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# DETERMINANTS OF RECYCLING INTENTION AMONG PUBLIC UNIVERSITY STUDENTS IN TERENGGANU

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ABSTRACT

*Recycling is a government initiative programme designed to assist in reducing the problem of pollution and waste products in landfills. Increase in human population and uncontrolled development has led to escalating numbers of waste, putting recycle as main agenda in overcoming this issue. Rapid population expansion, particularly in metropolitan areas, as well as urbanisation and economic expansion, have raised per capita income and has create solid waste generation. As the rate of waste increases, so does the need for a disposal site. In effort to instil recycling behaviour, awareness should be created. The purpose of this study is to investigate the relationship between factors influencing recycling intention among Terengganu public university students. A total of 346 respondents were chosen and 223 were return completely. The questionnaire was distributed via email and the WhatsApp application. According to the findings of the study, there is a substantial association between attitude, subjective norm, and perceived behavioural control and recycling intention.*

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## 1. Introduction

Malaysia is a developing country that has undergone rapid growth in the industrial, demographic, and urbanisation sectors (Johari, Alkali, Hashim, Ahmed & Mat, 2014). Malaysia's rapid population expansion, particularly in metropolitan areas, urbanisation, and economic expansion have improved per capita income while also increasing solid waste generation. Malaysia currently generates approximately 23,000 tons of trash every day. However, by 2020, this figure is going to climb to 30,000 tonnes per day (Alias, Manaf, Ariffin & Abdullah, 2018). Due to rising population and development, the amount of waste produced continues to rise, and only about 5% of it is recycled (News Strait Times, 2018). The Environmental Protection Act of 1993 U.S.A (Environmental Protection Act of 1993) classifies solid waste as any discarded, rejected, abandoned, undesired, or surplus substance, whether or not aimed for sale, recovery, or reprocessing to generate anything that may still be utilised.

Malaysia's government works with a private agency to promote recycling. National Solid Waste Management Department (JPSPN) and the Solid Waste and Public Cleansing Management Corporation (PPSPPA) was established by the government and peninsular Malaysia, and responsible to maintain proper solid waste management and cleaning under the provisions of Act 672 of the Federal Territory. Recycling is defined as the collection and separation of solid waste to produce a product, according to the Solid Waste Management and Public Cleaning Act 2007 (Act 672). When used resources are processed to produce the same product, this is referred to as recycling. Recycling is beneficial to the environment, as well as the financial and society. In producing new products or material, the glass, paper, iron and plastic would be collected, segregated, and delivered to a processing centre. This method is vital in ensure there is no waste of useful resources. This process also is preventing of reducing air and water pollution, reducing greenhouse gas emissions, reducing raw material use and reducing energy usage. Malaysian society is still unaware of the practice, and the majority of people in rural areas are not involved in it. For example, Malaysians have a low level of awareness about recycling to minimise household waste.

Former Malaysian Prime Minister, the Most Blessed of Tun Dr. Mahathir Mohammad, established Vision 2020 to recognise the environment as a concern that the Malaysian community must solve, particularly as it relates to the advanced countries of 2020. Malaysia has a lot of potential to meet its 22% recycling objective, but not at the current rate of advancement (Moh & Manaf, 2014). Recycling in Malaysia faces severe issues and hurdles that must be resolved before the programme can be executed successfully. The Ministry of Housing and Government's solid waste recycling programme, which was launched on 2 December 2000, attempts to solve the problem of rising solid waste (Faridah & Afham, 2017). Furthermore, the recycling programme is intended to create community knowledge of the benefits and significance of recycling, and each community must strive to make the recycling programme a success. Recycling should be part of people's habits to reduce trash disposal, with variables that impact people's behaviour focusing on environmental protection and public health.

Institutions of higher learning, on the other hand, have the greatest potential for effective recycling implementation. The Malaysian government places a high value on students' understanding and awareness of the importance of recycling to promote sustainable development and high academic performance (Dahle & Neumayer, 2001). Malaysia's Prime Minister announced Vision 2020, with the goal of elevating Malaysia to the ranks of developed and industrialised nations by 2020. Moreover, several factors influence students' recycling intentions. Since this study is to investigate the relationship between subjective norm, attitudes, and perceived behaviour control, the Theory of Planned Behaviour (TBP) was employed. This theory holds that behaviour is influenced by both internal and external factors in the environment.

## 2. Literature Review

Theory of Planned Behaviour (TPB) holds that the act or influence people's behaviours are based on the intention of the individual. This theory can explain high school students' attitudes, subjective norms, and perceived control behaviour toward recycling intention. According to Ajzen (2013), the stronger the purpose of a person to behave at a specific behaviour, the more positive the attitude, subjective norm, and significant the perceived control and can be applied in studying the recycling intention among students. To ensure the effectiveness of the recycling programme, it needs the stronger student's intention to achieve excellent attitude on recycle. Ramayah, Lee & Lim (2012) said that previous studies have proven that the Theory of Planned Behaviour is beneficial in investigating the factors will influence recycling intention.

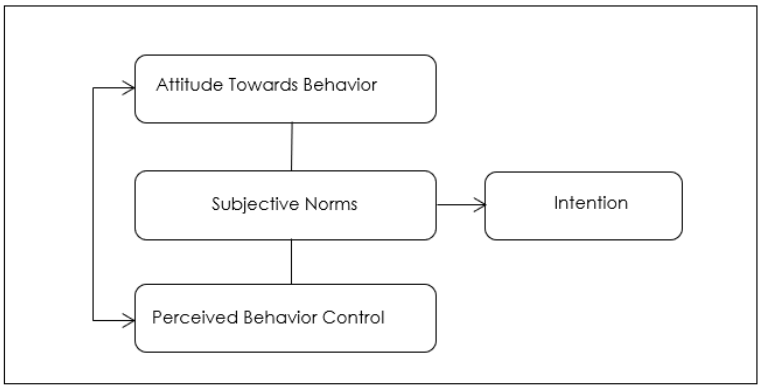


*Figure 2.1: Ajzen's Theory of Planned Behaviour*

According to Ajzen (1991), there are three determinants in Theory of Planned Behaviour (TPB) that impact someone's intentions which are (i) attitudes toward behaviour, (ii) subjective norms, and (iii) perceived behaviour control, as shown in Figure 2.1. Attitudes toward behaviour are considered as positive or negative interpretations of individuals toward specific behaviours. It can also be described as a person's positive or negative assessment of a conduct. Subjective norms, on the other hand, are an individual's understanding of a certain behaviour that has been impacted by the opinion of others, such as a partner, parent, friend, or instructor (Ajzen, 1991). While Perceived Behaviour Control is referring to the individual's perception of the extent to which performance of the behaviour is easy or difficult (Ajzen, 1991).

### 2.1 Recycle

Recycling is described as the procedure of remanufacturing waste, collecting, and separating items into new materials, which entails a series of stages to produce the goods (Environmental Protection Agency, 2012). It is essential in everyday life and for environmental preservation. Bartl (2014), have mentioned that recycling can be divided into three categories: product recycling, material recycling, and feedstock recycling. Recycling processes are beneficial to society and the environment in a variety of ways, including preserving natural habits, encouraging economic and technological development, reducing waste, protecting natural resources and energy, preventing pollution, saving money, and lowering greenhouse gas emissions. Recycling would then assist in the preservation of a clean environment for future

generations. Paper, cardboard, textiles, electronics, plastic, rubber, glass, metal, and other materials are all recyclable.

Recycling is now very vital for the environment. Recycling, according to Mohareb, Warith, and Diaz (2008), contributes to global warming by reducing the amount of greenhouse gasses created daily. Several factors that influence a person's recycling behaviour have been identified by certain researchers. The primary goal of the government's recycling drive is to maintain the environment clean and human health. Furthermore, recycling provides people with future exposure to the importance of recycling, particularly in the area of disposal.

## 2.2 Recycling Intention

The purpose of recycling, according to the current economic development, is to keep the country clean. According to the Theory of Planned Behaviour (TPB), intention influences behaviour (Alias et al., 2018). The term "intention" refers to a person's behaviour when doing something, and it is more focused on students.

The definition of intention is the direct determinant of behaviour and obtaining a good measure of intention will yield the most accurate forecast of action (Fishbein & Ajzen, 1980). Three aspects determine intention: (i) Specific attitude (SA), the individual's favourable or negative evaluation of conducting the behaviour. A recycling programme, according to Sharifah, Khamaruddin, Mohamad & Saharuddin (2018), will be an effective way among university students. Increasing participation and knowledge of recycling requires student engagement. Recycling intentions must be ingrained in society, particularly among those with higher university education, since they are the trigger for the nation's well-being, and students are the primary contributors to addressing the country's environmental concerns. Students are also offered an education on the environment, particularly the expense of the environment, for a fee. Environmental education, on the other hand, is not exposed to behavioural knowledge.

## 2.3 Attitude

Attitude relates to feelings, thoughts, and reactions to environmental, social, group, or other fixed and structured issues. It is one of three factors of Icek Ajzen's Theory of Planned Behaviour (TPB), which was proposed in 1985. An individual's positive and negative feelings regarding a particular subject or action are referred to as attitude. An individual's positive and negative feelings about recycling intentions are discussed in this context. Attention, consciousness, attitudes, and effort are all influenced by one's attitude. The most powerful influence on one's beliefs is one's attitude, which leads to a desire for others (Arvidsson & Kling, 2018). Environmental attitudes, such as recognized attitudes as one of the higher students' recycling intents, are an important element that impacts students' environmental behaviour. Social influence support by others will influence the attitudes of higher students at universities. According to Ramayah, Lee, & Lim (2012), recycling behaviour among Malaysian university students is influence by the attitude.

## 2.4 Subjective norms

The behaviour of a person who is impacted by key persons such as family, relatives, neighbours, instructors, and so on are referred to as subjective norms. Because recycling is a public behaviour, Mahmud & Osman (2010) has mention that subjective norms are in the list of most important determinant of recycling intention. Person's impression of confidence in other or social pressure can be found in subjective norms in believe that they are doing or not doing anything, as well as a person's attitude to doing something they are passionate in. Intention and attitude, and also

subjective norms, all influence this behaviour. Subjective norm is dependent on normative beliefs, which are the second of three determinants introduced by Icek Ajzen in the Theory of Planned Behaviour (TPB) in 1985. According to previous research, studies have revealed that a key reason in practice recycling is the subjective norm. (Liao & Li, 2019) Previous research has found that good subjective norms increase recycling intention.

In the Theory of Planned Behaviour (TPB), another aspect of norm is the subjective norm. It refers to Fishbein & Ajzen's (1980) findings about internal and external influences. According to Ajzen (1991), subjective norms in the Theory of Planned Behaviour (TPB) are stated as the benefits of social pressure placed on an individual to engage in a particular behaviour. It acknowledges the need to practice behaviour intention in the face of societal pressure. Subjective norms are a type of social directive norm that investigates perceived social influences from influential people such as family, friends, and neighbours to influence a wide range of behaviour.

## 2.5 Perceived behavioural control (PBC)

People's perceptions of how easy or difficult it is to exercise behavioural control are referred to as perceived behavioural control. In the context of recycling, that is easy or difficult to recycle. Concept of self-efficacy is related to perceived behavioural control, in which **their?** belief is influenced by the **people's** behaviour (Ajzen, 1991), and this is up to the dependent control beliefs for their planned behaviour. It is also known as expressing a view about one's behaviour, if either difficult or easy to apply which is identified as behavioural control. Internal factors like desire, knowledge, ability, and thinking, as well as external elements like opportunity, collaboration, and timing, all play a role in perceived behavioural control. A student's ability to control their behaviour positively has the potential to lead to success. Effectiveness and optimism in a favourable direction are stronger and more likely to succeed. For example, if a student who has the same goal of recycling encourages another student to do so. Collaboration between students is critical, particularly between the university and peers, in motivating students to recycle.

Perceived behaviour control refers to an individual's sense of difficulty in doing a specific behaviour, which is influenced by its own control beliefs. Second-hand knowledge, and prior experience, such as approachability and reliance on others can be identify as situational factors, all influence people's perceptions (Ajzen, 1991).

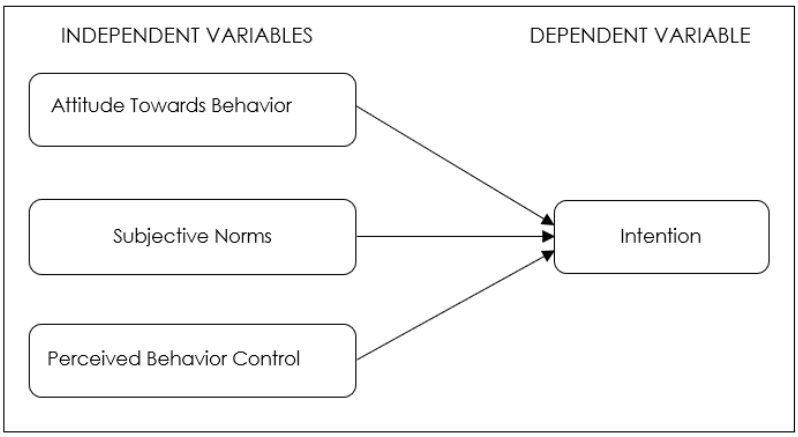


*Figure 2.2 The theoretical framework*

## 3. Methodology

This study conducted to investigate the relationship between Theory of Planned Behaviour and intention toward recycling. Therefore, the most appropriate design chosen is correlation. In this study, the unit of analysis is the individual. This study's respondents are students at Terengganu's public university. The instrument was created using the research model's four variables. All of the items were taken from the prior study. There were eight items of recycling intention, eight items of attitude, six items of subjective norms, and five items of perceived behaviour control.

A convenience sampling strategy was employed for data collection, as supported by Hair, Matthews, Matthews, & Sarstedt (2017), who said that convenience sampling helps researchers to obtain responses in a cost-effective manner. The formula provided by Krejie and Morgan (1970) was used, and the sample size of this study is 346 respondents based on the formula. An online survey questionnaire was sent to the study's sample via email and the WhatsApp application. There were a total of 223 completed responses.

## 4. Results and Discussion

### 4.1 Data

The survey questions are divided into two major sections: the respondent profile and the theory of planned behaviour. On a five-point Likert scale ranging from Strongly Disagree to Strongly Agree, respondents were asked about the factors that influence their recycling intentions.

A reliability analysis was performed to determine whether or not a questionnaire was reliable. Cronbach's Alpha was used to assess the consistency and stability of items across multiple scales. For demographics questions, frequency analysis was used. The descriptive analysis, Pearson Product Moment Correlation, and Multiple Regression Analysis with SPSS version 21 were used to investigate the research objective.

### 4.2 Measurement

Correlation Analysis

*Table 4.2.1*
*Pearson Correlations Analysis*

| No | Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1 | Attitude | 1.00 | | | |
| 2 | Supportive Norms | .738 | 1.00 | | |
| 3 | Perceived Behaviour Control | .572 | .424 | 1.00 | |
| 4 | Recycle Intention | .578** | .726** | .588** | 1.00 |

**. Correlation is significant at the 0.01 level (1-tailed).

Table 4.2.1 depicts the relationship between Attitude, Supportive Norms, Perceived Behaviour Control, and Recycle Intention. The Product Moment Correlation Coefficient was used to investigate the relationship. Hair, Black, Babin, Anderson, & Tatham (2006) guidelines were used as a measurement in examining the relationship. The values of the correlation coefficient tabulated in Table 4.2.1 indicate there is a moderate relationship between attitude and recycle intention ($r=0.578$, $p<0.05$). Meanwhile, the correlation between supportive norms and recycle intention is $r=0.726$, $p<0.05$ indicating a strong positive relationship. Perceived behaviour control indicate as $r=0.588$, $p<0.05$, indicating a moderately positive relationship between the variables.

Regression Analysis

*Table 4.2.1*
*Regression Analysis*

| Model | R | R Square | F value | Std. Error | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .756a | .572 | .566 | .44804 | 2.150 |

The link between a dependent variable and one or more independent variables can be estimated using regression analysis. It is a method of determining how an independent variable influences the dependent variable. We can proceed with the regression analysis because all of the relationships are significant (p-value <0.05), as shown in Table 4.2.1.
In the R-Square column, the proportion of variance in the dependent variable, recycling intention, has been predicted by the independent variables, attitude, subjective norm, and perceived behaviour control. The independent variables attitude, subjective norm, and perceived behaviour control can explain 57.2% of the variance in recycling intentions, according to the R-Square value. Meanwhile, the remaining 42.8% of recycling intention is explained by factors not examined in this study. According to Table 4.12 above, the R-Square has been translated as the coefficient of determination. The multiple correlation coefficients between the dependent variable and the predictor variables have been recorded in the R value column, where the R value has reached 75.6%, indicating that the independent variables and dependent variable shared a moderate amount of variance in this study.

*Table 4.14*
*Correlation Coefficients*

| Model | | Unstandardised Coefficients | | Standardised Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | .292 | .241 | | 1.210 | .227 | | |
| | Attitude | .336 | .075 | .241 | 4.466 | .000 | .672 | 1.487 |
| | Subjective Norm | .464 | .067 | .504 | 6.971 | .000 | .374 | 2.677 |
| | Perceived Behaviour Control | .100 | .058 | .114 | 1.743 | .083 | .456 | 2.194 |

a. Dependent Variable: Recycling Intention (RI)

Further regression analysis was performed to generate the standard measure, (Beta Weight), to investigate the strength of each independent variable associated with recycling intention. The Beta value column contains the value for the regression equation used to predict recycling intention based on the independent variables attitude, subjective norm, and perceived behaviour control. The beta value column shows that attitude has a beta value of 0.241, followed by subjective norm (0.504), and perceived control behaviour (0.114). According to the data, the most important factor influencing recycling intention is subjective norm. Based on the Coefficient Table above, it can be concluded that attitude and subjective norms have a significant value that is 0.000 less than 0.05. In the meantime, the other variable, perceived behaviour control, is not statistically significant because the value is 0.083 greater than 0.05. As a result, the study's goal has been met, which means that subjective norms are the most influential factor in students' recycling

intentions because they have the highest beta value, which is 0.464 (46.4), when compared to the other two (2) factors, attitude (0.336) and perceived behaviour control (0.100).

## 5. Conclusion

According to the results of Table 4.2.1, the researcher can conclude that the independent variables, attitude, subjective norm, and perceived behaviour control, are significant and have positive relationships with the dependent variable, recycling intention, with probability values of <0.05. This study has been validated by the findings of Al Mehrzi and Singh (2016), who discovered the same results that support the findings of this study. They also observed that the attitudes, subjective standards and perceived behaviours of control relate significantly to the reliant variable, which is the intention to recycle. Previous studies related to intent on waste reduction showed that subjective standard with recycling intent had a favourable impact (Jibril, Sipan & Sapri, 2014). However, another determinant, which is perceived control behaviour, has a moderately, positive relationship. Furthermore, Ari and Yilmaz (2016) asserted that subjective norm and perceived behaviour control were factors affecting recycling intention. Meanwhile, attitude has a moderately, positive relationship with the dependent variable. The attitude and knowledge have been major drivers of intention to recycles according to Sidique, Lupi and Joshi (2010). Based on the results, it is possible to explain all of the dependent variables, or the factors that have positive relationships with the dependent variable, which means that each variable has a significant value in the correlation analysis model.

Attitude can be defined as an individual's positive and negative feelings toward behaviour. Environmental attitude is a significant factor that has a favourable impact on students' environmental behaviour, including identifying attitudes as one of the higher students' recycling intentions. Several strategies should be developed by the parties in order to improve positive recycling behaviour among students, such as promoting sustainable practices, particularly on campus, such as holding social programmes related to recycling among students, teaching students how to save water and electricity, providing recycling bins in dormitories, and so on. Furthermore, behaviours can be modified through social influence, learning, and comparison.

Meanwhile, subjective norms are the actions of a person that are influenced by people around him who are close or close to him, such as family, neighbours, friends, and so on. Subjective standards are essential reasons for recycling practices that imply the impression of societal pressures by a person and the belief that they are doing or not, which implies a reaction from someone to what they are interested in. People in the surrounding area should play a significant role in demonstrating good practices and behaviours in order to set a good example and example to others in order to raise environmental awareness and importance.

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