Factor That Influences the Reduction of Plastic Bag Usage Among Universiti Tun Hussein Onn Malaysia (UTHM) Students

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Abstract: Nowadays, plastic bags are widely used in the world including in Malaysia. Malaysia's environmental problem related to plastic waste has been ranked 8th globally, due to plastic waste mismanagement. In UTHM, it was reported that the three highest waste compositions generated by its residential college cafeteria were food waste, general waste, and plastic waste and UTHM students preferred to use single-use plastic for take-away food. Therefore, to resolve the issues, it is important to identify the factors that influence UTHM students' intention toward the reduction of plastic bag usage. This study uses the Theory of Planned Behavior (TPB) model to determine the factors that influence the intention to reduce plastic bag usage. A quantitative method using a survey approach was deployed were 267 students of the Faculty of Technology Management and Business, UTHM, responded to the questionnaires distributed via an online survey. Descriptive analysis using Statistical Package for Social Science (SPSS) revealed that attitude, subjective norm, perceived behavioral control significantly influence the consumer's intention to reduce plastic bag usage and attitude is the most influential factor affecting the consumer's intention to reduce plastic bag usage. Therefore, it can be concluded that plastic waste can be reduced if the right attitude can be instilled among Malaysian in this case university among students. It is also recommended that an in-depth study should be conducted to further understand e the right type of attitude needed to be instilled.

Keywords: Plastic bag, Intention, Factor, Consumer, Theory of planned behavior

1. Introduction

Environmental pollution is a common issue in the world because of the overusing and exploitation of natural resources. Environmental issues such as air pollution, global warming, waste disposal, and water pollution. The mismanagement of plastic bags has worsened global plastic pollution. The plastic bag needs time to degrade in the soil, and it contributed to water and soil pollution. Plastics bags are the

most common form of waste that also contributed to the growing global marine pollution problem (Zettler, Mincer, & Amaral-Zettler, 2013). Even though the plastic bag is beneficial for the consumer, the irresponsible disposable of the plastic bag a plastic has become problem disadvantageous and detrimental to the environment. Since 1950, only 9 percent of the plastic has been recycled, and 8 million tons of plastic waste were disposed of or dumped on the ocean (D'ambrières, 2019). According to Kasidoni, Moustakas, & Malamis (2015), over one trillion plastic bags are used every year at the world level. Three billion plastic bags are used every day in China. Indonesia is the second-largest contributor to its country's plastics waste problem after China, due to lifestyles and reliance on plastic bags (Arifani & Haryanto, 2018). Malaysia's roadmap towards zero single-use plastic report highlighted that the environmental problem related to plastic waste in Malaysia has been ranked 8th globally due to the mismanagement of plastic waste (Palmer, 2019).

Therefore, to resolve the plastic waste environmental issue, reduction or total banded of plastic bag use is necessary. Several mandatory policy measures should be undertaken to reduce plastic bag usage. For instance, in 2008, China's government enforced the plastic bag ban and levy. Indonesia's government only levy on plastic bags imposed on customers in 2016, and the South Africa government ban on plastic bags in 2003. Besides, the world governing body has advocated the combination of a regulatory and economic instrument to ban and introduction a levy on the use of plastic bags that will likely reduce the plastic bag environmental disaster (United Nations Environment Programme, 2018).

1.1 Research Background

Plastic waste has always been present in the environment because it is widely used globally. The plastic bag is the most significant plastic waste discovered in the environment. According to The World Counts website, plastic bags made of polythene will cause pollution from manufacturing to disposal. It is environmentally hazardous because they are highly toxic after it was deposited in landfills or oceans (The World Count, 2020).

It is reported that nowadays, students are heavily relying on plastic bags. National Geographic reported almost 6.9 billion tons of plastic waste and 79 percent of plastic produced in waste dumps (Packer. L, 2018). Plastic waste is harmful to the environment and human health and thus would impact the students facing the plastic waste problem on campus (Okunola *et al.*, 2019). Accordingly, action to avoid pollution is needed before it gets worse. Awareness of environmental issues is essential for students to protect nature on campus. That is why, in July 2010, UTHM established Sustainable Campus Office (SCO), which offers administrative leadership and coordination for campus-wide green initiatives. UTHM's Sustainable Campus office did implement various green activities on campus including activities that involved recycling and collecting plastic waste to reduce on-campus plastic pollution. (SCO, 2020). The activities are essential in educating the student on the awareness of plastic waste since such problems also exist on its campus. Therefore, this research is essential to see how UTHM students view how to deal with these plastic waste issues.

1.2 Problem Statement

UN Environment Report stated that every minute, one million plastic drinking bottles are purchased around the world, and every year, 5 trillion single-use plastic bags are used in total. Plastic straws, water bottles, plastic bags, and others were thrown on the roadsides and seashore without thinking about the implications to the environment. Plastic waste is the main component that contributed to the toxic pollutants which damage the environment in the form of air, water, and land pollution, and causes health risks (UN Environment Report, 2018). People's responsibility is critical in terms of the growing environment and cleaning. People are not fully aware of the harmfulness of plastic bags that will negatively impact the environment and human health (Thompson *et al.*, 2009).

The absence of an environmentally-friendly of student contributes to the growth of plastic bags used. Failure to raise environmental concerns and awareness will affect their decision whether to use

reusable bags or plastic bags. These phenomena were revealed by Miller (2011) in her study on students of the University of Alabama, USA, which also revealed that although the majority of the students acknowledge that plastic bags do notable damage to humans and the environment, however, they still use the plastic bag more often than the reusable bag. The study also indicates that almost all students prefer to use single-use plastic shopping bags. According to Srinivasan et al. (2019), students tend to use plastic bags because of their low cost, ease of storage, and carry. Students' consumption habits are difficult to shift in a short period because plastic bags become a packaging material in their daily life.

In Malaysia, there is a lack of awareness about the negative impacts to the environment on the use of plastic bags. According to According Malaysian environmentalist, Andrew Sebastian, Malaysians are still unaware of the harmful impacts of plastic bags, on the environment. The decision to use plastic is due to a lack of environmental awareness and comprehension due to poor environmental knowledge. (Sigit et al., 2018).

In UTHM, the existence of activities that involved recycling and collecting plastic waste shows that such problems do exist on campus to reduce on-campus plastic pollution (SCO, 2020). According to the findings of a study, the three highest waste compositions generated by the UTHM residential college cafeteria were food waste, general waste, and plastic waste. The study also discovered that students preferred to use single-use plastic for take-away food and refuse to do waste separation as the recycle bins were located far away from their rooms (Ali et al., 2020). Gammon (2019) said that Malaysians are still heavily relying on plastic bags in daily life, although most Malaysians believe that conserving the environment is essential. However, a study revealed that an individual who is aware of plastic bags' impact on the environment would intend to reduce plastic bags consumption (Arı & Yılmaz, 2017). Therefore, there is important to identify the factors that influence the intention of individuals toward the reduction of plastic bag usage. Since Malaysian universities have been identified as one of the major contributors to achieving sustainable development, they have the moral and ethical obligations to act responsibly toward the environment (Ali et al., 2020). Thus, they have the obligation to find ways to reduce plastic pollution on campus. One of the ways is to identify the factor that influences the reduction of the use of plastic bags among and in this case among UTHM students.

1.3 Research Questions

(i) What are the factors that influence the intention of FPTP students toward the reduction of plastic bag usage in UTHM?
(ii) What is the most influential factor influencing FPTP students' intention toward reducing plastic bag usage in UTHM?

1.4 Research Objectives

(i) To identify the factor that influences FPTP students' intention toward reducing plastic bags usage in UTHM.
(ii) To determine the most influential factor influencing FPTP students' intention toward reducing plastic bag usage in UTHM.

1.5 Scope of the Study

The research scope focused only on determining the factors that influence the reduction of plastic bags usage among UTHM students. The respondents of this research are the Faculty of Technology Management and Business (FPTP) students. This research was carried out through an online survey. The data collection for this research focuses on the questionnaire of each respondent's response. 267 FPTP students responded to the survey.

1.6 Significance of the Study

In this research, the intention is to understand people's willingness to reduce plastic bags consumption is essential in minimizing worsen of environmental issues. This research uncovered the factors that will influence students' willingness to reduce plastic bags usage. It will guide UTHM to create an effective program based on the Theory of Planned Behavior most significant factors that will lead to students reducing plastic bags usage. The program should bring a positive impact on student behavior toward the environment. It also should turn our students' into environmentally conscious citizens.

This study can also build up public awareness and motivation to reduce, reuse and recycle plastic bags will undeniably help resolve environmental problems. This research may also be valuable for government authorities, private bodies, or individuals to establish effective policies and take action in compliance with consumers' actual behavior.

2. Literature Review

2.1 Plastic Bag

Heidbreder *et al.* (2019) and Anne (2020) defined plastic as a typically organic high molecular polymer, and it is a synthetic material, and most plastics are produced from the petrochemicals industry. The plastic polymer is manufactured in combination with colors, plasticizers, stabilizers, fillers, and refurbishment. Plastic is non-biodegradable waste and takes more than 1,000 years to decompose fully. According to Avallone *et al.* (2012), the plastic bag is made with recyclable raw material. It is being used globally indiscriminately because of accelerated growth in consumer markets.

Plastic is cheap, durable, lightweight, and is made with high resistance, high-thermic, and electrically insulating materials. Consumers tend to use plastic bags because it is convenient to the consumer when carrying goods. Most of the supermarkets and shopping malls will provide plastic bags to the consumer to have their interests. Packaging is one of the sensitive areas of plastic production. Plastic packaging single-use material designed for immediate disposal is the largest industrial sector (UN Environment Report, 2018). United Nations Environment Programme (2018) reported that more than 400 million tons of plastics are produced in the world every year. And every year the accumulation of plastics waste ends up in the river, sea, and land due to irresponsible consumers' behavior littering plastic as per their wishes.

2.2 Theory of Planned Behaviour (TBP)

Every person has different beliefs and habits. To determine the factor that influences the reduction of plastic bags consumption, TPB was used in this research because it provided a systematic theoretical framework, and based on previous studies TBP is recognized to be beneficial in determining particular behavior and intention (Ayob *et al.*, 2017; Wan *et al.*, 2012). TPB is a model to understand the psychological determinants of human social behavior and intention that deal with the preceding attitude, subjective norm, and perceived behavioral control (Ajzen, 1991). The Theory of Planned Behavior has been successfully used to the psychosocial determinants of resource reduction behaviors and determined that the attitude not directly impacts behavior, but indirectly through behavioral intention (Ohtomo & Ohnuma, 2014; Arı & Yılmaz, 2017). Many previous studies have acknowledged the Theory of Planned Behavior is useful in deciding specific intentions (Arı & Yılmaz, 2017). The Theory of Planned Behavioral had been used in several studies that stated attitude, perceived behavioral control, and subjective norm caused significant effects on customer's intention (Wan *et al.*, 2012; Ertz *et al.*, 2017). Ferdous and Das (2014) studied the Theory of Planned Behavior and plastic usage and discovered that behavior is dependent on one's intention to reduce the use of plastic.

2.3 Independent Variable

(a) Attitude

According to Chen and Tung (2014), attitude is a psychological emotion that evaluation by consumer and, if positive, the behavioral intention tends to be more positive. Attitude is a feeling of a person either it is positive or negative to the evaluation of specific behavior (Sulaiman *et al.*, 2019). According to Chen & Hung (2016), consumer attitude is associate with reducing plastic bag consumption and using green products to protect the environment. Further evidence shows that attitude is the factor in predicting consumers' intention to bring their shopping bag (Chang & Chou, 2018). If the consumer carries their bag for shopping, plastic bag usage will also decrease. Further evidence showed that the strongest predictor of factors that influence the reduction of plastic bag usage among the students is attitude (Ayob *et al.*, 2017).

H1: Attitude has significant effects on the consumer's intention to reduce plastic bag usage.

(b) Subjective Norm

Subjective norm defines as the degree to which individuals have felt social pressure to perform their intention (Khan *et al.*, 2019). Khan, Ahmed, & Najmi (2019) and Wan *et al.* (2012) claimed that subjective norms would influence by a family member, friends, and others who surround a person. Several studies have indicated that an individual's intention would influence by the subjective norm. The researcher asserts that celebrities and families influence individual consumption opportunities to minimize plastic bag consumption (Linh *et al.*, 2019). Subjective norms have been applied in many previous studies to determine that subjective norm and are an essential factor in predicting the individual's intention to reduce plastic bag usage (Linh *et al.*, 2019; Wan *et al.*, 2012). The subjective norm of friends and celebrities will affect an individual's intention to reduce plastic waste. Besides, the empirical result revealed the subjective norm would influence the intention to reduce plastic bags' use (Sun *et al.*, 2017).

H2: Subjective norm has positive effects on the consumer's intention to reduce plastic bag usage.

(c) Perceived Behavioral Control

The perceived behavioral control defines the individual's perception of ease or difficulty to perform their particular intention and is assumed to reflect the experience and anticipated obstacles (Ajzen, 1991). The perceived behavioral control defines the individual's perception of ease or difficulty to perform their particular intention and is assumed to reflect the experience and anticipated obstacles (Ajzen, 1991). Hasan *et al.* (2015) indicated that perceived behavioral control is the most potent predictor of the student's intention and reflects the student's attitude performing their effort to reduce the plastic bag consumption. Besides, according to Maichum *et al.* (2016), perceived behavioral control significantly influences the consumer's intention to purchase green products and will cause the reduction of plastic bag usage. According to Chen & Hung (2016) showed that perceived behavioral control has a relationship with the intention to use green products, thus reducing plastic bag consumption.

H3: Perceived behavioral control has significant effects on the consumer's intention to reduce plastic bag usage.

2.4 Dependent Variable

The intention defines as an indicator of an actor's willingness or motivation to present their action (Tenkasi & Zhang, 2018). The intention stands for the individual's conscious or desire to reduce plastic bag usage (Ajzen, 1991a; Al Mamun *et al.*, 2018). Hasan *et al.* (2015) examined University Putra Malaysia (UPM) students' intention to reduce plastic consumption and founded the perceived

behavioral control as the most reliable predictor of UPM students' intention to reduce plastic use. Meanwhile, Arifani & Haryanto (2018) examined the factor that affects the consumer's purchase intention in Surakarta to purchase reusable shopping bags to reduce plastic bags. Both types of research revealed that attitude is the accurate predictor of intention to buy reusable shopping bags. Agyeman & Badugu (2017) also found that consumers' intentions toward purchasing eco-friendly bags affect their willingness to pay. According to Chang & Chou (2018), the researcher looks at consumers' intention to bring their shopping bags to Taiwan. The result showed that the consumer's attitude and perceived behavioral control would influence their intention to bring their shopping bags to reduce plastic bags. The individual's intention is essential to perform their effort to reduce plastic bag consumption.

Viewing above a conceptual framework consisting of attitude, subjective norm, perceived behavioral are identified as the independent variable, and intention to reduce plastic bag usage is being identified as the dependent variable for this research.
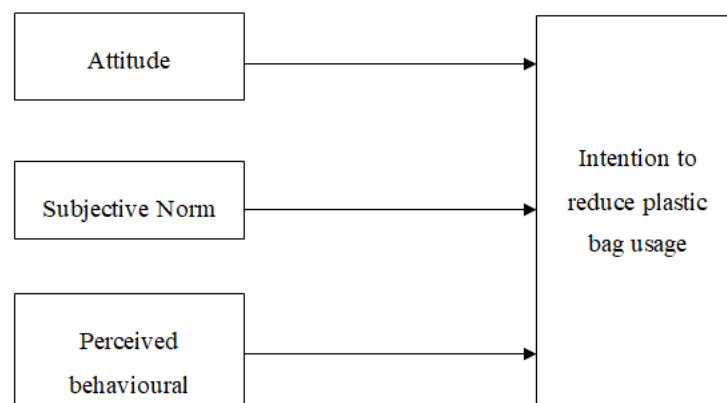

Figure 1: Conceptual framework

3. Research Methodology

3.1 Research Design

The researcher used a quantitative approach in this research to collect the data. The quantitative method was used to collects numerical data from a targeted population. The online survey questionnaire was carried out in this research to collect the data. The questionnaire shares with the undergraduate and postgraduate students from the Faculty of Technology Management& Business (FPTP). In this research, the target populations are the students who study at the Faculty of Technology Management& Business (FPTP) in UTHM. Meanwhile, therefore, due to the limitation of research duration where time is a constraint, a quick data collection method via convenience sampling approach was adopted. In comparison to techniques such as simple random sampling, stratified sampling, and systematic sampling, the rules for gathering elements for the sample are the least complicated. Data collection takes very little time as a result of its simplicity. Moreover, the readily available target respondents are concentrated on undergraduate and postgraduate students who study at the Faculty of Technology Management and Business (FPTP). Questionnaire distribution through an online survey was used to collect the data. This research employed a non-random sampling technique. The convenience sampling method was used to collect the data in this research. The sample from the FPTP students in UTHM was selected. The total number of undergraduate and postgraduate students in FPTP is 2005. Refers to the table developed by Krejcie & Morgan (1970), 322 FPTP students are involved in this research. However, only 267 students responded to the survey.

3.2 Data Collection

In this research, the researcher used self-administered questions to collect the data. The descriptive studies also will be carried out on the designation of the questionnaire. The descriptive studies attempt to describe the systematic situation, problem, and phenomena. The questionnaire will distribute to respondents by using an online survey. The methods that are used are more likely than paper surveys to increase response rates in online surveys.
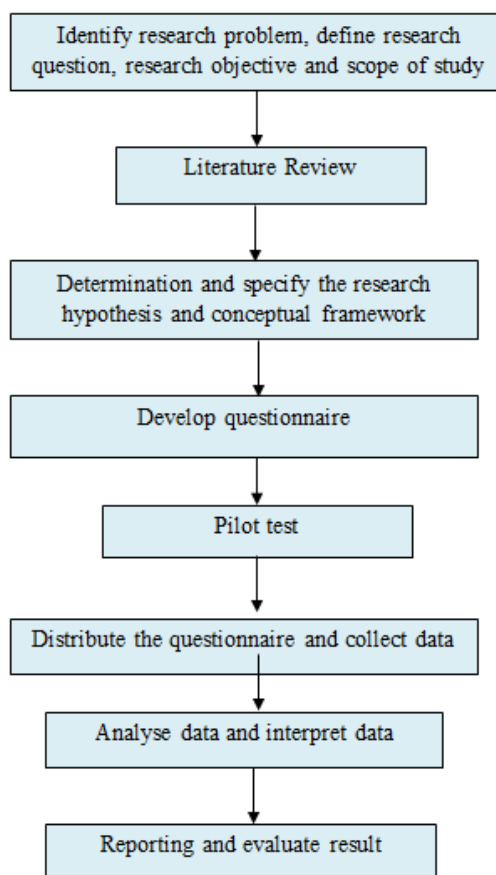

Figure 2: Flowchart of the research process

3.3 Data Analysis

In this study, the data were collected and gathered using a survey questionnaire and distributed to 375 FPTP students in UTHM. The data were analyzed using IBM Statistical Package Social Science (SPSS) 21 software package to achieve the objective and test this study's hypothesis. SPSS is a software program used to run all the data and variables from the questionnaire and carried out the result. The demographic information was analyzed by descriptive analysis in the form of mean and standard deviation (Mishra *et al.*, 2019)

Reliability analysis for the initial first 10 respondents was tested to validate the reliability of the questionnaire item. The multiple regression analysis was used to test hypotheses in this research. The result showed the result of Cronbach's alpha for each variable. According to Ursachi, Horodnic, & Zait (2015), that reliability show lower than 0.6 is considered poor, more than and less than 0.7 is considered moderate, more than 0.7 but less than 0.8 is considered good, and the reliability of more than 0.9 is considered excellent. The Cronbach's alpha of attitude to reduce plastic bag usage consisted of 5 items recorded with 0.758 which is good. Subjective norm affects the intention to reduce the use of plastic bags consisted of 6 items recorded with 0.834 which is excellent. Perceived behavioral control intends

to reduce the use of plastic bags consisting of 5 items recorded with 0.929 which is excellent. The intention to reduce the plastic bag usage consisted of 6 items recorded with 0.962 which is excellent.

3.4 Research Instrument

In this research, a questionnaire was developed for data collection. The questionnaire was adapted from a previous study that relevant to this research (Linh *et al.*, 2019; Arı & Yılmaz, 2017; Maichum *et al.*, 2016). The survey questions consist of three sections. Section A is the profile of the respondent. Section B evaluates the criteria factor that influences the reduction of plastic bag usage, and section C is on the intention to reduce plastic bag usage. Section A has eight items, which are gender, age, years of studies, level of studies, ethnic background, number of plastic bags use per week, and frequency use of reusable bags. Section B consists of questions regarding the agreement dimension, namely, attitude, subjective norm, and perceived behavioral control. Section C is regarding the intention of student's FPTP on reducing plastic bag usage. The questionnaire was measured using a five-point Likert scale (1= strongly disagree, 5= strongly agree) for both independent and dependent variables in the research. These research questions were used to assess the attitude, subjective norm, and perceived behavioral control of respondents, which will influence their intention in reducing the use of plastic bags.

4. Results and Discussion

4.1 Descriptive Analysis

There are 322 respondents involved in this research. Therefore, 322 questionnaires were distributed by using Google form. However, only 267 students responded to this research. SPSS was used to analyze the data.

(a) Demographic Information of the Respondent

The respondents consisted of 89 males and 178 females involved in this research. The percentage of female respondents is 66.7% but the percentage of male respondents is only 33%. The percentage of respondents who are 19 to 23 years old is 88.8% and respondents who are 24 to 28 years old is 10.5%. There have 0.7% is respondents who are above 34 years old. The percentage of year 4 students is 52.1% which is 139 respondents, the percentage of year 2 students is 17.6% which is 47 respondents, the percentage of year 3 students is 15.4% which is 41 respondents and there have 40 respondents which are year 1 students which show 15%. The majority of the respondents were from the students with holder Bachelor's degrees which is 256 respondents (95.9%). The percentage of diploma students is 2.2% which is 6 respondents, the percentage of master students is 0.7% which is only 2 respondents and the respondent who is Ph.D. students is 3 respondents which shows 1.1%. The percentage of Chinese students is 48.3% which is 129 respondents and the percentage for Malay's students is 47.6% which is 127 respondents. The percentage of the respondent of India and others ethnicity is 1.9% and 2.2%. The respondents who responded to the use of 1 to 5 plastic bags per week are 161 respondents (60.3%). 79 (29.6%.) respondents use between 6 to 10 numbers of plastic bags per week. The number of the respondent that uses 11 to 15 and above 15 plastic bags per week is 6.7% and 3.4% respectively. The percentage of respondents that sometimes use reusable bags is 50.2% which is 134 respondents and 23.3%. respondents always use the reusable bag only which is 62 respondents. Only 6 (2.2%) respondents never use the reusable bag in their life.

(b) Central Tendencies and Standard Deviation

Based on Table A (Appendix), shows the central tendency of measurement of each item in independent variables. The mean values for the attitude range are between 4.41 to 4.65. The ranges of the mean values for subjective norm are between 3.93 to 4.52. The values of means for the perceived behavioral control range from 4.09 to 4.44. The indications for all items in independent variables were

high. This result shows that most respondent responses agree to the item measure for respondents' attitude, subjective norm, and perceived behavioral control. For the values standard deviation, 1.00 is the highest value scored by SUB3, whereas 0.591 is the lowest value achieved by A2. As a result, the standard deviation for the independent variables item is above 1.00 and below 0.54.

The mean and standard deviation for the dependent variable items were analyzed through SPSS. Five items are being used in the independent variables to measure the intention to reduce plastic bag usage. The mean values for intention to reduce plastic bag usage are between 4.50 to 4.48. Therefore, this result clearly shows that most of the respondent's responses agree on the item that had a survey in the questionnaire. The highest standard deviation score is 0.695, scored by INT4, but the lowest score is 0.632, achieved by INT2. Through this result, the standard deviation for the dependent variable is above 0.695 and below 0.632.

(c) Normality Test

The normality test is used to determine whether the data collected is normally distributed or non-normally distributed. Normality testing is essential in the research, and it provides a lot of benefits and is realistic (Kapatou, 2003). The normality test was used to determine whether the data collected is normally distributed or non-normally distributed. Two well-known normality tests in SPSS, which are the Kolmogorov-Smirnov and the Shapiro-Wilk (Anaesth, 2019).

Table 1 shows the result of the normality test for independent variables and dependent variables. The sample size in this research was 267 respondents. This research's normality test is Kolmogorov-Smirnov because the sample size in this research is 267 respondents. Table 1 displays the result normality test, which consists of attitude, subjective norm, perceived behavioral control, and intention to reduce plastic bag usage. It clearly shows that the p-value of each variable is less than 0.05. Hence, the normality test of all variables is significant, and the data distribution is not normal because the significant value is lower than 0.05.

Table 1: Result of normality test for independent variables and dependent variable

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Attitude	.168	267	.000	.851	267	.000
Subjective norm	.114	267	.000	.930	267	.000
Perceived behavioral control	.115	267	.000	.919	267	.000
Intention to reduce the plastic bag usage	.174	267	.000	.832	267	.000

(d) Reliability Test

To validate and ensure the reliability of the data, reliability analysis is undertaken in this research. Reliability analysis is the way to test whether the instrument of survey questions is reliable or not. According to Ursachi *et al.* (2015), Cronbach's alpha between 0.6 to 0.7 indicates acceptance. However, Cronbach's alpha higher than 0.90 is not good because it may indicate idleness (Ursachi *et al.*, 2015).

Based on Table 2, each variable in this research indicates an acceptable level because Cronbach's alpha is higher than 0.6. The attitude, subjective norm, perceived behavioral control, and intention to reduce plastic bag usage variables achieved 0.814, 0.844, 0.845, and 0.884 Cronbach's alpha, respectively, indicating very good reliability. As a result, there has no Cronbach's alpha below 0.6, and all of the Cronbach's alpha is higher than 0.8. Therefore, the instrument of the questionnaire is reliable in a measure of the variables in the survey.

Table 2: Result of reliability test

Item	Variables	Cronbach's Alpha
1	Attitude	0.814
2	Subjective Norm	0.844
3	Perceived Behavioral Control	0.845
5	Intention to reduce plastic bag usage	0.884

4.2 Hypotheses Testing

Table 3 shows the output of the model summary of multiple regression analysis. In this research, a model summary shows the values R and R square. In this table, R is to determine the dependent variable's strength and the combination of all independent variables. R square is the independent variable that explained the percentage of variance in the dependent variable (Thompson, 1996). According to Table 3, R= 0.781 means that there is the most vital relationship between the consumer's intention to reduce plastic bag usage and Att, SUB, and PBC. Thus, it shows that 0.781 is a good predictor of the dependent variable. Table 3 also shows R Square (R^2) = 0.610 or 61.0%, indicating that the independent variable explains 61.0% of the dependent variable.

Table 3: Model summary

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.781[a]	.610	.605	.33924	1.952

a. Predictors: (Constant), subjective norm, attitude, perceived behavioral control
b. Dependent Variable: Intention to reduce plastic bag usage

Table 4 shows the statistical significance between the independent variable and dependent variable. ANOVA is the test that determines whether regression analysis is a good model to predict the relationship between the independent and dependent variables. F and Sig values will be the essential values to identify the independent variable's statistically significant prediction with dependent variables. The regression model is significant to predict the dependent variable when the p-value is less than 0.05 (Thompson, 1996). Therefore, the result shows that the regression model is a significant predictor of a dependent variable because of F= 136. 439 and p=0.000.

Table 4: ANOVA

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	47.279	3	15.760	136.943	.000[b]
Residual	30.266	263	.115		
Total	77.545	266			

a. Dependent Variable: Intention to reduce plastic bag usage
b. Predictors: (Constant), perceived behavioral control, attitude, subjective norm

Table 5 shows the statistical significance when testing the significance of each independent variable to the dependent variable. In Table 5, the column of standardized coefficient (Beta), t, Sig, and collinearity statistics (VIF) is highlighting when determining whether each of the independent variables is significant with the dependent variable. To identify the significant between independent variables and dependent variables, the p-value should not be greater than 0.05, and the value VIF should not be greater than 10 (Thompson, 1996).

Table 5: Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.702	.202		3.475	.001		
avAtt	.446	.057	.392	7.764	.000	.584	1.713
avSUB	.125	.040	.157	3.100	.002	.576	1.736
avPBC	.295	.045	.355	6.535	.000	.504	1.985

(Coefficients^a header)

4.3 Major Findings

(a) Attitude

The result shows β-value for attitude is 0.314, the t-value is 5.180, the p-value is 0.000, and the value of VIF is 2.087. Hence, the H1 is accepted and rejects the null hypothesis because the significant value shows 0.000, which is less than 0.05, and VIF is at the acceptable level and moderate correlated which is not greater than 10. The findings show attitude has significant effects on the consumer's intention to reduce plastic bags.

H1: Attitude has significant effects on the consumer's intention to reduce plastic bag usage.

H0: Attitude has insignificant effects on the consumer's intention to reduce plastic bag usage.

(b) Subjective Norm

The result shows that the β-value for the subjective norm is 0.133, the t-value is 2.738, the p-value is 0.007, and the value of VIF is 1.752. Hence, the H2 is accepted, and the null hypothesis is rejected because the significant value shows 0.007, which is less than 0.05, and VIF is at the acceptable level and moderate correlated which is not greater than 10. The findings show subjective norm has significant effects on the consumer's intention to reduce plastic bags.

H2: Subjective norm has significant effects on the consumer's intention to reduce plastic bag usage.

H0: Subjective norm has insignificant effects on the consumer's intention to reduce plastic bag usage.

(c) Perceived Behavioral Control

The result shows that the β-value for perceived behavioral control is 0.231, the t- value is 4.059, the p-value is 0.007, and the value of VIF is 2.404. Hence, hypothesis H3 is accepted and rejects the null hypothesis because the significant value shows 0.000, which is less than 0.05. VIF is at an acceptable level and moderate correlated, which is not greater than 10. The findings show perceived behavioral control has significant effects on the consumer's intention to reduce plastic bags.

H3: Perceived behavioral control has significant effects on the consumer's intention to reduce plastic bag usage.

H0: Perceived behavioral control has insignificant effects on the consumer's intention to reduce plastic bag usage.

4.4 Discussion

(a) Objective 1

Statistical Package for Social Sciences (SPSS) is a tool used in this research to explain the overall research framework on the factor that influences FPTP students' intention to reduce plastic bag usage in UTHM. Table 5 shows the result of multiple regression analyses to identify the factor that affects

consumer intention. Based on Table 5, the result indicates that attitude, subjective norm, and perceived behavioral control significantly affect consumers' intention to reduce plastic bag usage. The result show β-value, p-value, and VIF value of all independent variables were in the range of acceptance level which the p-value is less than 0.05 and the VIF value is not greater than 10. The researcher found that the subjective norm shows the weak relationship between consumers' intention to reduce plastic bag usage. The previous study proved this research that all independent variables significantly affect consumer intention to reduce plastic bags (Arifani & Haryanto, 2018; Chang & Chou, 2018; Linh *et al.* 2019; Hasan *et al.*, 2015).

(b) Objective 2

Table 5 shows the attitude is the most influential factor influencing FPTP students' intention to reduce plastic bag usage. Regression coefficient result show the β-value=0.392, p-value= 0.000 and VIF value= 1.713. The result represents that the p-value is less than 0.05, and the VIF value shown is moderately correlated. To identify the most influential factor, β-value in regression coefficient shows the highest value among factors stated in research which is 0.392. Consumer's attitude is essential to influence their intention to reduce plastic bag usage. Past studies can support the outcome of this study by Chen and Hung (2016), Chang and Chou (2018), Arifani and Haryanto (2018), Sun *et al.* (2017), Ayob *et al.* (2017).

5. Conclusion

Nowadays, consumers change their lifestyle by worrying more about the issue environment and reducing plastic bags usage. The consumer intention to reduce plastic bag usage was essential to protect and save the environment. It can be concluded that attitude, subjective norm, and perceived behavioral control significantly influence FPTP students' intention to reduce plastic bag usage. The finding shows that attitude is the most influential factor influencing FPTP students' intention to reduce plastic bag usage. Therefore, it can be concluded that plastic waste can be reduced if the right attitude can be instilled among Malaysian in this case university students.

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Appendix

Table A: Summary of respondent demographics

	Frequency	Percent %
Gender		
Male	89	33.3
Female	178	66.7
Age		
Below 18 years old	0	0
19-23 years old	237	88.8
24-28 years old	28	10.5
29-33 years old	0	0
34 years old above	2	0.7
Year of Studies		
Year 1	40	15.0
Year 2	47	17.6
Year 3	41	15.4
Year 4	139	52.1
Level of Studies		
Diploma	6	2.2
Bachelor degree	256	95.9
Master	2	0.7
PhD	3	1.1
Ethnic Background		
Malay	127	47.6
Chinese	129	48.3
Indian	5	1.9
Other	6	2.2
Number of plastic bag usage per week		
1-5	161	60.3
6-10	79	29.6
11-15	18	6.7
Above 16	9	3.4
Frequency of use reusable bag		
Always	62	23.2
Frequently	65	24.3
Sometimes	134	50.2
Never	6	2.2

Table B: Central tendencies of measurement for independent variable item

No	Item	N	Mean	Standard Deviation
Attitude				
A1	I like the idea of reducing the consumption of plastic bags.	**267**	4.53	0.656
A2	It is a good idea to reduce the consumption of plastic bags.	**267**	4.65	0.591
A3	I have a positive attitude about reducing the use of plastic bags.	**267**	4.41	0.650
A4	I think I should take action to reduce the use of plastic bags.	**267**	4.52	0.609
A5	I believe the plastic bag is harmful to the environment	**267**	4.62	0.617
Subjective norm				
No	**Item**	**N**	**Mean**	**Standard deviation**
SUB1	My family encourages me to reduce the use of the plastic bag.	267	4.01	0.958
SUB2	My friends are aware of the pollution caused by plastic bag	267	3.94	0.985
SUB3	My friends prefer to minimize the use of plastic bags.	267	3.93	1.003
SUB4	I would follow the rules if the campus restricts that the use of the plastic bag.	267	4.52	0.674
SUB5	Most people who are important to me think I should reduce the use of the plastic bag.	267	4.10	0.908
SUB6	If my neighbors use reusable bags rather than plastic bags, I would more likely use reusable bags.	267	4.24	0.874
Perceived behavioral control				
No	**Item**	**N**	**Mean**	**Standard deviation**
PBC1	I want to use reusable bags instead of plastic bag	267	4.44	0.671
PBC2	I have enough resources to use reusable bags.	267	4.21	0.881
PBC3	I have enough time to search for an alternative to a plastic bag.	267	4.05	0.927
PBC4	I am confident that I can protect the environment by reducing the use of plastic bags.	267	4.31	0.745
PBC5	It is easy for me to decline to use plastic bags.	267	4.09	0.875