the form of data, sample, and population to support the accuracy of the data. The study population, sampling strategy, and data collection methods should be considered in the research design as it will provide the clear vision about the research plan. In addition, a set of survey questionnaires will be assessed based on all of the data acquired and, as a result, factual research will be produced. Research approached and designing theories are known to be separate factors, however, they are somehow related to get a good research design as well. It helps to identify the related data that can help to answer the research question more effectively. A research design depends on the production of the research goal (Hammersley, 2016). It is necessary for collecting and gathering data from various sources and techniques, and it appears to be varied in terms of quality and quantity.

Chapter 4: Result and Discussion

The complete analysis performed based on the survey is covered in Chapter 4. Data extraction from structural equation modelling was used to analyse field survey data and summaries the research findings. Various datasets were extracted using SPSS software. In order to assess the reliability and results of the respondents based on each survey question, it was integrated with the frequency of the analysis, which demonstrated the percentage of the respondents based on the scale. The main data analysis techniques used

in this study, such as multiple regression analysis, clearly explain using R-squared, P-value, and Beta Weight Value data. These statistics showed the relative importance of each variable and their overall influence on the study's conclusion.

Chapter 5: Discussion and Conclusion

The final chapter covers the overall findings based on previous literature reviews, empirical studies, and the outcome of the survey. The end result of the explanation of this study is mainly focused on how all this material or research contributes to the significant or insignificant outcome of the conceptual model and hypothesis developed. This research also clearly articulated the limitations of the research and the direction of future research that helps to entail different factors and aspects that need to be considered and explored in order to come up with research that has a strong impact on society and the country as this topic is indeed a global issue.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The literature review related to the topic of research helps to identify the variable and hypothesis which strongly support in term of research study.A critical literature reviews helps in providing the knowledge throughout the study and providing the rigor in following the specific methodology (Meijer & Bolívar, 2016).There are many various forms of literature reviews that can be utilized in a research project, but the most common in business studies is empirical research.This research focusing on plastic usage: Selangor consumers perception and attitude towards environmental and recycling. Variables such as subjective forms, plastic and recycle knowledge, recycling, environmental awareness, and social responsibility were mostly obtained from prior research reviews. The literature review reveals how to build a link based on these variables and, in the end, aids in the conclusion of the hypothesis. To confirm that the study is legitimate, we must ensure that the variable and hypothesis are in line with the research topic's purpose and the questionnaires used in the survey.

In recognition of mounting plastic pollution problem in the country, in 2018, the Malaysian Government has released the Malaysia's Roadmap to Zero Single-Use Plastics 2018–2030 (Table 1). Several other countries including New Zealand, India, Taiwan and the European Union have introduced similar measures to address plastic pollution. For example, the New Zealand government has banned new single-use plastic bags since 2019. In Thailand, single-use plastic has been banned in major stores beginning 2020 and a complete ban will be implemented in 2021.

Table 2: Summary of the different phases of the Malaysia Roadmap

Table 1	
Summary of the different phases of the Malaysia's Roadmap to Zero Single-Use Plastics 2018–2030	
Phases	**Key actions**
1 (2018–2021)	2018
	Launch of Roadmap towards Zero Single-Use Plastics
	2019
	"No straw by default" practice
	Encouragement of using food containers by customers
	Pollution charge at RM0.20 for plastic bags
	Review of existing legal framework on single-use plastics
	2020
	Launch of a Circular Economy Roadmap (CER) for plastics
	2021
	Technical workshop for the implementation of CER
2 (2022–2025)	2022
	Extension of "No straw by default" practice to non-fixed premises
	Implementation of CER
	Extension of minimum pollution charge on plastics bag to non-fixed premises by 2025
	2023
	Imposition of pollution levy to manufacturers of plastic bags
	R&D funding on eco-friendly products
	Implementation of a regional marine debris project
	Introduction of legal framework on single-use plastics
	Publication of the mid-term review of the Roadmap
3 (2026–2030)	Expansion scope of compostable and biodegradable products
	Publication of the implementation report of the Roadmap
	R&D funding on eco-friendly products

Figure 1:Single-use plastic packaging (left image) and reusable packaging options (right image)

2.2 Prior Empirical studies

A previous literature analysis identified a number of factors that can influence customer perceptions towards plastic usage. Not only Malaysia, but many other countries still practising usage of plastic. There are 10 countries such as China, United States, Germany, Brazil, Japan, Pakistan, Nigeria, Russia, Turkey and Egypt with the most plastic pollution.

According to the number of the literature research, one of the primary causes that lead to the active use of plastic in Malaysia is consumer behaviour. Subjective norms become common that influence each and another to use plastic, and it eventually becomes a consumer habit. The majority of the literature reviews focus on the impact and consequences of plastic use, furthermore the researcher has already highlighted the significant impact to the environment in long run and the only viable options are to outlaw plastic use or to actively recycle it. However, drastically reduce the plastic use requires commitment and high cooperation from all parties involved, including the government, private organization, multinational corporations, and consumers themselves.

The key factors that contribute to the environmental impact is a lack of recycling. Because of a lack of understanding or limitations, customers may fail to recycle their plastic usage, which it could harm the environment in the long term. Previous literature reviews also revealed that plastic usage will continue for the time being and will remain a part of consumers' lives. It is challenging to ensure that everyone plays a consistent role in increasing the recycling process, improving the habit, and emphasize the importance of sustainability unless the government comes up with an alternative way to ensure Malaysian citizens increase the recycling process through incentives and schemes.

According to D'Souza, Taghian & Lamb (2006), Environmental knowledge has 2 types: (i) consumers need to be educated to understand the products' impact on the environment, and (ii) consumers knowledge about

how products were produced in an eco – friendly way. With an attempt to understand clearly about environmentally friendly behavior, Maloney and Ward (1973) showed the importance in measuring consumers' environmental knowledge. A variety of articles have shown that there is a significant relationship between Environmental knowledge and environmentally friendly behavioral intention (Kim and Chung 2011, Aman 2012).

The purpose of this study to understand how societal norms influence consumer behaviour when it comes to avoiding single-use plastics. By better understanding this relationship, behaviour change practitioners and policymakers can create more effective interventions in the future to encourage people to avoid using single-use plastics.

2.3 Theoretical foundation

Deep dive past empirical research to determine the common elements that influence consumer perceptions and attitudes about the environment and recycling as a result of plastic use. Most theories have similar aspects that can be linked to behaviour and knowledge levels in order to achieve the end result. However, we need to access Selangor consumers in terms of current behaviour and knowledge because a lot of programmes, awareness, and the impact of the environment are more visible, thus, we may have a clearer picture to perform further analysis in order to arrive at the final result.

The variables or concepts listed below have a strong association with overall environmental impact.

1. **Subjective norms**
2. **Plastic and recycle knowledge**
3. **Perceived behavioural control**
4. **Environmental knowledge**

2.3.1 Subjective norms (Independent variable)

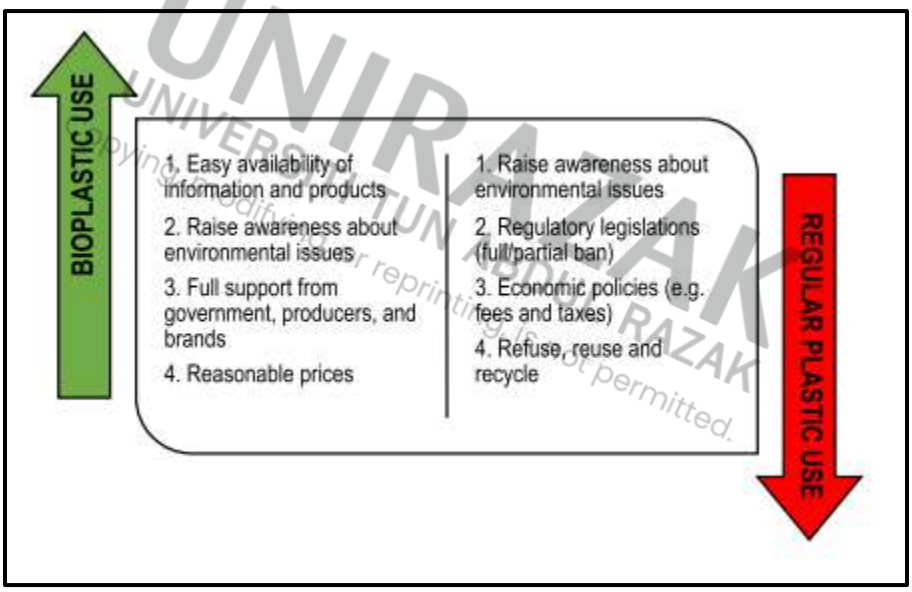
The subjective norms consider as independent variable. The main factor of perception and attitude of Selangor consumer about the environment and recycling drive from subjective norms which means, the consumer have impact or influence from the behaviour of people around them and it also evidence to transform as habit for long run. For example; usage of plastic is common among people around us hence influence one and another to use plastic become common in consumer daily life. According to the literature study, Consumers who have good subjective norms for particular behaviours that occur around them will have positive behavioural intentions. The intention utilize has a favourable correlation with subjective norm. As a result, the effect of subjective norm on intention in gauging usage behaviour is significant. The focus

of this variable is to understand clearly how it associate with the Selangor consumers perception and attitude towards environmental and recycling due to plastic usage.

2.3.2 Plastic and recycling knowledge (Independent variable)

The primary reasons why Malaysians use plastic are because it is cheaper, easier, and more flexible. Plastic use has become so common that there is a lack of self-assurance that it is harmful to human health and the environment. The government has already begun to reinforce and raise awareness about the negative effects of plastic usage. Several studies stated that there is increasing awareness among consumers about consuming plastic made of bio-based plastic materials. This is because the usage of plastic made from bio-based materials can bring a lot of benefits to our environment rather than using plastic packages produced from fossil-based resources that have resulted in a large carbon footprint. The use of bio-plastics for plastic packaging has increased by 20-25% per year. This shows that bio-based materials are increasingly seen as a better solution to fossil-based materials since bio-based materials are biodegradable.

Figure 2:Bio-plastic Use versus regular plastic use



Although the total recycling rate in Malaysia has been increasing yearly, the rate is still quite low compared to other developed countries at 28% **(Figure 3)**, where a recycling rate of 30% is targeted to be achieved by 2020[25]. It is worth noting that based on **(Figure 4)**, the recycling rate of plastic is less than half of the total recycling rate for all the years selected. Unless there is an increased awareness of the problems around plastic waste and the importance of "reuse, reduce and recycle", it will be difficult to lessen our waste and achieve a satisfactory recycling rate.

Figure 3

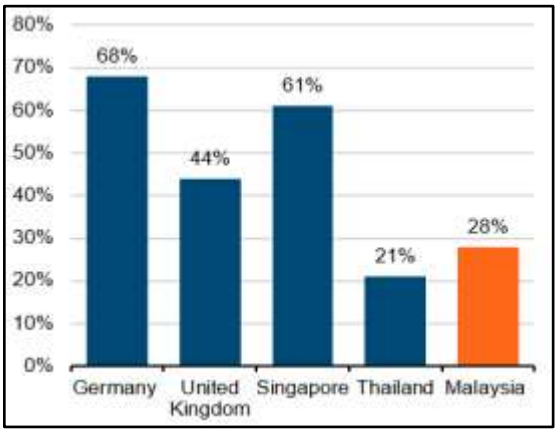
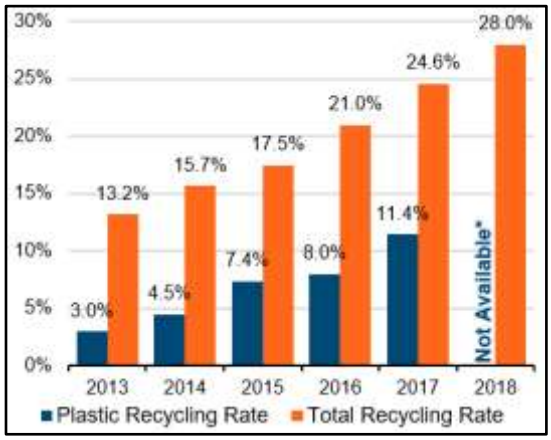


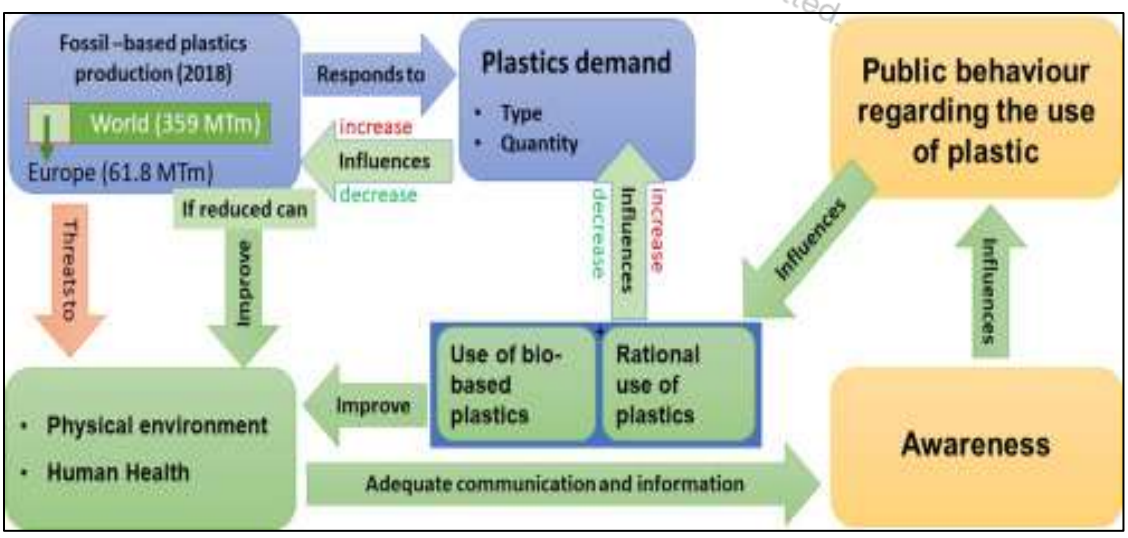
Figure 4



2.3.3 Perceived behavioural control (Independent variable)

Perceived behavioral control is a person's confidence that can regulate self-internal condition and action, stimulate and react to the given situation, and achieve the desired outcome (Wallston et al. 1987). Mamun, Mohiuddin, Ahmad, Thurasamy, and Fazal (2018) studied the determinants of recycle intention and behavior among low salary family. The findings revealed that there is a positive relationship between perceived behavioural control and intention on recycling behavior. Latip, Sharkawi, Sharifuddin, and Mohamed (2018) investigated the impact of attitude, subjective norm and perceived behavioural control toward the intention to comply the practices of environmental management and concluded that intense perceived behavioral control will have higher intention to comply practices of environmental management.

Figure 5: Impact of usage of normal plastic and Bio- based plastic



2.3.4 Environmental Knowledge (Independent variable)

Environmental problems related to plastic waste have become a major problem in Malaysia where it has been ranked as 8th among the top ten countries with mismanaged plastic waste in the world (Balasegaram, 2018). Single-use plastic bags have been drawing an increasing attention of the public. According to the Malaysian Plastic Manufacturers Association, each Malaysian use about 300 single-use plastic bags a year. Indeed, plastic is one of the materials that has a significant environmental impact; when it comes to environmental knowledge, single-use plastic is a key worry. Another element to consider is the use of plastic and its disposal, particularly near the ocean or sea. People with environmental awareness may not discard plastic waste into the ocean or sea, but attitudes and behaviour are another issue. For example, individuals are well aware of the impact, but because they have no way to dispose of the plastic waste, they look for quick fixes. As a result, we need to understand how knowledge and attitude interact when it comes to handling individual behaviour.

2.3.5 Consumer perception and attitude towards environment and recycling (Mediator)

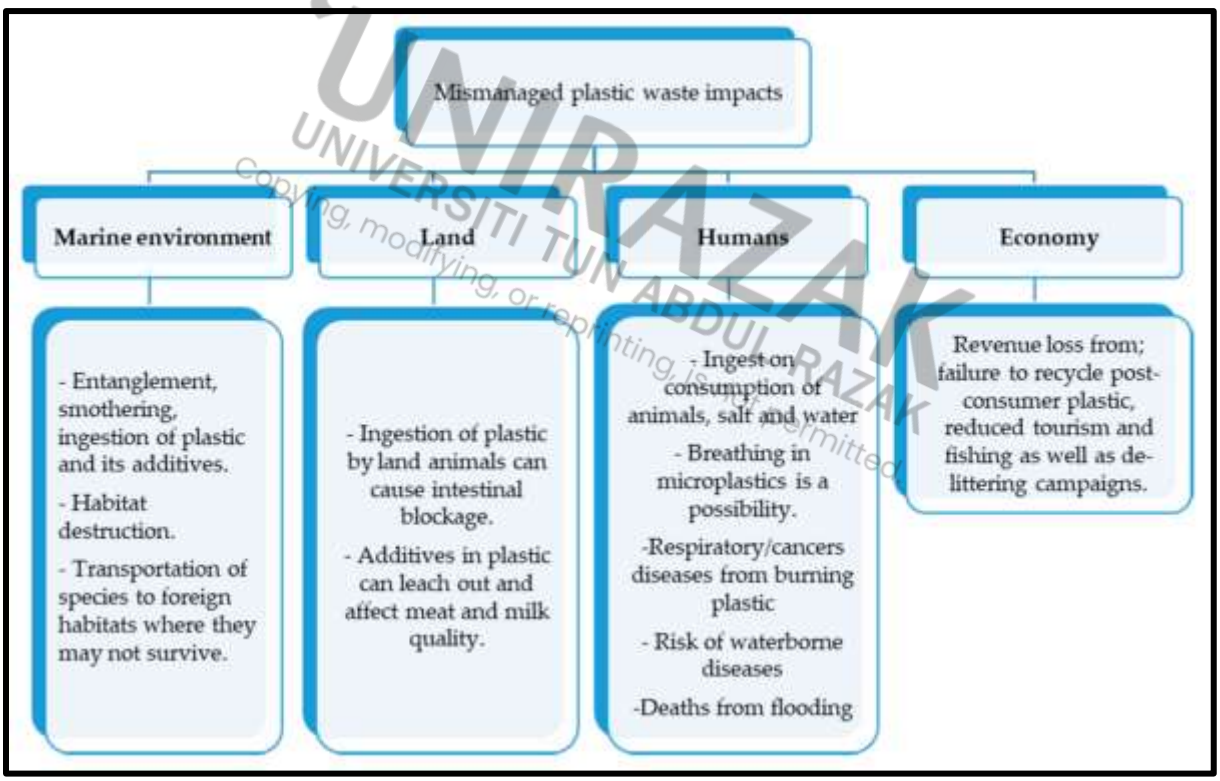
The consumer's perception and attitude toward the environment and recycling is a key factor in determining whether it can be translated into action, in which the consumer's behaviour toward plastic usage is linked to the way they think or understand about the environment around and how, in the end, it impacts the environmental. Furthermore, there are consumers who perceive that the recycling process is complex or time-consuming, particularly when it comes to segregation of materials such as plastic, glasses, and paper. Consistent recycling definitely will help in term of sustainability however consumer attitude towards recycling is questionable especially at their home. We need to understand if Selangor consumers consistently recycle the plastic and they buy things or products that consist of plastic which can be recycled in the future. Because single-use plastic cannot be recycled, we must determine whether consumers will continue to use it or will seek out other options. Between the moment the independent factors begin to influence the dependent variable and the time their impact is perceived on it, the mediator occurs.

Considering recycling is a continuous process, consumers should be knowledgeable about how to carry it out. Furthermore, knowledge alone is not sufficient, effort and attitude are equally important. There are many ways to recycle, for example, a customer can drop off all of their plastic bottles at a recycling counter and receive payment. Of course, to gain certain information about recycle is important, but so is the effort and attitude to explore and execute recycling on a regular basis which can have positive impact and also potential to influence other to follow the footsteps.

2.3.6 Impact on environmental (Dependant variable)

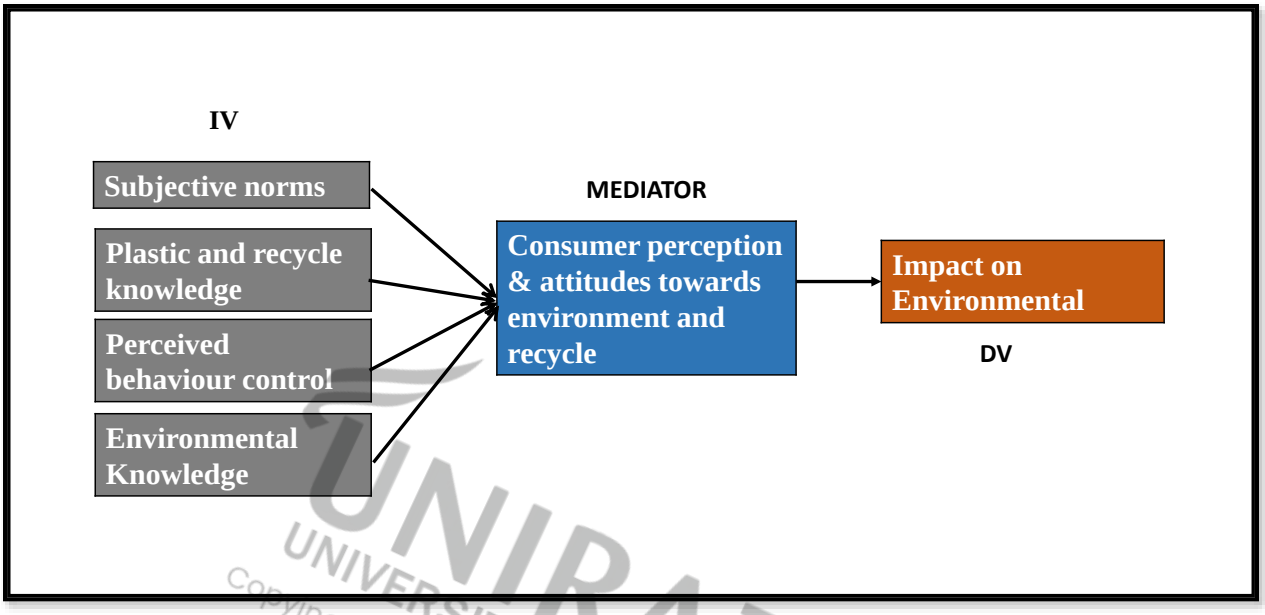
Subjective norms, plastic and recycling awareness, perceived behaviour control, and environmental knowledge all have a correlation to environmental impact. Consumer behaviour and knowledge are two factors that influence how customers focus on environmental sustainability. If a consumer has a positive perception and attitude toward the environment and recycling, this may transform into behaviour, and as a result, the level of knowledge about plastic, recycling, and the environment will rise. The impact on the environment is caused not only by natural causes, but also by people's attitudes and behaviours could be a lack of awareness or their own reluctance to perform certain activities that could help in terms of the sustainability of the environment. Recycling, for example, can help with sustainability if people practise positive behaviour and have adequate knowledge.

Figure 6:Mismanaged plastic waste impacts.



Conceptual model of factors influences Selangor consumers' perception and attitudes on plastic usage, impact on the environmental and recycling.

Figure 7 : Conceptual model



2.4 Hypothesis

Hypothesis is a prediction or statement made by a researcher based on his or her own facts or experience currently accessible in forecasting the final result of a study. The researcher is convinced that all of the variables gathered from prior research aid in the development of the hypothesis. For this research, five hypotheses have been formulated as per below;

i. H1: **Subjective norms on plastic usage has positive impact on consumer perception and attitude towards the environment and recycling. Thus, it has a positive impact on the environmental.**

The subjective norm refers to the perceived behavioural expectation from society, friend, parents, and the environment which influence an individual that change their belief and behaviour intention, (Fishbein & Ajzen, 1975). For instance, most of the Malaysian doesn't have practices of bringing their own environmental bag for shopping, however, the Penang citizen behaviour started to change after Penang government implement the plastic bag banned event. Furthermore, subjective norms in developing countries such as Singapore, Thailand, Vietnam and Malaysia have the strong ability to affect individual's

behaviour. If Malaysians seek for alternate ways to replace plastic or actively recycle, it may establish a precedent for other consumers, resulting in a positive influence on the environment.

ii. H2. Plastic and recycling knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

Plastic is cheaper an easily available but it is not easily disposable unless consumer recycle the plastic. The knowledge of plastic and recycle is essential towards environmental. If consumer aware the impact in long run they may find alternative to substitute the plastic or actively performing recycling. Sufficient Knowledge of plastic could raise consumer awareness in Selangor, encouraging them to understand the impact and transition to biodegradable, paper, cloth, and other alternatives, all of which have a great impact on the environment. Thus, Hypothesis two is developed; Plastic and recycling knowledge has positive impact on the environmental.

iii. Perceived Behavioural Control has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

According to the surveys, there is an increase in plastic waste recycling process among young customers. However, the lack of information regarding plastic waste recycling programme, facilities, procedures, and so on from local governments may limit the impact of behavioural control on the plastic waste recycling goal. Furthermore, when customers are satisfied with their local plastic waste recycling infrastructure and services, individuals' motivation to recycle plastic garbage may be influenced by their perception of behavioural control. The study also found that insufficient trash recycling facilities result in a limited behavioural control impact. As a result, the drop in household contribution to garbage recycling operations would be impacted**.**

iv. Environmental knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

Consumers with a wise understanding of the environment act rationally in favour of environmental sustainability, as evidenced by their perceptions and attitudes. Consumers also act on their positive perceptions and attitudes because they are aware of the negative consequences of certain actions that are detrimental to environmental sustainability. Even though an activity is simple and quick, the information they possess may control or prevent them from performing it. Taking into account all of these factors, the following hypothesis was developed; Environmental knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

VI. Consumers positive perception and attitude towards environment and recycling has positive impact on the environmental.

Allport (1935) defined attitude as: "A mental and neural state of readiness, which exerts a directing, influence upon the individual's response to all objects and situations with which it is related". According to Schultz and Zelezny (2000), "attitudes of environmental concern are rooted in a person's concept of self and the degree to which an individual perceives him or herself to be an integral part of the natural environment". In conclusion, attitude represents what consumers like and dislike (Blackwell et al., 2006) and consumers' product purchasing decisions are often based on their environmental attitudes (Irland, 1993; Schwepker and Cornwell, 1991). Consumer knowledge, value, attitude, and behaviour are critical for ecological sustainability. All of these factors contribute to the long-term viability of the environment. Consumers' attitudes are the most essential aspect in determining their desire to engage in specific activities, such as recycling consistently and reducing single-use plastics by substituting other eco - friendly materials.

2.5 Summary of Chapter 2

Literature review is imperative to examine and obtain a necessary information in order to support the current research. The goal of evaluating previous research is to learn how the researcher acquired all of the evidence and data to develop the variable and hypothesis, as well as how they accessed and analysis the data to support their study. We must read through as much as literature review in order to develop the variable and hypothesis. This will give us insight into how previous researchers accomplished their end-to-end research and how we can use that as a guide to create our own thorough research. The previous research is not a one-size-fits-all model or concept since it may be limited or difficult to incorporate some data, information, or analysis to complete the end-to-end research. We can use previous research in our studies, but we should always focus on how the literature reviews explained about the problem statement and how they have applied their knowledge in order to produce the best version of the research.

In addition, to support this research, I have referred to nearly forty literature reviews. The theory foundation is a strategy that has been used in the past to examine a topic's problem by developing variables and hypotheses that are related to one another, and because it is based on a solid concept, it may be used to interpret, critique, analyse, and establish. Before mapping as a conceptual framework, the theory framework is an early model that highlights the relationship with the problem statement. It also indicates the aspects and causes that create all of the variables. The theory framework is essential for analysing the differences and similarities between the current research. We should be able to argue or explain the relationship's link and how it creating the impact once conceptual framework developed. The study hypothesis is utilized to establish a link between the value of various sponsorship divisions and the aims that support the usage of various sponsorship divisions in measuring tools.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Research methodology refers to the techniques or tactics used to collect, select, process, and analyse information about a topic. A research article's methodology section allows the reader to objectively evaluate the study's overall validity and dependability. In the methodology section, two important questions are addressed: What methods were used to collect or create the data? What strategy did you take to investigate it?

I. First and foremost, the approach should be the most suited for achieving the study objectives.

II. Secondly, the methodology utilized in previous similar studies should be replicate.

3.2 Research Design

3.2.1 Quantitative Analysis

In research technique, there are four basic types of research strategies: case study, qualitative interviews, quantitative survey, and action-oriented research. I have selected quantitative analysis for this research methodology as it allowing the access to get the higher numbers of participants. The use of the conditions easy and developing a meaningful questionnaire that can allow the answering of the research questions which is difficult. The questionnaires need to get the appeal to the respondents which are sometimes difficult to understand (Caillaud, Rose, & Goepp, 2016). The researchers need to measure the accurate issue using the analysis. In this situation, the quantitative analysis will emphasis on the research objective and questionnaires, while taking into account the variables and hypotheses obtained the previous literature review. The quantitative study will assist in examining the relationship between each variable and the environmental impact, such as subjective norms, plastic and recycle knowledge, perceived behavioural control variable, and environment knowledge. Factual data is critical in research methodology since it will support the research purpose and provide evidence to justify our research's final outcome. The end design should include important data as well as the major takeaways and lessons learned from the quantitative analysis.

3.2.2 Exploratory Analysis

The goal of this study is to determine how behaviour, plastic knowledge, recycling knowledge, and environmental knowledge are linked to environmental impact. There have been numerous literature reviews conducted on the use of plastic; several countries, including China, India, Germany, the Uk, Indonesia, Malaysia, and others, use plastic in their daily lives. Malaysia is also extensively involved in the plastic manufacturing industry. This study contributes to a better understanding of the public opinion and attitude toward the environment and recycling as a result of plastic usage. The study aids in understanding of Selangor consumer behaviour and how knowledge of recycling and the environment are linked to one another, or simply it's consumer behaviour that has resulted in an increase in plastic usage among Selangor despite sufficient knowledge they have about the recycling and environment.

3.3 Study Population and Sampling Procedures

The research is focusing on Selangor area only as we have limited time to cover Malaysian consumers in broad perspective. Selangor is a state in Malaysia with a population of 6.5 million population and with a lot of giant industries. There are a lot of working people move to Selangor as it is convenient to travel to their working place, and it is also one of the state's closest to Kuala Lumpur. Selangor has Malaysia's largest economy in terms of gross domestic product (GDP), with RM 239.968 billion (approximately $55.5 billion) in 2015 and the population is approximately 6. 56million.It is Malaysia's most developed state, with well-built infrastructure such as highways and transportation, as well as the country's largest population, highest standard of living, and lowest poverty rate. The sample size is based on Taro Yamane table as per below;

Table 3:Study Population and Sampling Procedures table

Table 2. Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P=.5.				
Size of	Sample Size (n) for Precision (E) of:			
Population	±3%	±5%	±7%	±10%
>100,000	**1,111**	**400**	**204**	**100**
a = Assumption of normal population is poor (Yamane, 1967). The entire population should be sampled.				

As there are more than >100,000 people of population, where confidence level is 95% and plus/minus 10% with minimum 100 sample size.

The sample question primarily focused on essential components related to plastic, recycling, and environmental knowledge, as well as perceptions and attitudes regarding these elements, in order to determine Selangor consumers' current behaviour. We will test the question to guarantee that it is of high

quality and, at the same time, it is simple to grasp and answer without exploitation too much of the respondent's time.

3.4 Data Collection Method

The questionnaire method is the most useful method of data collection in research methodology, which is used for comprising on the set of questions that are related to the research problems as well. The method is used as the convenient methods in case of collecting the data from using the information of the diverse population. It is mainly used within the printed set of questions that are either open-ended or closed-ended as well (Johnston, 2017). The respondents are seemed in requiring and answering on the basis of the understanding and beliefs with providing the related issues.

A self-completion questionnaire with closed-ended questions is formulated for this study. Self-completion questionnaires are quite comparable to business research in that the research instrument must be very straightforward to use, and its questions must be very simple to answer (Bryman & Bell, 2003). The closed ended question with 5 Point likert scale, in which people have options to select their answer from;5-point scale (1–strongly agree, 2–agree, 3-neutral, 4-disagree, 5-strongly disagree). For each variable, there are six questions. One mediator, four independent variables, and one dependent variable There are a total of 36 questions, all of which are straightforward and common questions that people encounter in their daily lives.

Below are the data collection method;

Communication via email: The question will be prepared using Google Meet. If the respondent does not have access to another method of contact, the question will be attached to an email and sent to them.

Social media: Prior of the questionnaire being shared on social media, the responded will be notified that their assistance in answering the question is required. The respondents will be given stipulated of time to thoroughly and honestly answer the question. The question will be shared to the respondent via Facebook, Instagram, and other social media platforms.

SMS and WhatsApp: Prior of the questionnaire being shared by SMS and WhatsApp, the respondent will be notified that their assistance in answering the question is required. The respondents will be given stipulated of time to thoroughly and honestly answer the question. The question will be shared to the respondent via **SMS** and **WhatsApp.**

3.5 Variable and Measurement

In order to assess the suitability of the statistical procedures used and, as a result, the validity of the results drawn. To put it another way, the researcher could not advise if the results of current research study are reliable until the researcher know what variables or measures were utilized to collect the data. Thus, each variable and measurement is imperative for data collection. There are numerous empirical researches to come up with the questionnaire of survey. All questions were assessed using five-point Likert-type answer scales, with five (5) indicating strongly agree and one (1) indicating strongly disagree. Rensis established the Likert scale, which has been utilized by a large number of researchers for over two decades, mostly in survey research (Edmondson, 2005). According to Neuman (2000), the benefit of utilizing the Likert scale is that it is simple and easy to use.

3.5.1 Independent Variable

The independent variables of the research are:

1. **Subjective norms**
2. **Plastic and recycle knowledge**
3. **Perceived behavioural control**
4. **Environmental knowledge**

The following are the variable and measurement for the specified independent variable.

Table 4: Independent Variable and Measurement

Variable	Measure	Referred to
Subjective norms	I'm using plastic because it's cheap and more readily available.	From literature review; Sustainability 2020,
	My family encourages me to reduce using single – use plastics.	From article; factors influencing consumers behaviour.
	My friends are conscious of plastic waste pollution and tend to reduce plastic waste in their consumption	From literature review; factors influencing consumers behaviour.
	I understand plastic is harmful for environmental however I'm still using plastic because it's convenient.	From literature review; factors influencing consumers behaviour.
	I have a favorable attitude toward consumers' behavior to reduce plastic waste.	From literature review; factors influencing consumers behaviour.
Plastic and recycle knowledge	When you buy groceries, do you generally avoid buying single-use plastic goods (e.g., plastic cutlery, cups, plates, etc.)?	From literature review; Sustainability 2020,
	I segregate my waste according to plastic, glasses, paper and general waste for recycling purposes.	From literature review; Plastic food packaging perception and attitude towards plastic usage.

	I will only buy products with packaging made from recycled materials.	From literature review; Plastic food packaging perception and attitude towards plastic usage.
	If the same products are packaged in glass or plastic, regardless of the price, I prefer to buy glass packaging due to the comparative impact of these materials.	From literature review; Plastic food packaging perception and attitude towards plastic usage.
	Broken dishware and glasses must be placed in the green recycling bin.	From literature review; Plastic food packaging perception and attitude towards plastic usage.
Perceived behavioural control	I have enough time to look for alternatives for plastic utensils.	From literature review; Sustainability 2020, influencing consumers behaviour.
	I will compress the plastic waste before discarding it into the recycling bin (If compressible)	From article; factors influencing consumers behaviour.
	Recycling process takes up too much time.	From literature review; Environment sustainability
	Although it takes more time, I regularly segregate waste before recycling.	From literature review; Environment sustainability

	I understand plastic is harmful for environmental however I'm still using plastic because it's convenient.	From literature review; Environment sustainability
Environmental knowledge	I am worried about the impact on the environment of everyday objects made of plastics	From literature review; Sustainability 2020,
	Reflects on impact of plastic package in moment of purchase:	From literature review; Plastic food packaging perception and attitude towards plastic usage.
	Consuming environmentally friendly products has important and direct benefits to the environment.	From literature review; Environment sustainability
	Plastic is a substantial part of domestic wastes in land fill	From literature review; Environment sustainability
	Considering plastic is harmful to the environment, it should be eliminated.	From literature review; Environment sustainability
	Recycle regularly could protect the environment sustainability?	From literature review; Environment

Table 5:Dependant Variable and Measurement

Variable	Measure	Referred to
Impact on environmental	I'm actively involved in social responsibility activity initiate by Government or Non-Government organization to protect our environment from the impact due to plastic usage.	From literature review; Environment sustainability
	If you use plastic regularly, are you consistently executing the recycling process, taking into consideration the impact on the environment?	From literature review; Environment sustainability
	Have you attempted to use biodegradable plastic to substitute normal plastic in order to protect the environment?	From literature review; Environment sustainability
	Would you encourage the initiative if Malaysia decided to ban plastic as part of environmental sustainability?	From literature review; Environment sustainability
	Would you educate your friends, family, or relatives about plastic's impact on the environment?	From literature review; Environment sustainability

Table 6:Mediator variable & Measurement

Variable	Measure	Referred to
Consumer perception & attitudes towards environment and recycle	Recycling does not have a significant impact on environmental sustainability.	From literature review; Environment sustainability
	I do not know/understand how to perform recycling; hence, I never try or learn how to do it.	From literature review; Environment sustainability
	The use of plastic is legal. Hence, I consider recycling an option for the sustainability of the environment.	From literature review; Environment sustainability
	Plastic use has become a habit, despite the fact that I'm fully aware of how it will affect the planet in the long run.	From literature review; Environment sustainability
	I will bring recycled plastic or paper bags whenever I intend to buy groceries or shop.	From literature review; Environment sustainability

3.6 Data Analysis Techniques

Surveys have traditionally been performed using paper-based methods, although they have rapidly transformed into online means. Closed-ended questions, which are more effective in collecting quantitative data, constitute a big feature of this survey for this particular research. Answer alternatives that are the most suited for a particular question are included in the survey. Based on the recommended sample size, surveys are critical for obtaining feedback from Malaysian consumers. One of the most important aspects of surveys is that the replies should be able to be generalized to the full population without substantial disparities.

The data analysis technique is based on the following method;

i. **Excel**

ii. **SPSS** (Statistical Package for Social Sciences)

3.7 Summary of Chapter 3

The strategy utilized to carry out the research plan is referred to as a research method. Although the research approach and designing theories are acknowledged to be different aspects, they are linked in some way in order to get a good study design. It aids in the identification of relevant facts that can aid in the more effective solution to the research issue. Research design is step by step approach that follow proper sequence. The model structure supports in the coordination of the approach that we will use to do further analysis for our research.

In order to acquire correct data, there should be a consistent framework for evaluating the analysis. Quantitative analysis, a basic and fast process, is used to create the study questionnaires. We should concentrate on how to encourage more respondents to take the survey; this should be possible if they grasp the goal and know it can be completed in stipulated time frame.

The study design also serves as a guideline for how to collect data in an efficient manner; there should be alternatives for sending surveys to individuals, a list of channels via which we may approach respondents, and how they react to the questionnaire in a timely manner. We also needed to determine the sample size based on the population. The Taro Yamane table is also used to double-check the sample size. Following that, we'll go over the method we used to analyse the survey results. Standard measurement and precision should be used to conduct thorough analysis, as this will greatly aid in the completion of the result.

CHAPTER 4: RESULT AND DISCUSSION

4.1 Introduction

The overall goal of this study is to have better understanding and deep dive Selangor consumers perception and attitudes on plastic usage, impact on the environmental and recycling. Despite government and non-government initiatives and awareness programs to limit plastic usage, the plastic consumption become prevalent and drastic. This study also helps to gauge the relationship between perceptions, attitudes, and behaviours toward environmental impact as well as aids in determining how environmental, plastic, and recycling knowledge could influence the reduction of plastic consumption.

4.2 Survey Response Analysis

This study's population is based on the population of Selangor, which is approximately 6. 5 million people. Because the number of populations is large, Taro Yamane was utilized to calculate the sample size. The survey was conducted in a short period of time, approximately two months, therefore the response rate is lower, yet this is an acceptable parameter. The questionnaire was disseminated via Google Forms to around 200 participants. Email, WhatsApp, and Messenger are the most common methods of survey distribution. Around 105 surveys with 100% completion rate were received as successful responses. The number of respondents is considered adequate and satisfactory.

Statistics					
	Gender	**Age**	**Highest Education Level**	**Occupation**	**Income: Monthly Household Income**
Valid	105	105	105	105	105
Missing	0	0	0	0	0

SPSS extraction

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	69	65.7	65.7	65.7
	Male	36	34.3	34.3	100.0
	Total	105	100.0	100.0	

Subsequently, the SPSS software is used to determine the frequency, descriptive, regression, macro and reliability Analysis. The SPSS software is used to determine the frequency, descriptive, regression and macro to understand the Significant level, Alpha, Nova, Coefficient and etc. According to Hair, Black,

Babin, and Anderson (2009), setting the significance level, or alpha, indicates the risk that the researcher is prepared to take in determining if the estimated coefficient is greater than zero. The alpha value that is commonly utilised in research is 0.05 (Paul, 2008).

The majority of respondents clearly understand the purpose of this study and would like to participate since the topic is about the environmental impact of plastic use as well as consumer perceptions and attitudes toward it. 75% of consumers in Selangor responded successfully.

4.2.1 Respondent and Demographic profiles

The demographic and socioeconomic characteristics of the survey were included since it is critical to identify a specific age group of people and their level of perspective and attitude towards plastic usage. This research does not focus on a single age group, but rather on different age groups such as youth, middle age, and the elderly. The demography helps to identify which age group has a strong grasp of plastic, the recycling process, and environmental knowledge or impact. The demographic and socioeconomic furnish overview of the responded outline before drill down to the survey analysis. The variable consist in this research analysis is Gender, Age, Education level, occupation and household income.

Female respondents comprise 65.7% of the total, while male respondents constitute 34.3%. Female respondents contribute more than male respondents, and female respondents complete the survey faster than male respondents within the stipulated time given. The age group is divided into the following categories, including 18-24, 25-34, 35-44, 45-54, and 55 and up.

The table 4.1 below shows the age groups and respondents levels of participation

Age Category					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	20	19.0	19.0	19.0
	25-34	33	31.4	31.4	50.5
	35-44	42	40.0	40.0	90.5
	45-54	7	6.7	6.7	97.1
	55 or more	3	2.9	2.9	100.0
	Total	105	100.0	100.0	

The age group of 18 – 24 with the percentage of 19% with successfully completed 20 sample. The age group of 25-34 has second high number of survey completion with 31.4% with 33 surveys, follow by age group of 35-44 with the highest number of surveys with 40% and the sample size of completion is 42. The

final age group is 55 or more with small size with only 2.9% with only 3 surveys. The challenges due to find elderly age group and some not able to use smart phone to complete this survey and due to time limitation, the priority given to those who able to response via link provided.

The table below shows the education level of respondents

Education Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	1	1.0	1.0	1.0
	Diploma	40	38.1	38.1	39.0
	Degree	28	26.7	26.7	65.7
	Master	21	20.0	20.0	85.7
	PHD	15	14.3	14.3	100.0
	Total	105	100.0	100.0	

As shown in the table above, education is separated into a few categories. The percentage of high school students that responded is only 1%. Diploma are more common, with 38.1 percent responding, followed by degrees with 26.7 percent. Master respondents contributed about 21%, while PHD respondents contributed about 15%.

Occupation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Government sector	4	3.8	3.8	3.8
	Non-government sector	51	48.6	48.6	52.4
	Self-employed/business owner	19	18.1	18.1	70.5
	Unemployed/homemakers/retired	12	11.4	11.4	81.9
	Student	19	18.1	18.1	100.0
	Total	105	100.0	100.0	

According to occupational statistics, the Non-Government Sector had the most respondents (48.6% with 51 samples), which is likely attributed to the sample being given to close contacts who are actively employed in the non-government sector. The convenience sample method for distributing the online survey was

adopted to ensure that the study could be completed within the three-month time frame. As a result, the former may have influenced the respondents' different employment backgrounds.

Monthly Household Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than rm 2,500	1	1.0	1.0	1.0
	Rm 2,501 - Rm 5000	25	23.8	23.8	24.8
	Rm 5001 - Rm 10000	60	57.1	57.1	81.9
	More than rm10000	17	16.2	16.2	98.1
	Nil	2	1.9	1.9	100.0
	Total	105	100.0	100.0	

The income variable is used to illustrate the respondents' current income, which helps to explain why some consumers are prepared to pay more for typical plastic, which is frequently charged by various outlets. However, a thorough study could correlate income to the survey result, not entirely but specific to the particular question. The highest respondent's income between Rm 5001 - Rm 10000 at 57.1% with 60 samples. Less than RM2500 with 1 sample size and No income at 1.9%, follow by income Rm 2,501 - Rm 5000 with 23.8% and the income more than Rm10,000 at 16.2%.

4.3 Survey Frequencies

Statistics					
	Gender	**Age**	**Highest Education Level**	**Occupation**	**Monthly Household Income**
Valid	105	105	105	105	105
Missing	0	0	0	0	0
Mean	1.34	2.43	3.09	2.91	2.94
Median	1.00	2.00	3.00	2.00	3.00
Mode	1	3	2	2	3
Std. Deviation	.477	.969	1.093	1.218	.718

The statistics survey for demographic and socioeconomic for Mean, Median, Mode and STD deviation as per above table.

Statistics Independent variable						
	NORMS1: I'm using plastic because it's cheap and more readily available.	**NORMS2**: My family and friends encourage me to reduce single-use plastics.	**NORMS3**: My family and friends are conscious of plastic waste pollution and tend to reduce plastic waste in their consumption.	**NORMS4**: I understand plastic is harmful to the environment. However, I'm still using plastic because it's convenient.	**NORMS5**: I have a favorable attitude toward consumers' behavior to reduce plastic waste.	**NORMS6**: People around me play a significant role in reducing plastic usage.
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	3.69	3.80	3.93	3.93	4.22	3.65
Median	4.00	4.00	4.00	4.00	4.00	4.00
Mode	5	5	5	5	5	3
Std. Deviation	1.227	1.155	1.094	1.129	.899	1.109

For the independent variable, subjective norms, the table shows Mean, Median, Mode, and Standard Deviation, with the mean for all variables exceeding 3.5. The two variables have the same frequency of mean values, which are 3.93 for Norms 3 and 4. The mean for norms 1 and 2 is 3.69 and 3.65, respectively. All of the norms have the same median, which is 4.00. The mode has the same value for all five norms. Except for norms 6 which is 3, the STD. Deviation is more than 1 for all 5 variables except for norms 5 which is at .899.

There are total 36 questions with four independent variable, one mediator and one Dependent variable. Each variable has 6 questions. The question is obtained from previous literature review based on variable that has been identified. Below table explained the frequency of respondents based on each question. The breakdown stated how many have selected disagree/disagree/neutral/ agree/ and strongly agree.

NORMS1: I'm using plastic because it's cheap and more readily available.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	7	6.7	6.7	6.7
	Disagree	10	9.5	9.5	16.2
	Neutral	28	26.7	26.7	42.9
	Agree	24	22.9	22.9	65.7
	Strongly Agree	36	34.3	34.3	100.0
	Total	105	100.0	100.0	

For the first survey question, 6.7 percent out of 105 respondents strongly disagree that they using plastic because it is cheap and readily available. Similarly,10 respondents disagree with the question. At 22.9 percent, the neutral scale agrees or disagrees with the first survey question. A total of 60 people agreed/strongly agreed, implying that they only used plastic because it is cheaper and more readily accessible. The availability and lower cost of plastic encourage customers in Selangor to consume it, with 57 percent of respondents actively adopting it as a result of the same factor.

NORMS2: My family and friends encourage me to reduce single-use plastics.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.8	3.8	3.8
	Disagree	10	9.5	9.5	13.3
	Neutral	28	26.7	26.7	40.0
	Agree	24	22.9	22.9	62.9
	Strongly Agree	39	37.1	37.1	100.0
	Total	105	100.0	100.0	

60% of respondents said their families and friends have urged them to use less single-use plastic. Although it is a positive approach to reducing plastic usage, 13.3% disagree with the question because they believe there is no support from family and friends, and 26.7% selected neutral.

NORMS3: My family and friends are conscious of plastic waste pollution and tend to reduce plastic waste in their consumption.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.9	2.9	2.9
	Disagree	8	7.6	7.6	10.5
	Neutral	24	22.9	22.9	33.3
	Agree	28	26.7	26.7	60.0
	Strongly Agree	42	40.0	40.0	100.0
	Total	105	100.0	100.0	

For this issue, 66.7% agree/strongly agree that family and friends are aware of plastic pollution and are trying to decrease their use of it. However, 10.5% disagree that family and friends play a major role in reducing waste, while the remaining 24% are neutral.

NORMS4: I understand plastic is harmful to the environment. However, I'm still using plastic because it's convenient.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.9	2.9	2.9
	Disagree	11	10.5	10.5	13.3
	Neutral	19	18.1	18.1	31.4
	Agree	29	27.6	27.6	59.0
	Strongly Agree	43	41.0	41.0	100.0
	Total	105	100.0	100.0	

The respondents strongly agree/agree that despite knowing that plastic is harmful, they still use it because it is convenient (68.7%), and those who disagree/strongly disagree (13.4%), indicating that just a minority group of people understand that plastic is detrimental and that it should be reduced.

NORMS5: I have a favorable attitude toward consumers behaviors to reduce plastic waste.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	1	1.0	1.0	2.9
	Neutral	18	17.1	17.1	20.0
	Agree	35	33.3	33.3	53.3
	Strongly Agree	49	46.7	46.7	100.0
	Total	105	100.0	100.0	

The respondents have a good attitude toward reducing plastic usage, with 80% strongly agree/agree and only 2.9% disagree with the question, implying that consumers have a significant desire to reduce plastic usage.

NORMS6: People around me play a significant role in reducing plastic usage.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	5.7	5.7	5.7
	Disagree	6	5.7	5.7	11.4
	Neutral	35	33.3	33.3	44.8
	Agree	30	28.6	28.6	73.3
	Strongly Agree	28	26.7	26.7	100.0
	Total	105	100.0	100.0	

People in our surroundings play an essential role in reducing plastic usage; 55.3% respondents agree with this particular question where by 11.4%disagree, and follow by 33.3% are undecided, therefore we can infer that plastic usage is still a concern.

Statistics						
	PRKNOW1: Plastic is easily disposable when discarded in a landfill or environment.	PRKNOW2: I segregate my waste according to plastic, glasses, paper and general waste for recycling purposes.	PRKNOW3: I have enough knowledge about biodegradable plastic	PRKNOW4: Recycling old items helps to reduce waste sent to landfill.	PRKNOW5: I prefer to use biodegradable plastic, despite the cost, as it protects the environment compared to normal plastic.	PRKNOW6: Reduce, Reuse, and Recycle waste it is long process and increases the amount of space needed for landfill sites.
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	2.73	3.69	3.83	4.46	4.14	3.52
Median	3.00	4.00	4.00	5.00	4.00	4.00
Mode	1	4	4	5	5	5
Std. Deviation	1.564	1.095	.985	.821	.985	1.352

With the exception of one question, the mean for plastic and recycle knowledge is greater than 3.5. Secondly, for all questions except one which is 3.00 and the rest of median is 4.00 and 5.00, and the mode is respectively 4 and 5, and the first question mode is 1.

PRKNOW1: Plastic is easily disposable when discarded in a landfill or environment.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	39	37.1	37.1	37.1
	Disagree	9	8.6	8.6	45.7
	Neutral	17	16.2	16.2	61.9
	Agree	21	20.0	20.0	81.9
	Strongly Agree	19	18.1	18.1	100.0
	Total	105	100.0	100.0	

According to the statistics, 45.7% strongly agree/agree, indicating that the respondents have a clear understanding of the impact of plastic in a landfill or environment. However, 38.1% disagree that plastic is easily disposed in a landfill or environment, indicating that there is insufficient knowledge about plastic disposal among consumer in Selangor.

PRKNOW2: I segregate my waste according to plastic, glasses, paper and general waste for recycling purposes.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	4.8	4.8	4.8
	Disagree	9	8.6	8.6	13.3
	Neutral	27	25.7	25.7	39.0
	Agree	37	35.2	35.2	74.3
	Strongly Agree	27	25.7	25.7	100.0
	Total	105	100.0	100.0	

Separating waste for recycling purposes is essential for environmental sustainability. 60.9% of respondents strongly agree/agree that they are doing the necessary; yet, 13.4% did not segregate for recycling purposes. Those that choose neutral (25.7%) may or may not segregate for the recycling process. People tend to recycle whenever they feel like it because the recycling process is considered an option.

PRKNOW3: I have enough knowledge about biodegradable plastic					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	6	5.7	5.7	7.6
	Neutral	31	29.5	29.5	37.1
	Agree	35	33.3	33.3	70.5
	Strongly Agree	31	29.5	29.5	100.0
	Total	105	100.0	100.0	

Considering biodegradable plastic decomposes more quickly than regular plastic, this question assesses the respondent's biodegradable knowledge. As the use of biodegradable plastic increases, 62.5 percent of respondents agree that they have information about it. 7.6% of respondents admit that they do not have understanding about biodegradable, which is a smaller rate.

PRKNOW4: Recycling old items helps to reduce waste sent to landfill.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	1	1.0	1.0	1.9
	Neutral	13	12.4	12.4	14.3
	Agree	24	22.9	22.9	37.1
	Strongly Agree	66	62.9	62.9	100.0
	Total	105	100.0	100.0	

Recycling old products does absolutely assist to reduce waste to the landfill, according to 85.8% of respondents. Only 2% of respondents disagree with the statement, which is a relatively low percentage; nevertheless, those who choose neutral may or may not comprehend the question completely or may be considering it as an option.

PRKNOW5: I prefer to use biodegradable plastic, despite the cost, as it protects the environment compared to normal plastic.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.9	2.9	2.9
	Disagree	3	2.9	2.9	5.7
	Neutral	17	16.2	16.2	21.9
	Agree	35	33.3	33.3	55.2
	Strongly Agree	47	44.8	44.8	100.0
	Total	105	100.0	100.0	

The respondents have concern towards on the environmental, it clearly shown based on statistic above that 78.1% strongly agree/agree that they prefer to use biodegradable plastic despite the cost. 5.8% respondents disagree/strongly disagree to use biodegradable plastic as it is expensive compare to normal plastic.

PRKNOW6: Reduce, Reuse, and Recycle waste it is long process and increases the amount of space needed for landfill sites.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	13	12.4	12.4	12.4
	Disagree	9	8.6	8.6	21.0
	Neutral	27	25.7	25.7	46.7
	Agree	22	21.0	21.0	67.6
	Strongly Agree	34	32.4	32.4	100.0
	Total	105	100.0	100.0	

This survey question is to evaluate the understanding of consumer Selangor about reduce, reuse and recycle which is common term used to encourage people to recycle.53.4% respondents acknowledge it is a long process and 21.0% disagree with the statement. It shown that some respondents have poor understanding of about this term and those who have selected disagree have better knowledge about this term as it depends on the individual on how they would like to recycle the waste as some used their own creativity to perform recycling at home itself.

Statistics						
	BEHAV1: I have enough time to look for alternatives for plastic utensils.	BEHAV2: I will compress the plastic waste (if compressible) before discarding it into the recycling bin.	BEHAV3: Recycling process takes up too much time.	BEHAV4: Although it takes more time, I regularly segregate waste before recycling.	BEHAV5: It is challenging to reduce plastic usage since it's easily available.	BEHAV6: I could control the usage of plastic in my daily routine.
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	3.62	3.68	3.54	3.68	4.05	3.89
Median	4.00	4.00	4.00	4.00	4.00	4.00
Mode	3	5	4	4	5	4
Std. Deviation	1.104	1.173	1.101	1.024	1.004	.964

The mean value for all the perceived behavior control survey questions are above > 3.6 and Median value above > 4.0. The mode value 3,4 and 5.

BEHAV1: I have enough time to look for alternatives for plastic utensils.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	15	14.3	14.3	16.2
	Neutral	34	32.4	32.4	48.6
	Agree	24	22.9	22.9	71.4
	Strongly Agree	30	28.6	28.6	100.0
	Total	105	100.0	100.0	

To replace plastic, consumers seek out other options; thus, the purpose of this question is to determine whether respondents have adequate time to search for alternatives to plastic utensils. 51.5 percent strongly agree/agree that they have enough time to substitute with plastic, but 32.4 percent chose neutral, indicating that they are unsure or that it is not high on their priority list. 16.2% Strongly disagree/agree that they do not have enough time to look for substitute other alternative.

BEHAV2: I will compress the plastic waste (if compressible) before discarding it into the recycling bin.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	5.7	5.7	5.7
	Disagree	10	9.5	9.5	15.2
	Neutral	28	26.7	26.7	41.9
	Agree	29	27.6	27.6	69.5
	Strongly Agree	32	30.5	30.5	100.0
	Total	105	100.0	100.0	

It is critical to compress the plastic trash prior to recycling. 58.1% strongly agree/agree that they will compress the material before throwing it away in the recycling bin. 15.2% of respondents strongly disagreed or disagreed, while 26.7% selected neutral, indicating that consumers in Selangor still required to improve in terms of compressing plastic garbage before recycling.

BEHAV3: Recycling process takes up too much time.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	8	7.6	7.6	7.6
	Disagree	6	5.7	5.7	13.3
	Neutral	32	30.5	30.5	43.8
	Agree	39	37.1	37.1	81.0
	Strongly Agree	20	19.0	19.0	100.0
	Total	105	100.0	100.0	

30.5% of respondents consider that recycling takes too long. 56.1% of respondents strongly agree /agree that it takes too much time, while 13.3% disagree/ strongly disagree. Some consumers in Selangor tend to have an unclear knowledge of recycling.

BEHAV4: Although it takes more time, I regularly segregate waste before recycling.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	4.8	4.8	4.8
	Disagree	5	4.8	4.8	9.5
	Neutral	32	30.5	30.5	40.0
	Agree	40	38.1	38.1	78.1
	Strongly Agree	23	21.9	21.9	100.0
	Total	105	100.0	100.0	

Only 9.6% strongly disagree/disagree, implying that recycling is not carried out because of the time required. 30.5% of respondents selected neutral, which is subjective depending on the individual and how they defined it, long or a short of recycling process time. 60 percent of respondents strongly agree/agree that they recycle even if it takes longer, which is a positive indicator among Selangor consumers.

BEHAV5: It is challenging to reduce plastic usage since it's easily available.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	6	5.7	5.7	6.7
	Neutral	26	24.8	24.8	31.4
	Agree	26	24.8	24.8	56.2
	Strongly Agree	46	43.8	43.8	100.0
	Total	105	100.0	100.0	

Considering plastic is so readily available, 68.6% of respondents acknowledge that reducing usage is challenging. Only 6.7% strongly disagreed or disagreed, while 24.8% selected neutral. Since consumers have the option of using plastic, it is challenging for them to ignore it

BEHAV6: I could control the usage of plastic in my daily routine.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	7	6.7	6.7	7.6
	Neutral	28	26.7	26.7	34.3
	Agree	36	34.3	34.3	68.6
	Strongly Agree	33	31.4	31.4	100.0
	Total	105	100.0	100.0	

Controlling plastic usage helps in environmental sustainability, with 67.7% agreeing/strongly agreeing that they can control plastic usage, 7.7% strongly disagree/disagree that they can control plastic usage, which is a small percentage, and 26.7% selected neutral, implying that they can either control or use it because there are no restrictions.

Statistics						
	ENVIR1: I'm worried about the impact on the environment of objects made of plastic.	ENVIR2: Reflects on impact of plastic package in moment of purchase.	ENVIR3: Consuming environmentally friendly products has important and direct benefits to the environment.	ENVIR4: Plastic is a substantial part of domestic wastes in land fill.	ENVIR5: Considering plastic is harmful to the environment, it should be eliminated.	ENVIR6: Recycle regularly could protect the environment sustainability
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	4.30	3.97	3.34	3.19	4.17	4.27
Median	5.00	4.00	4.00	3.00	4.00	5.00
Mode	5	5	4	4	5	5
Std. Deviation	.889	.935	.864	.856	.995	.933

The Environment knowledge variable survey questions mean value above > 3 and > 4. The value for median is above > 3,4 and 5 and mode value is 4 & 5.

ENVIR1: I'm worried about the impact on the environment of objects made of plastic.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	1	1.0	1.0	2.9
	Neutral	15	14.3	14.3	17.1
	Agree	32	30.5	30.5	47.6
	Strongly Agree	55	52.4	52.4	100.0
	Total	105	100.0	100.0	

82.9% of respondents strongly agree/agree that they are concerned about the environment because of the objects made of plastic, 14.3% selected neutral, and 2.9% disagreed/strongly disagree and it is considering the small number of percentages, this statistic demonstrates that consumers in Selangor prefer to limit plastic usage in order to reduce environmental impact.

ENVIR2: Reflects on impact of plastic package in moment of purchase.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	1	1.0	1.0	2.9
	Neutral	32	30.5	30.5	33.3
	Agree	33	31.4	31.4	64.8
	Strongly Agree	37	35.2	35.2	100.0
	Total	105	100.0	100.0	

66.6% respondents acknowledge that they reflect on impact of plastic package in moment of purchase however 30.5% selected neutral and 2.9 strongly disagree/disagree with this question hence it shown that the respondents understand the impact of plastic usage towards environment.

ENVIR3: Consuming environmentally friendly products has important and direct benefits to the environment.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	4.8	4.8	4.8
	Disagree	12	11.4	11.4	16.2
	Neutral	30	28.6	28.6	44.8
	Agree	58	55.2	55.2	100.0
	Total	105	100.0	100.0	

55.2% respondents totally agree that consuming environmentally friendly products has important and direct benefits to the environment and 16.2% respondents disagree/strongly disagree.28.6% respondents have selected neutral. The respondents consider that the environmentally friendly products are necessary to reduce the plastic usage drastically and at the same time helps to sustain environmental.

ENVIR 4: Plastic is a substantial part of domestic wastes in land fill.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	3.8	3.8	3.8
	Neutral	18	17.1	17.1	21.0
	Agree	37	35.2	35.2	56.2
	Strongly Agree	46	43.8	43.8	100.0
	Total	105	100.0	100.0	

Plastic is a significant part of domestic waste in landfills, according to 79% of respondents, while 17.1% disagree with the statement and 3.8% disagree. Consumers are becoming more aware of the impact of plastic on the environment, and they recognize that their continued use of plastic has a direct impact on future sustainability.

ENVIR5: Considering plastic is harmful to the environment, it should be eliminated.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	4	3.8	3.8	5.7
	Neutral	20	19.0	19.0	24.8
	Agree	27	25.7	25.7	50.5
	Strongly Agree	52	49.5	49.5	100.0
	Total	105	100.0	100.0	

Plastic should be banned because it is harmful to the environment, according to 75.2 percent of respondents. 5.7 percent strongly disagree/disagree to eliminate plastic, which is a small fraction compared to the highly agree. 19% selected neutral, due to the price and availability, consumers are still unable to decide whether to eliminate or continue to use plastic.

ENVIR6: Recycle regularly could protect the environment sustainability?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.9	1.9	1.9
	Disagree	2	1.9	1.9	3.8
	Neutral	17	16.2	16.2	20.0
	Agree	29	27.6	27.6	47.6
	Strongly Agree	55	52.4	52.4	100.0
	Total	105	100.0	100.0	

80 percent of respondents agree that recycling on a regular basis can protect the environment, while 27.6% selected neutral and 2.9% strongly disagree/agree, indicating that consumers in Selangor embrace recycling since it helps to protect the environment's sustainability.

Statistics						
	MEDIO1: Recycling does not have a significant impact on environmental sustainability.	MEDIO2: I do not know/understand how to perform recycling; hence, I never try or learn how to do it.	MEDIO3: The use of plastic is legal. Hence, I consider recycling an option for the sustainability of the environment.	MEDIO4: Plastic use has become a habit, despite the fact that I'm fully aware of how it will affect the planet in the long run.	MEDIO5: I will bring recycled plastic or paper bags whenever I intend to buy groceries or shop.	MEDIO6: I pay extra money to get plastic whenever I buy groceries or other goods, despite being aware of the government's initiative to reduce plastic usage.
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	2.93	2.89	3.78	4.03	4.05	3.27
Median	3.00	3.00	4.00	4.00	4.00	3.00
Mode	1	3	5	4	5	4
Std. Deviation	1.476	1.368	1.193	.965	1.013	1.310

The mediator variable perception and attitude of consumer towards environmental and recycling mean value is between 2.8 > 4.5 and median value is 3 & 4 and follow by mode value is 1,3,4 and 5.

MEDIO1: Recycling does not have a significant impact on environmental sustainability.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	26	24.8	24.8	24.8
	Disagree	18	17.1	17.1	41.9
	Neutral	19	18.1	18.1	60.0
	Agree	21	20.0	20.0	80.0
	Strongly Agree	21	20.0	20.0	100.0
	Total	105	100.0	100.0	

41.9% respondents disagree that means recycling has a significant impact towards environmental however 40% agree with the statement it is either they understand the question differently or they feel recycling does not have significant impact towards environmental.18.1% selected neutral, this group of respondents does not sure the impact of recycling towards the environment.

MEDIO2: I do not know/understand how to perform recycling; hence, I never try or learn how to do it.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	22	21.0	21.0	21.0
	Disagree	20	19.0	19.0	40.0
	Neutral	29	27.6	27.6	67.6
	Agree	16	15.2	15.2	82.9
	Strongly Agree	18	17.1	17.1	100.0
	Total	105	100.0	100.0	

32.3 percent strongly agree/agree that they do not recycle due to a lack of understanding of the recycling process, whereas 40% strongly disagree/disagree, indicating that even when they are not aware of how to recycle, there is a willingness to do so.27.6% respondents selected neutral and this category of group may or may not perform recycling.

MEDIO3: The use of plastic is legal. Hence, I consider recycling an option for the sustainability of the environment.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	5.7	5.7	5.7
	Disagree	9	8.6	8.6	14.3
	Neutral	25	23.8	23.8	38.1
	Agree	27	25.7	25.7	63.8
	Strongly Agree	38	36.2	36.2	100.0
	Total	105	100.0	100.0	

61.9% of respondents strongly agree or disagree that plastic usage is legal; hence they consider recycling an option for the environment's sustainability. However, only 14.3% of respondents acknowledge that even though it is legal, usage of plastic is harmful for the environment. 23.8% have selected neutral.

MEDIO4: Plastic use has become a habit, despite the fact that I'm fully aware of how it will affect the planet in the long run.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	8	7.6	7.6	8.6
	Neutral	17	16.2	16.2	24.8
	Agree	40	38.1	38.1	62.9
	Strongly Agree	39	37.1	37.1	100.0
	Total	105	100.0	100.0	

Habits become common despite the understanding and knowledge people have. Hence, 75.2% of respondents acknowledge that use of plastic is indeed a habit, even though they are fully aware of the impact of it on the planet in the long run. 8.6% of respondents disagree/strongly disagree that use of plastic is considered as a habit and was followed by 16.2% selected as neutral.

MEDIO5: I will bring recycled plastic or paper bags whenever I intend to buy groceries or shop.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	8	7.6	7.6	8.6
	Neutral	21	20.0	20.0	28.6
	Agree	30	28.6	28.6	57.1
	Strongly Agree	45	42.9	42.9	100.0
	Total	105	100.0	100.0	

71.5% of respondents strongly agree or agree that they bring recycled plastic or paper bags when they intend to buy groceries or shop; only 8.6% of respondents disagree or strongly disagree that they bring recycled plastic or paper bags; and 20% of respondents have selected neutral. The percentage of Selangor consumers who use recycled plastic and paper bags is a good sign for environmental sustainability.

MEDIO6: I pay extra money to get plastic whenever I buy groceries or other goods, despite being aware of the government's initiative to reduce plastic usage.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	15	14.3	14.3	14.3
	Disagree	13	12.4	12.4	26.7
	Neutral	27	25.7	25.7	52.4
	Agree	29	27.6	27.6	80.0
	Strongly Agree	21	20.0	20.0	100.0
	Total	105	100.0	100.0	

26.7% of respondents strongly disagree or disagree with this statement, which means respondents do not pay extra money to buy plastic. However, 47.6% agree or strongly agree that they pay extra money to buy plastic since the options are available in most of the outlets. 25.7% selected neutral, as it may depend on the situation.

Statistics						
	DV1: I'm actively involved in social responsibility activities initiated by the government or non-profit organizations to safeguard our environment from the negative impacts of plastic use.	DV2: I use plastic regularly. Therefore, I consistently execute the recycling process. Taking into consideration the plastic impact on our environment.	DV3: Restaurants, outlets, and shopping malls should use biodegradable plastic as part of environmental sustainability.	DV4: I would encourage the initiative if Malaysia decided to ban plastic as part of environmental sustainability	DV5: I would educate my friends, family, or relatives to reduce plastic usage as part of environmental sustainability .	DV6: Governments should raise public awareness and knowledge about the environmental impact of plastic use.
Valid	105	105	105	105	105	105
Missing	0	0	0	0	0	0
Mean	3.50	3.70	3.44	3.30	3.36	3.51

Median	3.00	4.00	4.00	4.00	4.00	4.00
Mode	3	3	4	4	4	4
Std. Deviation	1.161	1.075	.808	.887	.748	.761

The dependent variable survey questions mean value is above > 3 and median value carry 3&4.The mode value is 3 & 4.

DV1: I'm actively involved in social responsibility activities initiated by the government or non-profit organizations to safeguard our environment from the negative impacts of plastic use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	4.8	4.8	4.8
	Disagree	15	14.3	14.3	19.0
	Neutral	35	33.3	33.3	52.4
	Agree	23	21.9	21.9	74.3
	Strongly Agree	27	25.7	25.7	100.0
	Total	105	100.0	100.0	

47.6% respondents selected strongly agree/agree that they actively involved in social responsibility initiated by any organization and 19.1% respondents disagree and follow by 33.3% respondents as neutral. It shows that consumer in Selangor corporate with organization to safeguard the environment and there are respondents consider its option to be part of this initiative.

DV2: I use plastic regularly. Therefore, I consistently execute the recycling process. Taking into consideration the plastic impact on our environment.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	3.8	3.8	3.8
	Disagree	6	5.7	5.7	9.5
	Neutral	39	37.1	37.1	46.7
	Agree	25	23.8	23.8	70.5
	Strongly Agree	31	29.5	29.5	100.0
	Total	105	100.0	100.0	

53.3% respondents confirmed that they execute the recycling process taking into consider the plastic impact on our environment however 37.1% have selected neutral which the respondents may consider as options and it is also based on individual perspective. 9.5% respondents strongly disagree/disagree.

DV3: Restaurants, outlets, and shopping malls should use biodegradable plastic as part of environmental sustainability.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.9	2.9	2.9
	Disagree	12	11.4	11.4	14.3
	Neutral	26	24.8	24.8	39.0
	Agree	64	61.0	61.0	100.0
	Total	105	100.0	100.0	

Biodegradable plastic being use by some of branded outlet hence this question asked to evaluate the respondent's perception where 61% agree that restaurants, outlets and shopping malls should switch to biodegradable and 24.8% respondents selected as neutral and 14.3% strongly disagree/disagree and it could be because the price of biodegradable plastic is expensive or they may find other alternative options.

DV4: I would encourage the initiative if Malaysia decided to ban plastic as part of environmental sustainability					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.9	2.9	2.9
	Disagree	21	20.0	20.0	22.9
	Neutral	23	21.9	21.9	44.8
	Agree	58	55.2	55.2	100.0
	Total	105	100.0	100.0	

The 58 (55.2%) respondents agree that they will encourage if Malaysia decided to ban plastic as part of environmental sustainability and 21.9% selected as neutral and it could be various other factor such price, availability and 22.9% respondents also strongly disagree/disagree to ban the plastic which it could relate with the similar factor with those who have selected neutral.

DV5: I would educate my friends, family, or relatives to reduce plastic usage as part of environmental sustainability.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	1.0	1.0	1.0
	Disagree	14	13.3	13.3	14.3
	Neutral	36	34.3	34.3	48.6
	Agree	54	51.4	51.4	100.0
	Total	105	100.0	100.0	

Out of 105 respondents 85.7% acknowledge that they would educate friends, family or relatives to reduce the plastic usage as part of environment sustainability and 34.4% may or may not encourage the friends, family or relatives to reduce the plastic usage and 24.3% respondents selected strongly disagree/disagree.

DV6: Governments should raise public awareness and knowledge about the environmental impact of plastic use.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	2.9	2.9	2.9
	Neutral	15	14.3	14.3	17.1
	Agree	35	33.3	33.3	50.5
	Strongly Agree	52	49.5	49.5	100.0
	Total	105	100.0	100.0	

87 respondents (82.8%) strongly agree or disagree that the government should raise more awareness and knowledge about the environmental impact of plastic usage. 14.3% have selected neutral, and this group of people may already have sufficient knowledge or they are not keen on being part of the effort to reduce plastic usage.

4.4 Unidimensionality

Unidimensionality is a criterion used to determine if each item in a factor met the bare minimum criteria for acceptable factor loadings (Awang Z., 2012). Unidemesionality is applied to explain a specific type pf measurement scale. It should appear in one dimension or in other term it can be classified by a single number line. This method of item creation is designed to ensure that all items precisely represent the objective design and only the target construct. from a practical perspective, this unidemsionality is crucial as the elements that are selected to collect data that may validate these norms. The end of outcome, test score produced from the elements measurements which are corelated with the hypothesised theory.

Subsequently, once altering for latent construct variance, a collection of items is considered unidimensional if there are no associated residuals between them, according to the former classification. For freshly created goods, the factor loading should be more than 0.5; however, for existing items, the factor loading should be 0.6 or above (Awang Z., 2017). The most effective strategy is to delete the elements and add a new route option, which are the right methods for improving or enhancing the model's requirement to be met. Therefore, once the lowest factor loading the elements in the hidden construct exceed 0.5, the particular method should be removed the lowest factor loading the elements one by one. Thereafter, the measurement model should be re-evaluated until it meets the requirement of the principal for unidimensionality. This segment explained the measurement model for each construct measurement.

Table 7:summarises the factor loading findings for each item.

Construct	Item	Extraction
Subjective norms	NORMS1	0.693
	BEHAV3	0.598
	NORMS3	0.631
	BEHAV4	0.414
	NORMS5	0.719
	NORMS6	0.488
Plastic & Recycle knowledge	PRKNOW1	0.594
	PRKNOW2	0.000
	PRKNOW3	0.631
	PRKNOW4	0.544
	PRKNOW5	0.711
	PRKNOW6	0.400
Perceived behavior control	NORMS1	0.714
	NORMS4	0.692
	BEHAV3	0.698
	BEHAV4	0.822
	BEHAV5	0.596
	BEHAV6	0.719
Environmental knowledge	NORMS5	0.502
	ENVIR2	0.702
	ENVIR3	0.623
	ENVIR4	0.000
	ENVIR5	0.565
	ENVIR6	0.572

Extraction Method: Principal Component Analysis

From the table, it shows that all the observed variables for the four (4) constructs, i.e., Subjective norms, Plastic & Recycle knowledge, Perceived behaviour control, Environmental knowledge, Consumer perception and attitude towards environment and recycling, Impact on environment have a factor loadings value are above 0.5. The former indicates that all the items achieved one dimensionality.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	1922.788
	df	630
	Sig.	.000

4.4.1 Reliability

The concept of reliability primarily used to a measurement that frequently produced the matching values. Each evaluation model should establish reliability. By meeting a various of requirements helps to complete the previous one. Internal reliability was employed in this study to assess the data's dependability as well as the extent to which variables within a model are incorporated. Internal reliability examines by using Cronbach's alpha and item-total correlations. Reliability shows how frequently the method is measured. When we applied the same sample considering the conditions and method, it should produce the same results, if it is otherwise the method measurement may not be reliable. Error can occur in any measurement technique. The amount/degree of error, on the other hand, reflects the measurement's reliability. The measurement's dependability is high when the quantity of error is minimal. The measurement's reliability is low when the quantity of inaccuracy is high.

The term reliability refers to the capacity to assess the consistency of measures given to the same people at various periods and the equivalency of groups of items from the same test (Kimberlin & Winter stein, 2008). Cronbach's Alpha is a scale that measures internal consistency between components. Cronbach's alpha evaluates if it is connected or not by elements or items that have a high-level communality and low level of uniqueness. Cronbach's alpha is used to determine the reliability of multiple question Likert scale surveys. The questions are measures, which are variables that are not fully developed or hidden, as well as variables that are undefined, such as a person's proactive personality, anxiety, or openness. Cronbach's alpha measures how closely a group of concepts are connected.

Generally, alphas of 0.7 are necessary to be considered reliable (Werhahn & Brettel, 2012). The majority of alpha value is based on below table is > .05 which is not really reliable as it should be >.07 to consider as reliable. Items to total correlation are also analysed in addition to Cronbach's alpha. The former correlation coefficients indicate the degree to which an item is connected to a dimension or concept. Scores less than 0.35 can jeopardise the reliability (Netemeyer, Bearden, & Sharma, 2003). The below table summarises that the item-to-total correlations scores for each item in relation to the depicted construct and dimension. The result indicated that the majority of the item-to-total correlation scores were low which some items less than. <2 and majority.

Table 8:Summarises Construct Cronbach's alpha coefficients

	Variable	Corrected Item-Total Correlation	Cronbach's Alpha
Subjective norms	NORMS1	0.248	0.600
	NORMS2	0.359	
	NORMS3	0.377	
	NORMS4	0.270	
	NORMS5	0.444	
	NORMS6	0.346	
Plastic & Recycle knowledge	PRKNOW1	0.207	0.577
	PRKNOW2	0.350	
	PRKNOW3	0.352	
	PRKNOW4	0.270	
	PRKNOW5	0.385	
	PRKNOW6	0.410	
Perceived behavior control	BEHAV1	0.506	0.635
	BEHAV2	0.450	
	BEHAV3	0.108	
	BEHAV4	0.449	
	BEHAV5	0.234	
	BEHAV6	0.494	
Environmental knowledge	ENVIR1	0.631	0.72
	ENVIR2	0.473	
	ENVIR3	0.669	
	ENVIR4	-0.081	
	ENVIR5	0.566	
	ENVIR6	0.545	
Consumer perception and attitude towards environment and recycling	MEDIO1	0.466	0.698
	MEDIO2	0.570	
	MEDIO3	0.444	
	MEDIO4	0.411	
	MEDIO5	0.203	
	MEDIO6	0.484	
Impact on environment	DV1	0.319	0.607
	DV2	0.352	
	DV3	0.439	
	DV4	0.323	
	DV5	0.513	
	DV6	0.168	

4.4.2 Validity

Validity research focuses on surveys that assess the appropriateness of questions that must be measured. Reliability itself is not sufficient, measures should be reliable as well as valid. Validity is also associated with the measuring tool's ability to furnish the essential outcome. It is referred to the level in which the outcomes should be accurate. As outcome, a research survey questionnaire is important to thoroughly examine the model research. Research validity can be divided into two groups: internal and external. It can be specified that "internal validity refers to how the research findings match reality, while external validity refers to the extent to which the research findings can be replicated to other environments" (Pelissier, 2008, p.12)

There are five type of validity such as; face validity, Construct validity, criterion-related validity, formative validity and sampling validity. If research consist of high number of validity, which means it generate results that corporate to identical assets, features, and difference. Reliability can be assessed by examine different version of the similar measurement. On the other hand, reliability is difficult to assess however it can be estimated by perform the comparison of the results with other data or theory. The approach of estimating reliability and validity are primarily dividend into different category.

One may determine whether or not the measured variables have convergent validity by referring to the Composite Reliability (CR) and Average Variance Extracted values (AVE). If the CR value is greater than 0.7, the CR value is greater than the AVE value, and the AVE value is greater than 0.5; thus, the data have achieved Convergent Validity (Hair, Ringle, & Sarstedt, 2011). The Composite Reliability metric reflects a latent construct's reliability and internal consistency, whereas the Average Variance Extracted measure gives the average proportion of variance explained by the measuring items for a latent construct (Awang Z. , 2017). The following are the AVE and CR formulas:

Table 4. 4 Average Variance Extracted (AVE) and Composite Reliability (CR) formula

AVE= ∑ Ƙ2 / n	Ƙ = factor loading of every item and
CR = (ΣƘ)2 / [(ΣƘ)2 + (Σ1- Ƙ2)] n	n = number of items in a model

Table 9:Construct Average Variance Extracted (AVE)

Variable	Constructs & Measurement	Average Variance extracted (AVE)
Subjective norms	NORMS1	0.483
	NORMS2	
	NORMS3	
	NORMS4	
	NORMS5	
	NORMS6	
Plastic & Recycle knowledge	PRKNOW1	0.321
	PRKNOW2	
	PRKNOW3	
	PRKNOW4	
	PRKNOW5	
	PRKNOW6	
Perceived behavior control	BEHAV1	0.441
	BEHAV2	
	BEHAV3	
	BEHAV4	
	BEHAV5	
	BEHAV6	
Environmental knowledge	ENVIR1	0.45
	ENVIR2	
	ENVIR3	
	ENVIR4	
	ENVIR5	
	ENVIR6	
Consumer perception and attitude towards environment and recycling	MEDIO1	0.45
	MEDIO2	
	MEDIO3	
	MEDIO4	
	MEDIO5	
	MEDIO6	
Impact on environment	DV1	0.483
	DV2	
	DV3	
	DV4	
	DV5	
	DV6	

4.4.3 Multi regression

Multiple regression analysis was used in this study. By evaluating the beta coefficients of many independent variables, one may predict the dependent variables using multiple linear regression. Additionally, it indicates the amount to which independent factors impact the variability of the dependent variable and whether the influence is significant or not. Certain assumptions must be satisfied in order to use multiple linear regression (Brace, Kemp, & Snelgar, 2006).

The followings are the former conditions mentioned to be satisfied:

1. The independent and dependent variables must have a linear relationship.
2. The dependent variable should be measured on a continuous scale, i.e., ratio or interval.
3. Predictor variables might be ordinal, interval, or ratio in nature.
4. The answer count should be more than the number of predictor variables being studied.

By meeting the above assumptions, the influence of independent variables on the dependent variable can be identified. To determine the relationship of the four (4) independent variables, which are subjective forms, plastic and recycle knowledge, perceived behaviour control and environmental knowledge to the dependent variable, which is impact on environmental.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.778[a]	0.605	0.588	2.437	0.605	34.841	4	91	0.000

a. Predictors: (Constant), SUMBEHAV, SUMENVIR, SUMNORMS, SUMPRKNOW

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	827.904	4	206.976	34.841	.000[b]
	Residual	540.586	91	5.941		
	Total	1368.490	95			

Table 10: Mediator outcome variable

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.4839	.2342	11.3586	14.2208	2.0000	93.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	8.8595	2.2621	3.9165	.0002	4.3674	13.3516
SUMNORMS	.3454	.0980	3.5253	.0007	.1509	.5400
SUMMEDIO	.1854	.0795	2.3332	.0218	.0276	.3432

Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.3454	.0980	3.5253	.0007	.1509	.5400
Indirect effect(s) of X on Y:					
	Effect	BootSE	BootLLCI	BootULCI	
SUMMEDIO	.0881	.0527	-.0227	.1917	

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6348	.4030	8.7812	32.3970	2.0000	96.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	5.7455	1.9154	2.9996	.0034	1.9434	9.5476
SUMBEHAV	.5685	.0868	6.5491	.0000	.3962	.7408
SUMMEDIO	.1119	.0698	1.6032	.1122	-.0266	.2504

Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.5685	.0868	6.5491	.0000	.3962	.7408
Indirect effect(s) of X on Y:					
	Effect	BootSE	BootLLCI	BootULCI	
SUMMEDIO	.0567	.0440	-.0216	.1529	

Model Summary						
R	R-sq	MSE	F	df1	df2	p
.7454	.5556	6.5890	59.3967	2.0000	95.0000	.0000
	coeff	se	t	p	LLCI	ULCI
constant	2.8625	1.7092	1.6748	.0973	-.5307	6.2556
SUMENVIR	.6214	.0657	9.4539	.0000	.4909	.7519
SUMMEDIO	.1668	.0570	2.9275	.0043	.0537	.2799

Direct effect of X on Y					
Effect	se	t	p	LLCI	ULCI
.6214	.0657	9.4539	.0000	.4909	.7519
Indirect effect(s) of X on Y:					
	Effect	BootSE	BootLLCI	BootULCI	
SUMMEDIO	.0474	.0272	.0047	.1105	

A. Evaluating the model

The R-squared is one of the measurements that show the number of the overall variance in the dependent variable is described by the independent variable-squared is eligible to measure for linear regression models'-squared measures the relationship strength between the model
and the dependent variable on a convenient 0-100% scale. In order to meet the liner model -specifically, The R-squared value of 1.0 should transpired and R-squared score > 1.0 consider the model or items cannot reflect as part of the variability in the data. The R-squared, also known as the coefficient of determination, is the amount of variation (%) in the dependent variable that the independent variable can explain. Moore, Notz, and Flinger (2013) describe the strength of a connection based on its R-squared value using the following table.

Table 11:R-squared value and the relationship strength

R-squared value (R2)	Strength of the relationship
R2 < 0.3	None or very weak effect size
0.3 < R 2 < 0.5	Weak or low effect size
0.5 < R 2 < 0.7	Moderate effect size
R 2 > 0.7	Strong effect size

The model summary has been examined to ensure whether the model, to which all mechanism have been incorporated, is successful in forecasting the impact on the environment due to subjective norms, perceived behaviour, knowledge of plastic, recycle and environment. The important elements in R-squared measurement are one that indicate the numbers of variance in the dependent variable is clarified by the various analyst in the model. The R-square is a evaluate of how efficiently a model could be wide range to a large of number of individuals.

Based on this research, the R-squared of this model in data analysis is 0.605, which means that 60.5% of the variance on the impact of environment is explained by the combination of the five variables i.e., Subjective norms, Plastic & Recycle knowledge, Perceived behaviour control and Environmental knowledge. Based on the previous table, the value of R-squared of more than 0.6 is considered a moderate effect size.

B. Variables P-value

In empirical research, statistical techniques are used in the data to differentiate a sign from the noise and to identify the conclusions from the collected data. Thus, statistical techniques guide the researcher towards a comprehensive of the data and also creating implication from it. As statistical techniques and their associated outcomes are employed in research, it is vital to have a strong understanding of what these procedures represent.

A p-value which < 0.05 is consider statistically significant. It is present strong evidence against the null hypothesis. Since the probability is less than 5%, the null is acceptable and the results are random. Pocock, McMurray, and Collier (2015) provided guidelines for judiciously utilising p-values to determine the quality of evidence in randomised clinical trials. The researchers refer the P-value in accordance with an approximation of the handling effect and it's 95% confidence interval to determine the degree of the impact. The degree of unpredictable, and the strength of evidence that effect is valid.

An easy interpretation of the p-value less than 0.05 is that the probability that chance is responsible for the finding is less than 5% and that the probability that the finding is a true finding is more than 95% (Andrade, 2019). The p-value of 0.05 is utilized as a split for statistical significance in this research. Determine whether each construct is statistically significant with a p-value of less than 0.05 but it does not define that there is a 95% probability which the alternative hypothesis is relatively is true. The p-value is conditional once the null hypothesis reflects as true, but it is not corelated to the true or false of the options hypothesis.

Table 12:Construct P-value

Construct	P-value	Statistically Significant	95.0% Confidence Interval for B	
			Lower Bound	Upper Bound
Subjective norms	0.983	No	-0.161	0.644
Plastic & Recycle knowledge	0.063	No	-0.010	0.376
Perceived behavior control	0.059	No	-0.008	0.393
Environmental knowledge	0.001	Yes	0.361	0.644

Based on the above table, all the independent variables, i.e., subjective norms, Plastic & Recycle knowledge, Perceived behavior control and Environmental knowledge has both value which is significant and insignificant respectively. Environmental knowledge variable is significant and other three variable

subjective norms, Plastic & Recycle knowledge, and perceived behavior control is insignificant. These three variables are not able to achieve P-value which less than < 0.05 significant and captured P-value more than > 0.05 hence we should consider as significant level is accepted or rejected however strong justification is required if above hypothesis should be accepted.

C. Variables Beta Weight Value

According to research, beta weights are largely dependent upon determining the significance of variables (Nimon, Gavrilova, & Roberts, 2010). Beta weights are partial coefficients that describe the unique strength of a connection between a forecast and a threshold while adjusting for all other predictors. The value of beta weights can be determined by different of mathematical measures, including least squared and maximum thorough analysis. The usual range of beta weights is 0 to 1.A beta weight for an independent variable shows the predicted rise or reduction in the dependent variable, expressed in standard deviation units when the independent variable is increased by one standard deviation while the other independent variables remain constant. beta weights yield information about the extent to which a predictor is receiving credit for predicting the outcome variable in the regression equation, assuming other predictor variables held constant (e.g., Kraha, et al., 2012; Thompson, 2006a). In the light of foregoing, although β weight is one of the tools that yields information about the predictive credit of each predictor, it has some features that affects the accuracy of interpretation. These features need to be considered in interpreting regression results: a) β weight is not a sign of correlation coefficient, when predictors are correlated with each other (e.g., Thompson, 1992b, 2006a);

Table 13:Construct Beta weight value

Construct	Beta weight value	Ranking number
Subjective norms	0.002	4
Plastic & Recycle knowledge	0.186	3
Perceived behavior control	0.194	2
Environmental knowledge	0.544	1

Based on the above table, all the independent variables, i.e., Subjective norms, Plastic & Recycle knowledge, Perceived behavior control, Environmental knowledge are combination of both statistically significant and insignificant. However, based on the beta weight value, the highest to lowest contributed to the impact on environment due to plastic usage are environmental knowledge, perceived behaviour control, Plastic & Recycle knowledge, and subjective norms. The former is because the beta-value reveals which

independent variable makes the strongest, most significant contribution to explaining the dependent variable when all other independent variables in the model are accounted for (Pallant, 2005).

4.5 Hypothesis Testing

Hypothesis testing is one of the most important techniques in research analysis because it determines whether the variable generated has a strong association with the dependent variable or is interconnected with it. Hypothesis also can be applied when the objective is to evaluate the probability of a population parameter assumption based on samples from particular population that available. Hypothesis provide relevant statistics to present level of significant however it is not able to prove with the exact certainty but we should be able to accept or reject statistically based on levels of significance and confidence intervals. The outcome of the hypothesis is based on sufficient statistical evidence that allow us to accept or reject.

The hypothesis in this research emphasis on the relationship between independent variable which is subjective norms, with mediator (Consumer perception and attitude towards environment and recycling) as well as independent variable (Impact on environment) All these variables measured based on previous literature review. Each structural path in the model reflects a potential relationship between the two variables that may be investigated for significance. The route coefficient is a measure of the unidirectional relationship between two constructs that is similar to a regression coefficient (β) (Fornell, 1982; Pedhazur, 1982)

Hypothesis 1: Subjective norms on plastic usage has positive impact on consumer perception and attitude towards the environment and recycling. Thus, it has a positive impact on the environmental.

The subjective norms variable is associated to attitudes and behaviours that can influence plastic usage. The majority of people influence by people surrounding them and act accordingly, it could be the similar behaviour that influence one and another as per subjective norms. The significant level is more than p.05, which it's classified as insignificant, according to hypothesis statistics. This variable does not have a significant influence on environmental impact because consumers actively use plastic because it is cheaper and more readily available, but they may take the necessary precautions to avoid plastic becoming one of the materials that is harmful to the environment, and it also applied to friends and family which their influence does not create any higher significant level towards environmental in comparison with other variables hence we can consider it is insignificant. The beta weight value is = 0.02 which is in 4 ranking, considering that the beta coefficient can be interpreted as a correlation, it can be concluded that subjective norms have a lower significant effect on environmental impact.

Hypothesis 2: Perceived behaviour control has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

Based on above hypothesis statistics it shows that perceived behaviour control has more than p>5 (0.059) significant level which is almost below p< 0.5 (95% confidence level). The perceived control has second highest of (beta weight =0.194) therefore it is still considerable to accept as significant for this research. As per previous literature review as mentioned below; the perceived behavioural control on financial resource has impact towards the consumption's habits of plastics usage. In term of perceived behavioural control, this research is highlighting consumer behaviour determine the usage of plastic which indirectly or directly has impact towards environmental knowledge. Consumer may have sufficient knowledge about plastic or recycle however they reluctant to reduce the plastic or perform recycle as it is controls by their own behaviour.

Table: analysis based on previous research; factors influencing consumers' behavioural intentions to reduce plastic waste: empirical research with the case of Vietnam.

The factor "Perceived Behavioral Control" on financial resources has B9 = 0. 675 and eB9>1 shows that when each individual has financial resources to learn about the negative effects of plastic utensils, they also tend to increase the consumption intention to minimize plastic waste stronger than other individuals, in condition of other factors unchanged. This is quite true in Vietnam, most of the residents' income is low, so high-cost plastic substitutes are considered the biggest barrier to changing the consumption habits of plastic utensils

Hypothesis 3: Plastic and recycle knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

Plastic and knowledge significant level is more than p > 0.5 (0.063), it also shows that this hypothesis is not really significant as it could be other factors that has major effect towards on environmental impact however plastic and recycle knowledge is important for consumers to make a drastic decision that they should continue to use plastic or substitute to other alternative which is not harmful to the environment such as biodegradable and there are so many initiatives to encourage consumers to perform recycling however without a proper understanding and knowledge it's challenges to proceed with the recycle activity or other scenario that can be concluded is; customer may have all the sufficient knowledge about plastic and recycle

but it is not entirely assure them to reduce the plastic usage or recycling This hypothesis is insignificant towards environmental impact.

Hypothesis 4: Environmental knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.

The environmental knowledge was found to correlate statistically significant with impact on environment with a positive relationship of the highest strength amongst the tested independent variables (p-value < 0.05). It indicates that environmental knowledge is crucial to reduce the environment impact. This hypothesis highly contributed to significant level which is value p< 0. 001.Enviromental knowledge which specifically focusing on plastic formed a significant correlation with the environmental impact. create awareness, educating and involvement increasing the environment knowledge which subsequently helps environmental sustainability. Referring to the beta coefficient can be interpreted as correlation. Based on standardized beta values (beta weight=0.544) has strong relationship towards the environment impact hence we can consider this hypothesis as significant and should be accepted.

Refer to the table below to identify the summary of the hypothesis testing for each construct.

Table 14:Hypothesis testing summary

Hypothesis	Status	Ranking
Subjective norms on plastic usage has positive impact on consumer perception and attitude towards the environment and recycling. Thus, it has a positive impact on the environmental.	Rejected hypothesis	4
Perceived behaviour control has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.	Accepted hypothesis	2
Plastic and recycle knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.	Rejected hypothesis	3
Environmental knowledge has positive impact on consumers perception and attitude towards environment and recycling, Thus, it has positive impact on the environmental.	Accepted hypothesis	1

4.6 Chapter Summary

This chapter provides an examination of the overall survey response. We must ensure that we generate the required data to support the analysis after extracting the survey results from Google Forms. The SPSS software was used to generate several types of data, including frequency, descriptive, regression, floating factor, reliability, construct average, Beta weight, hypothesis significance, R-square, and so on. It is a detailed study that must be carried out step by step to establish the value for each parameter and how each value contributes to the overall research outcome.

There are six variables in the study, four variable, one mediator, and one dependent variable. The goal of this study is to figure out how all of these variables interact to establish the final hypothesis and how important each hypothesis is. The demographic and socioeconomic statistics clearly explained age, gender, education, occupation, and income, providing for an overview of the respondents' backgrounds. In addition, the survey's frequency shows the number of scales chosen based on the survey question in comparison to the number of respondents. This study's hypothesis is a mix of major and insignificant factors. The P>0.059 value for the perceived behaviour control hypothesis is insignificant, yet there is rationale for considering the hypothesis significant. Environmental knowledge, perceived behavioural control, plastic and recycling information, and subjective norms have the strongest to weakest impact on the environment, according to the beta co-efficient. Nonetheless, this study aids in the identification of additional variables that impact the environment as a result of plastic use. Organizations are attempting to eliminate traditional plastic and encourage the use of biodegradable alternatives; thus, this study aids in understanding the importance of biodegradable plastic as part of one of the consumer knowledge questions.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

The analysis of research goal is to learn more about consumer behaviour, attitudes, perceptions, and understanding about plastic usage and how it affects the environment. Drilling down on each component, such as subjective norms, perceived behaviour control, plastic and recycle knowledge, and environmental awareness, can assist determine if this variable has a substantial impact on the environment. The data was generated using SPSS, and the table was created using EXCEL to illustrate each parameter. Due to time constraints, it was difficult to evaluate additional tools such as AMOS and SEM for structural equation modelling.

This chapter explains the findings of this study with the material and references to the relevant literature review that has already been published on the website. Some of the literature evaluations are based on different countries with similar goals, but the outcomes may differ according to internal and external circumstances. These studies allow researchers to better understand how consumers feel about plastic usage how they can help to reduce plastic consumption, recycle it, and substitute it with a more environmentally friendly option.

Plastic is considered as options and it is not completely banned hence this research show the behaviour and attitude that consumer have to avoid plastic usage and on top of it the recycle process which is one of the important aspects that should be attention. This survey considers as open eyer to public how easily they could get influence and continue with their normal habit even its involved extra money which by all means they could avoid. Plastic is considered a choice and is not fully prohibited, therefore this study demonstrates consumer behaviour and attitudes toward avoiding plastic usage, as well as the recycling process, which is an important factor to examine. This survey aims to show the public how readily they may be influenced and continue with their typical habits, even if it means spending money they could instead avoid.

Furthermore, one of the key hypotheses is that environmental knowledge is critical; raising awareness, educating others, and improving our understanding and knowledge, as well as paying attention, all help to reduce plastic usage. For example, paying extra money for plastic when purchasing items should be avoided, and always be prepared to recycle plastic or paper. It may appear simple, yet many individuals either forget or do not pay attention to bringing recyclable plastic with them when they leave the house.

5.2 Factor influencing environmental impact

5.2.1 Subjective norms and impact on environmental

The subjective norm is defined at the perceived social pressure to perform a behavior (Francis, 2004). The subjective norm reflects the extent to which people important to the individual are perceived to support the behavior and the extent to which the individual is motivated to comply (Knussen, 2008). Hee (2000) emphasized the influences of important people on individual such as close friends, relatives, colleagues. Consumers who hold positive subjective norms toward certain behaviors will have positive behavioral intentions. (Taylor & Todd 1995; Han 2010). There are a number of researches concluded that subjective norms is an essential factor in predicting behavioral intention (Baker 2007; Dean 2012; Ha & Janda 2012; Kumar 2012). According to this study, subjective norms and behavioural intentions have an association. Subjective norms are assumptions made by a specific individual or group of individuals that influence or support a specific behaviour; however, the hypothesis significant level is considered insignificant because it may not directly impact the environment as consumer influences from family, friends, and relatives increased the use of plastic; however, the environmental impact could be controlled, if necessary, by taking precautions such as recycling and proper disposal. Conclusion that subjective norms have no impact on environmental impact is equally debatable.

5.2.2 Plastic, recycle knowledge and environmental impact

Plastic and recycle knowledge for environment sustainability is necessary as sufficient knowledge, understanding and relevant insight about plastic and recycle helps in term of substitute to other alternative rather than plastic and proper recycling process can be executed from time to time. Recycling is clearly a waste-management strategy, but it can also be seen as one current example of implementing the concept of industrial ecology, whereas in a natural ecosystem there are no wastes but only products (Frosch & Gallopoulos 1989; McDonough & Braungart 2002). The hypothesis significant for this variable is considered insignificant because it may not have a direct impact on environmental sustainability because consumers may not contribute due to a lack of knowledge about plastic or recycling, or consumers may have sufficient knowledge but are unwilling to reduce plastic usage or recycle, both of which have no direct impact on the environment. Each individual should step outside of their comfort zone and contribute to the sustainability of the environment, so reducing plastic usage can be implemented wherever the consumer is located, and this can be done if the customer has sufficient knowledge and understanding of the consequences of using plastic. In addition to the reliance on finite resources for plastic production, and concerns about additive effects of different chemicals, current patterns of usage are generating global waste management problems. Barnes et al. (2009) show that plastic wastes, including packaging, electrical

equipment and plastics from end-of-life vehicles, are major components of both household and industrial wastes; our capacity for disposal of waste to landfill is finite and in some locations landfills are at, or are rapidly approaching, capacity (Defra et al. 2006).

5.2.3 Perceived behaviour control and impact on environmental

Perceived behavioral control (PBC) is defined as the perceptions of how easy or difficult it is to perform the behavior (Francis, 2004). The Perceived Behavioral Control reflects the extent to which the individual feels able to perform the behavior (Knussen, 2008). Perceived behavioral control assesses the perception of how well one can control factors that may facilitate and/or constrain the actions needed to deal with a specific situation (Han, 2010). Reducing plastic consumption compelled effort and consistency, which is also truly the case of the recycling process. As a result, perceived behaviour control has a direct and indirect impact on consumer behaviour as they choose to engage in certain activities. For example, some people find the recycling process to be time consuming and tedious, while others find it simple and straightforward. The hypothesis of perceived behaviour control is insignificant however it is debatable as previous literature review for example; in Vietnam, most of their resident's income is low hence high-cost plastic substitutes are considered challenges to change their habit of plastic usage.

5.2.4 Environmental knowledge and impact on environmental

Hypothesis four, which is the significant level (p>.001), proves that environmental knowledge has a major impact on the environment. Knowledge and understanding of environmental concerns lead consumers in the right direction because they understand the impact on the environment if people fail to act rationally and follow certain protocols or procedures that may have a positive impact even if it is not considered as mandatory. For example, while substituting plastic with another alternative and recycling is still considered as options and willingness by the individual, the knowledge that consumers have about plastic and recycling encourages them to do so voluntarily. The most significant factor affecting nature was not the official government policy but the public awareness on the environmental problems (Chukwuma, 1998). Many people have high ecological concern but have the sentiment that the preservation of the environment is the prime responsibility of the government (Chyong et al., 2006).

5.2.5 Consumer perception and attitude towards environment, recycling and impact on environmental

Consumers' perceived level of self-involvement towards the protection of the environment may prevent them from engaging in environmentally friendly activities such as recycling (Wiener and Sukhdial, 1990). In his 2005 article on increasing university recycling efforts, Clay frames the importance of recycling well: "In recent years recycling has become increasingly imperative; waste generation has escalated, and resources are becoming scarce, making recycling not only sensible practice but essential" (Clay, 2005). Consumer perception and attitude towards environmental, recycling and impact on environmental has corelation where the feeling to have sustainable environment is at the essential of improving the capability to safeguard the environment for future generations is essential. "Environmental resources such as soil, water, air, and biodiversity provide the building blocks necessary for human health" (Largo-Wight, 2013). Recycling promotion is essential because it not only reduces consumption of natural resources, but it also conserves energy (Chan, 2013).

5.3 Research Contributions and Implications

The outcomes of the study are substantiated by theory, literary review, and practices. The academic and theoretical contributions examined and used as references, particularly those that are related to and have a significant similarity with the selected topic.

5.3.1 Contribution of theory

The fundamental contribution of this original study is the design and empirical testing of an environmental impact correlated with consumer perception, attitude, knowledge, and behaviour as a result of plastic usage. All of the above characteristics were employed in various literature reviews, but the results varied because the studies involved diverse populations and countries. All of these variables are intended to help academics better understand how customers react to different aspects. The goal of this study is to focus on the environmental impact of plastic usage, but the overall survey could help to deep dive into other factors as part of new research because all of the questions have a strong influence and could be used in future studies. This study is not restricted to a particular individual, and it encompasses a broader perspective that encourages new research to develop new ideas and insights in order to attempt relevant research. Furthermore, similar research is needed to have a better understanding and opportunity to decrease plastic and contribute to environmental sustainability, which is a global responsibility.

5.4 limitation of the research

While conducting this research, there are several limitations. There are various literatures on this subject, but identifying the most relevant research is critical. Plastic usage and its impact on the environment are well-known facts both domestically and globally, but narrow down to the specific aspect is essential, or else the research will lack accuracy and clarity. Firstly, extract all the research that related to the topic help us to identify the variable and hypothesis to proceed to the next level however selecting the right variable is challenges as some of the previous research outcome was not articulately in more understandable and straight forward which it took more time to grasp the relation between the variable and hypothesis. Furthermore, the survey response is just as important as the previous literature review; without these two resources, the research cannot be concluded. There are difficulties in obtaining adequate survey responses in a short period of time; yet, collecting the right sample is essential; therefore, the minimum sample was obtained to support the subsequent findings and analysis. Some of the responses are subjective, since people may want to answer quickly rather than fully comprehend the question hence to ensure 100% of accuracy is challenging.

Finally, while there are some limitations in terms of finding the appropriate literature review, questionnaire, and conclude the final outcome of the research based on the responses received, there are also many learning points to comprehend the tedious process involved before initiating and completing the final research.

5.5 Direction of further research

According to the research, subjective norms, perceived behavioural control, plastic and recycle knowledge, and environmental knowledge are important because they have a correlation with environmental impact. However, improvising the current questionaries with the relevant variable may provide with a different perspective and the same applied to the variable. The researcher could also explore other variables aside from the above-mentioned variables to identify prominent factors that impact the environment. Obtaining more literature reviews across the country aids in the development of other variables. While the research can use the same variable, the combination of other variables aids in the development of more relevant research that can benefit both internally and worldwide.Since the research issue is vast, many additional aspects should be examined as part of the study, more literature review is needed to improve the current study. The variables of subjective norms and plastic and recycle knowledge are not really significant, hence the next researcher should be able to scratch deeper to understand why attitude or knowledge isn't considered significant for this research, while also making reference to the previous question to gain more insight so that the next research can be done in a more significant way.

5.6 Conclusion

Plastic usage: perceptions and attitudes of Selangor consumers toward environmental effect and recycling are the main focus of the study. Plastic has become ingrained in our culture, but it is harmful to the environment since it is difficult to dispose of. Plastic is also considered harmful food by marine life. Most polymers are buoyant in water, and since items of plastic debris such as cartons and bottles often trap air, substantial quantities of plastic debris accumulate on the sea surface and may also be washed ashore. As a consequence, plastics represent a considerable proportion (50–80%) of shoreline debris (Barnes *et al.* 2009).

Perception, attitude, knowledge, and behaviour are all essential factors in determining a consumer's level of understanding of plastic consumption in Selangor. The variables chosen are based on the key contributors to environmental impact. The frequency of scale selected can be used to determine the level of attitude, perception and knowledge based on survey responses. In the frequency table, the breakdown and proportion of respondents have been described. This study gives us a summary of Selangor consumers' attitudes, knowledge, and behaviour when it comes to plastic usage.

Most of shopping malls and restaurants have plastic options, but several well-known brands, such as Starbucks, McDonalds, Adidas, and others, have started to adopt biodegradable plastic as part of environmental sustainability, hence each individual must play their part in eliminating plastic. Recycling is one of the methods that can help reduce the impact of plastic on the environment, but there are many of reasons why individuals are hesitant to recycle. We can relate to the behaviour, attitude, and knowledge, but it is very subjective to draw conclusions without solid facts or evidence, therefore future research might delve deeper into all of these areas within a reasonable time.

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APPENDIX 1: COVER LETTER

3rd April 2022

Dear respondents,

Subject: Final Research Project

Researcher: Kogilavani Krishnan (M20711010), Graduate School of Business, Master of Business Administration (Majoring in Management)

This is **Kogilavani Krishnan**, a Master candidate in the Graduate School of Business at University Tun Abdul Razak (UNIRAZAK), Malaysia. The title of my research project is Selangor consumers' perception and attitudes on plastic usage, impact on the environmental and recycling.

The main objective of the study is to determine Selangor consumers perceptions and attitudes of plastic usage, environmental impact and recycling due to the usage of plastic as part of their daily routine. The research helps to examine how consumers' subjective norms, perceived behaviour control, plastic recycling and environmental knowledge influence recycling processes and environmental impact due to constant usage of plastic.

Participation from you would involve completing this questionnaire by using a Google Form. This set of the questionnaire consists of six (6) sections. Each section has six questions created based on research hypotheses. The questionnaire should take approximately 15 minutes to complete.

I would appreciate it if you could give your cooperation by devoting your precious time to the survey. It must be stressed here that the data obtained from this survey will contribute to my thesis and appear in academic journals or may be presented at academic conferences, and all the information will be strictly confidential. By submitting the completed questionnaire, you consent to participate.

Should you have any queries or wish to know more about this study, feel free to contact me,

Kogilavani Krishnan (Master Candidate)
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+00000
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Your kind cooperation and contribution to my study is highly appreciated.

Thank you

APPENDIX 2

Section A: Demographic profile

Demographic, please select one (1) answer that best describe yourself.

Demographic

Please select one (1) answer that best describe yourself.

1. Gender

- Female
- Male

2. Age

- Under 18
- 18-24
- 25-34
- 35-44
- 45-64
- 65 or more

3. Highest Education Level

- High School
- Diploma
- Degree
- Master
- PhD

4. Occupation

- Government sector
- Non- government sector
- Self-employed/ Business owners
- Unemployed/ Homemakers/Retired
- Students

5. Monthly Household Income

- Less than RM 2,500
- RM 2,501 - RM 5000
- RM 5001 - RM 10000
- More than RM 10,000

Section B: Survey Questionaries

Please indicate your opinions on a 5-point scale on the following statements, which focusing on plastic usage, environmental impact, and recycling.

(1–strongly disagree, 2–disagree, 3-neutral, 4-agree, 5-strongly agree)

Independent variable & Measurement

Factors influencing of plastic usage	Strongly Disagree ← → Strongly Agree				
a. Subjective norms	**1**	**2**	**3**	**4**	**5**
1. I'm using plastic because it's cheap and more readily available.					
2. My family and friends encourage me to reduce single-use plastics.					
3. My family and friends are conscious of plastic waste pollution and tend to reduce plastic waste in their consumption.					
4. I understand plastic is harmful for environmental however I'm still using plastic because it's convenient.					
5. I have a favourable attitude toward consumers' behaviour to reduce plastic waste.					
6. When you buy groceries, do you generally avoid buying single-use plastic goods (e.g., plastic cutlery, cups, plates, etc.)					
b. Plastic & Recycle knowledge					
7. Plastic is easily disposable when discarded in a landfill or environment.					
8. I segregate my waste according to plastic, glasses, paper and general waste for recycling purposes.					
9. I have enough knowledge about biodegradable plastic					

10. Recycling old items helps to reduce waste sent to landfill.					
11. I prefer to use biodegradable plastic, despite the cost, as it protects the environment compared to normal plastic.					
12. Reduce, Reuse, and Recycle waste—it is long process and increases the amount of space needed for landfill sites.					
c. Perceived behavioural control					
13. I have enough time to look for alternatives for plastic utensils.					
14. I will compress the plastic waste (if compressible) before discarding it into the recycling bin					
15. Recycling process takes up too much time.					
16. Although it takes more time, I regularly segregate waste before recycling.					
17. It is challenging to reduce plastic usage since it's easily available.					
18. I could control the usage of plastic in my daily routine					
d. Environmental knowledge					
19. Reflects on impact of plastic package in moment of purchase.					
20.Consuming environmentally friendly products has important and direct benefits to the environment.					
21. Plastic is a substantial part of domestic wastes in land fill					
22.Considering plastic is harmful to the environment, it should be eliminated.					
23.Recycle regularly could protect the environment sustainability?					

24. Recycle regularly could protect the environment sustainability?					
Mediator variable & Measurement					
Consumer perception & attitudes towards environment and recycle					
25 Recycling does not have a significant impact on environmental sustainability.					
26 I do not know/understand how to perform recycling; hence, I never try or learn how to do it.					
27 The use of plastic is legal. Hence, I consider recycling an option for the sustainability of the environment.					
28 Plastic use has become a habit, despite the fact that I'm fully aware of how it will affect the planet in the long run.					
29 I will bring recycled plastic or paper bags whenever I intend to buy groceries or shop.					
30 I pay extra money to get plastic whenever I buy groceries or other goods, despite being aware of the government's initiative to reduce plastic usage.					

Dependant Variable and Measurement

Measure	1	2	3	4	5
31. I'm actively involved in social responsibility activity initiate by Government or Non-Government organization to protect our environment from the impact due to plastic usage.					
32. If you use plastic regularly, are you consistently executing the recycling process, taking into consideration the impact on the environment.					
33. Have you attempted to use biodegradable plastic to reduce an environmental impact?					
34. I would encourage the initiative if Malaysia decided to ban plastic as part of environmental sustainability					
35. I would educate my friends, family, or relatives to reduce plastic usage as part of environmental sustainability.					
36. Governments should raise public awareness and knowledge about the environmental impact of plastic use.					

APPROVAL PAGE

TITLE OF PROJECT PAPER: **SELANGOR CONSUMERS PERCEPTION AND ATTITUDES ON PLASTIC USAGE, IMPACT ON THE ENVIRONMENTAL AND RECYCLING**

NAME OF AUTHOR : KOGILAVANI KRISHNAN

The undersigned certify that the above candidate has fulfilled the conditions of the project paper prepared in partial fulfilment for the degree of Master of Business Administration.

SUPERVISOR

Signature : _____

Name :

Date :

ENDORSED BY

_____

Dean

Graduate School of Business