

Investigating the Determinants of Recycling Behaviour among Secondary School Students in
Penang

By

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Abstrak

Di Malaysia, pendidikan alam sekitar telah diperkenalkan di dalam sistem pendidikan sekolah pada tahun 1986 dan program kitar semula telah dimulakan seawal 1993. Walaupun pendidikan alam sekitar dan program-program kitar semula yang dijalankan telah meningkatkan kesedaran tentang alam sekitar di kalangan pelajar-pelajar sekolah tetapi usaha-usaha ini tidak berjaya dalam mengubah tindakan dan kelakuan peajar-pelajar ke arah amalan-amalan lestari termasuk kitar semula. Kajian ini bertujuan untuk mengkaji faktor-faktor yang menyumbang kepada tingkahlaku kitar semula di kalangan pelajar-pelajar sekolah menengah di Pulau Pinang. 'Theory of Planned Behaviour' digunakan sebagai asas rangkakerja teori dalam kajian ini. Berdasarkan teori ini, terdapat tiga faktor yang mempengaruhi tingkahlaku kitar semula iaitu sikap, norma subjektif dan kawalan tingkahlaku. Kajian ini telah mengambilkira beberapa faktor-faktor lain untuk dimasukkan ke dalam rangkakerja teori iaitu faktor situasi, kepentingan kitar semula dan insentif wang. Sekolah yang dipilih untuk kajian ini terlibat dalam program 'Meningkatkan Gaya Hidup Lestari di dalam USM dan Kawasan Kejiranan' yang dijalankan oleh Pusat Kajian Kelestarian Global. Kajian ini telah dijalankan ke atas 107 responden daripada Tingkatan Satu, Tingkatan Dua, Tingkatan Tiga, Tingkatan Empat dan Tingkatan Lima dari SMK Bukit Jambul dan SMK Datuk Hj. Mohd Nor Ahmad. Instrumen kajian yang digunakan adalah borang soal selidik, diukur menggunakan skala Likert 5-mata. Data yang dikumpul dianalisis menggunakan 'Statistical Package for Social Sciences', versi 19. Berdasarkan Analisis Faktor, setiap faktor sikap, norma subjektif, kawalan tingkahlaku dan faktor situasi dibahagikan kepada dua bahagian. Keputusan kajian ini menunjukkan bahawa kepentingan kitar semula, faktor situasi-1 dan kawalan tingkahlaku-2 mempunyai impak signifikan terhadap tingkahlaku kitar semula di kalangan pelajar-pelajar sekolah menengah. Walaubagaimanapun, sikap-1, sikap-2, norma subjektif-1, norma subjektif-2, kawalan

tingkahlaku-1, faktor situasi-2 dan insentif wang bukanlah faktor-faktor yang signifikan terhadap kitar semula. Kesimpulannya, kajian ini telah meningkatkan pemahaman tentang faktor-faktor yang mempengaruhi tingkahlaku kitar semula pelajar-pelajar sekolah menengah dan boleh menjadi satu sumber informasi untuk sekolah, Pusat Kajian Kelestarian Global dan kerajaan dalam usaha mendidik dan menggalakkan tingkahlaku kitar semula yang positif.

Abstract

In Malaysia, environmental education was introduced to the school education system in 1986 and recycling program was initiated as early as 1993. Although the environmental education and recycling programmes conducted had raised the environmental awareness of students but they are not successful in changing action and behaviour patterns of students toward sustainable practice including recycling. This study aims to investigate the determinants of recycling behaviour among secondary school students in Penang. The Theory of Planned Behaviour (TPB) serves as the basis theoretical framework in this study. According to the theory, there are three factors that influence recycling behaviour namely attitude, subjective norm and perceived behavioural control. This study has incorporated additional variables to the theoretical framework which are situational factors, consequences of recycling and monetary incentive. The schools selected for this study were involved with 'Enhancing Sustainable Living Within USM and Its Neighbouring Communities' project organized by Centre for Global Sustainability Studies (CGSS) Universiti Sains Malaysia. The survey was conducted on 107 respondents of Form Two, Form Three, Form Four and Form Five students from SMK Bukit Jambul and SMK Datuk Hj. Mohd Nor Ahmad. The research instrument used was questionnaire, measured using 5-point Likert scale. Based on the Factor Analysis, each variable of attitude, subjective norm, perceived behavioural control and situational factors was divided into two groups. Research findings showed that consequences of recycling, situational factors-1 and perceived behavioural control-2 had significant impact on recycling behaviour among the secondary school students. However, attitude-1, attitude-2, subjective norm-1, subjective norm-2, perceived behavioural control-1, situational factors-2 and monetary incentive were not significant reasons for recycling. In conclusion, the study has enhanced the understanding of the determinants of recycling behaviour and could be an

informative source for schools, CGSS and government in educating and encouraging positive recycling behaviour.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This research will investigate the determinants of recycling behaviour among secondary school students in Penang. This chapter outlines the research direction of the study including background of study, problem statement, research objectives, research questions and significance of the study.

1.2 Background

Recycling is a term to describe the procedure by which waste is collected, sorted and processed into new materials and then manufactured into new products (Prestin and Pearce, 2010). Recycling has many benefits than can be useful in the long term, environmentally and economically. The benefits are helping to reduce the demand of resources and energy, reducing the need for more land to be converted into land fill sites, reducing pollution and greenhouse gases, and protecting the natural habitat.

As early as 1993, Ministry of Housing and Local Government has launched a recycling program as one initiative to overcome waste management problem (Ta Wee et al., 2010). However, until now there are not many improvements in Malaysian recycling program and it can be considered still in infancy stage. The awareness of the practice is still very low in Malaysian society and most do not even involved in the practice especially in rural areas. According to statistics provided by the Housing and Local Government Ministry, less than 5% of waste was being recycled by Malaysian while approximately 95% of waste including rubbish, bottle and paper were sent to the landfills

around the country (The Star, 2011). According to Krishnamoorthy (2011), Malaysian produced 19,000 tons of waste daily and expected to increase to 30,000 tons by 2020. Despite of the high economic growth and rapid industrialization, the level of waste management in Malaysia is still left behind. Hamidi Abdul Aziz, Dean of School of Civil Engineering, Universiti Sains Malaysia said that standard of environmental efficiency in managing solid waste in Malaysia fell under the average category compared with other countries in the region. He also highlighted the “golden principle in sustainable development” which quoted “leave the world better than you found it, take no more than you need, try not to harm the environment, and make amends if you do” (The Star, 2010). This crucial issue not only needs proper management and effective solutions but also need to be tackled from the fundamental cause. One of the most viable solutions to this issue is recycling. The massive amount of waste could be reduced if more Malaysian participating in recycling. Besides, fewer landfills will be needed if less amount of waste generated and it also contributes to extending the lifespan of the landfill.

1.3 Research Problem

A study conducted in West Coast City, United States has found that school system is a major waste-producing sector (Prestin and Pearce, 2010) and canteen is a major contributor of waste in schools (Linthoi, 2006). Thus, recycling activity in schools will be one of the means to reduction in national total of waste. However, the ultimate objective of recycling activity in schools is to increase the student’s awareness of the importance of the practice so that they will become more responsible citizens in the future (Vicente and Reis, 2008), making recycling as a culture in their life. In Malaysia, environmental education is infused into the school curriculum, however, its importance is not stressed

resulting to a failure to see the need to practice an environmental-friendly lifestyle (Thang and Kumarasamy, 2006). Malaysian students treated the environmental education just as one of the academic topics for them to study, without real connection to their lives and the world beyond the classroom (Thang and Kumarasamy, 2006). A study conducted to assess the environmental awareness and attitude among Malaysian secondary school students found that the students only had a moderate attitude towards environmental education although their level of environmental knowledge was high (Muda et al., 2003). This finding was supported by a recent study on the status on the level of environmental awareness among secondary school students in Selangor stating that the level of environmental awareness among the secondary school students was high but the level of environmental practices was still low (Hassan et al., 2010). Generally, Malaysian secondary school students have the knowledge and the awareness on environmental education, however, they are missing to see the value of it, thus, they are not translating their knowledge into environmental practices (Hassan et al., 2010). They do not really understand the importance of the environmental practices. Particularly in recycling, Nair (2008) explained that many school students are not aware of the economic benefits of recycling although schools have conducted many recycling program. They are also unaware of the importance of recycling as a measure to save natural resources and avoid wastage. They could not relate some aspects such as social, economy and energy sources with environmental protection issues (Hassan et al., 2010). School students in Malaysia are lacking the knowledge and understanding of how and what materials can be turned into economically usable materials. This could be one of the reasons of the low involvement in environmental awareness practices such as recycling among the school students. This finding could be strengthened by a study in San Rafael where a manager of

recycling center noted that adolescents between 13 and 25 showed the lowest participation in recycling (Busteed et al., 2009).

There are a number of researches conducted to study Malaysian society's behaviors toward recycling program. However, we are still lacking of research to study the behaviors of school students in this particular issue.

1.4 Research Objectives

1. To determine the determinants influencing the recycling behavior of secondary school students.
2. To determine the strongest determinant in predicting the recycling behavior of secondary school students.
3. To determine the relationship between the determinants and the recycling behavior of secondary school students.

1.5 Research Questions

1. What are the determinants influencing the recycling behavior of secondary school students?
2. What is the strongest determinant in predicting recycling behavior of secondary school students?
3. What are the relationship between the determinants and the recycling behavior of secondary school students?

1.6 Significance of Study

Although the participation in recycling practice in Malaysia is still low, it is good to know that the school students nowadays have the environmental knowledge and awareness. Recycling is one of the means in managing and mitigating the even more crucial solid waste issue in Malaysia and it is believed that solid waste problems will be reduced if Malaysian practice recycling in their lives.

In order to make recycling successful, we have to nurture the practice from the earliest as we can. Adolescence is the best stage to start this practice because the development of understanding environmental issues begins in this phase, secondary school students is the appropriate target group under this circumstances. Thus, the purpose of this study is to determine the determinants that influence the recycling behavior among the secondary school students.

There is little research being performed to examine the actual factors that can increase or decrease the participation in recycling specifically among the secondary school students in Malaysia. Vast of studies used Theory of Planned Behaviour in assessing the determinants of recycling behavior (Tonglet et al, 2004; Ramayah et al, 2012; Klockner and Oppedal, 2010; Mahmud and Osman, 2010). Thus, this study will also use this theory as the basis framework together with a few other variables that have been identified as predictors of recycling behavior. This study will attempt to fill this gap in literature and will be focusing on secondary school students in Penang.

1.7 Research contributions

This study aims to gain an insight about the factors that are influencing the behavior of secondary school students on recycling practice. This is important because the attitudes and behaviors of this group will have a direct and massive impact on the future of

Malaysian community. Adolescence is the stage where environmental awareness of adults is often formed, as at this age they begin to be able to understand the challenges environmental issues entail (Busteed et al., 2009). Malaysia adolescents of today are going to be our future leaders and decision-makers of tomorrow. Thus, there is a need of urgency for us to understand their knowledge and perception about environmental issue. The results of this study will be a guide for public, schools, government and private sectors so that we can work hand in hand to provide our adolescents with better environmental education in the process to build a more environmentally-responsible generation in the future.

1.8 Definition of Key Terms

In order to get a better understanding of the concepts used in this research, some of the key terms are defined here:

Recycling: A term to describe the procedure by which waste is collected, sorted and processed into new materials and then manufactured into new products (Prestin and Pearce, 2010).

Attitude: Attitudes are defined as “relatively stable clusters of feelings, beliefs and behavioral predispositions (i.e., intentions toward some specific object)” (Jerald and Robert, 2008).

Subjective Norm: A representation of perceived expectations of relevance reference groups toward individual to take hold of certain behavior and motivated the individual to comply with the reference groups (Prestin and Pearce, 2010; Klockner and Oppedal, 2010)

Perceived Behavioural Control: a feeling of having the capability to perform the specific intended behaviors (Klockner and Oppedal, 2010).

Situational Factors: Convenience and cost (i.e. time, space and money) of performing certain behaviour (Ramayah et al., 2012).

Consequences of recycling: An individual's knowledge of the outcomes or the consequences of recycling (Tonglet et al., 2004)

Monetary incentive: A type of extrinsic incentives given to activate a desired behavior (Hornik et al., 1995)

1.9 Organization of Remaining Chapters

Chapter 2 analyzes and discusses previous literature on variables involved in this research. Chapter 2 also explains the Theory of Planned Behaviour as this theory is the basis of the framework used in this study. The theoretical framework and the proposed hypotheses of this study are also presented in this chapter. Chapter 3 outlines the methodology used in this research. The research design, population, variables, questionnaire design and data analysis methods are elaborated in this chapter. Chapter 4 presents the results from statistical analysis and hypothesis testing. Finally, Chapter 5 discusses the results obtained from data analysis. This chapter also elaborates on limitations of study, recommendations, suggestion for future research as well as implications of the study. This chapter ends with the conclusion.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter comprises of the literature review, theoretical framework development and the hypothesis development. This chapter reviews previous literature on recycling behaviour among secondary school students and the determinants that influence the behaviour. At the end of the chapter, a complete theoretical framework of the research will be constructed and a set of hypothesis for the research will be developed.

2.2 Overview of Recycling Behaviour among Secondary School Students

In attempt to increase recycling participation, recycling awareness should be planted in the community especially the young generation as they are tomorrow's leader and stewards of the earth. A study mentioned that school students can make potential contribution in addressing environmental problems within their local communities (Ballantyne et al., 1998). In Malaysia, environmental education was introduced to increase the awareness of Malaysian students on environmental issues including recycling. Environmental education was infused and integrated in relevant subjects such as English Language, Malay Language, Geography and Science (Mahmud and Osman, 2010). Although school students were given environmental education, however, most of them are not oriented to translating their knowledge into behaviour (Mahmud and Osman, 2010). These finding was similar with previous study revealing that even though environmental education seems to be successful in raising student's awareness about the environment, but they did not expressed their concern in the form of action effectively on supporting sustainable practices such as recycling (Ballantyne, 1998). For example, generally

secondary school students knew about recycling and its importance but unfortunately, the level of recycling practice is still low. Yakob et al. (2012) explained that the density of existing syllabus and teachers are more focused on student's performance are the reasons of this problem. Researchers Thang and Kumarasamy (2006) said that the importance of environmental education was not stressed and therefore, students do not really see the need to practice the sustainable lifestyle. Students regarded environmental education as just another topic to study without realizing the need to practice in their lives. Other than that, Busteed et al. (2009) reported that teachers claimed that they do not have time to assess the best methods and activities to address the environment.

A study reported that there is an increasing loss in ability in taking action especially among young people regarding an individual's ability to make positive environmental change (Ballantyne et al., 1998). Md Nor et al. (2011) reported that the recycling participation among secondary schools students in Penang was still low due to lack of recycling bins and awareness programs. A study investigating the recycling attitudes and behaviours of high students reported that four factors played a role in the student's overall attitude on recycling. The first is the knowledge on the consequences of recycling, second is the sense of ownership and place in their community, third is personal obligation to act, and the final factor is social influences on the students (Busteed et al., 2009). Students are willing to participate in environmental activities such as recycling when they are more aware of environmental issues (Ahmad et al., 2012). Furthermore, the participation level in recycling will increase if the students can feel that he or she is really part of the community and their actions will contribute to the community (Busteed et al., 2009). Ahmad et al. (2012) mentioned that an individual must believe that that he or she can make a difference in order to increase the recycling practice. This means that students will be motivated to recycle if their actions contribute to the community and were valued and

respected. Other than that, students are easily discouraged from participation when inconvenience experienced as they do not have a strong personal obligation to recycle. Families and friends did not recycle was also contributed to the apathetic attitude towards recycling among secondary school students (Busteed et al., 2009). The attitude and behaviour of secondary school students toward environmental practice such recycling is important as they will have a direct effect on near future of community. Therefore, cooperation and efforts from all parties including schools, government, societies and business entities are needed to stretch the attempt in increasing the recycling awareness and participation among secondary school students.

2.2.1 Attitude toward Recycling

Attitudes are define as “relatively stable clusters of feelings, beliefs and behavioral predispositions (i.e., intentions toward some specific object)” (Jerald and Robert, 2008). Attitudes, once formed, it tends to remain firmly or obstinately. There are three fundamental components of attitudes; the *evaluative component*, refer to a matter of liking or disliking of any particular person, item or event (what might be called the *attitude object*), the *cognitive component*, refer to beliefs on attitude object, whether they are true or false, and the *behavioral component*, refer to predisposition to act in a way consistent with our beliefs and feelings about an attitude object (Jerald and Robert, 2008). Fishbein et al. (1962) stated that attitudes are the evaluative dimension, thus, change happened in beliefs about certain concepts may caused change in attitude toward the concepts.

Many studies have identified attitudes as one of the determinants of recycling behavior; influences on attitude-behavior relationships in curbside recycling (Guagnano et al., 1995); attitudes influencing households’ participation in recycling (Vicente and Reis,

2008); how attitudes along with other antecedents contribute to recycling behavior in adolescent (Prestin and Pearce, 2010). There is a strong connection between pro-recycling attitudes and recycling behavior (Prestin and Pearce, 2010). Meinhold and Malkus (2005) found that “adolescents who demonstrate more pro-environmental attitudes are more likely to demonstrate pro-environmental behaviors”.

Therefore, the following hypothesis is formed:

H1: Adolescents who demonstrate more pro-recycling attitudes will be more likely to demonstrate recycling behavior.

2.2.2 Subjective Norms in Recycling

Subjective norms or social norms have been found to play an important role and have the strongest positive effect on recycling participation (Vicente and Reis, 2008). A study in University of Connecticut reported that “influence of a social norm had a profound effect on the pro-environmental behaviors of the students” (Kaplowitz et al., 2009). Thus, it is important to determine the reference groups that create the “behavioral expectations” in adolescents. Social influences are an important aspect to be examined in order to understand student attitudes with regard to the environment. Busteed et al. (2009) reported that adolescent spent most of their time after school with friend and they appeared to be heavily influenced by their friends cognitively and behaviorally. We can assume that “friends” may be the strongest source to form the social norms in adolescents. Prestin and Pearce (2010) stated that adolescents behavior is often influenced by peers, thus, social norms may be important to them. Other than peers, students spent much of their time with family and their home life also played a role in developing their attitude toward recycling

(Busteed et al., 2009). A study found that families who did not participate in recycling may contribute to apathetic attitude toward recycling among adolescent (Busteed et al., 2009). The finding may explain the claim from students that they do not really interested in recycling because their family's sluggish attitude toward the practice (Busteed et al., 2009).

Therefore, the following hypothesis is formed:

H2: Adolescents who have subjective norm will be more likely to demonstrate recycling behavior.

2.2.3 Perceived Behavioural Control in Recycling

Perceived behavioural control plays an important part in the theory of planned behaviour. It refers to perception of people of how easy or difficult to perform the certain behaviour (Ajzen, 1991). Although a person has good attitude toward recycling, they will only try to perform the behaviour if only they are confident in their ability to perform it with success (Kraft et al., 2005). A person's perceived behavioural control was influenced by perception of factors that are both internal (e.g. knowledge, skills and abilities, will-power, presence of mind) and external (e.g. time, availability, opportunity, the cooperation of others) (Tonglet et al., 2004; Kraft et al., 2005,; Chan, 1998). According to Chan (1998) "The greater the perceived behavioural control, the stronger the person's intention to perform a certain behaviour, given that a person held a positive attitude and a relevant subjective nor with respect to the behaviour under consideration.". Perceived behavioural control is about the ability a person has and the self-efficacy which deals with the level of confidence in a person of his or her ability in performing certain behaviour. It is assumed that persons with ability of performing certain behaviour and have higher self-efficacy will

perform better than persons with ability but have lack of self-efficacy. For example, if a group of students have equally strong intentions to recycle their waste, and all of them try to do so. Students who is confident that he or she can master the activity is more likely to persevere and successful in the activity than students who doubt their ability. Several investigations made in previous studies showed that people's behaviour is strongly influenced by their confidence in their ability to perform it (Ajzen, 1991). Kraft et al. (2005) mentioned that perceived behavioural control should consist of two components; self efficacy and controllability. Self-efficacy is the belief that one's behaviour has an effect on the surroundings and it is regarded as one of the most powerful motivation to create deep cognitive planning (Busteed et al., 2009). Choice of activities, preparation for an activity, effort expended during performance as well a thought pattern and emotional reactions can be influenced by self-efficacy (Ajzen, 1991). A study conducted on high school students found out that lack of ownership in the activities was an obvious barrier to effective learning, given that the students seemed willing to do the activities (Busteed et al., 2009). Cooperation of others is one of the external factors influencing the perceived behavioural control. Thus, cooperation from school and friends is very important in attempt to produce a positive perceived behavioural control among the school students. Busteed et al. (2009) explained that cooperation between students is a successful technique in motivating students to participate in recycling. Recycling programs such as recycling campaign can increase cooperation between students as they can learn about what, how, and where to recycling as well as the benefits of recycling, and share the knowledge among themselves. Thus, schools have to organize activities and schedules in such a way that the students will be able to legitimately interact more.

Recycling campaigns were basically held to circulate the awareness of recycling and improve further the understanding about it. Studies reported that knowledge of how,

where, what to recycle as well as the benefits of recycling correlated with individuals participation (Kaplowitz et al., 2009). This show that general knowledge of recycling is very important in stimulating participation and it is reported to influence attitudes and motivate recycling (Kaplowitz et al., 2009). Apart from that, to perform certain behaviour, in particular to recycle, people requires considerable amount of efforts and availability. These factors have been a major barrier for those who has the intention to recycle but unwilling to exert extra effort to do the activities (Omran et al., 2009). However, people who do really recycle, it should be one of the behaviours with a high potential of becoming habitual as recycling is a highly repetitive behaviour (Klockner et al., 2011). A study found out that the significant level increases in the explained variation for target behaviour when perceived behavioural control was included, especially when behaviour was perceived to be low in control (Chan, 1998; Madden et al., 1992)

Therefore, the following hypothesis is formed:

H3: Adolescents who have perceived behavioural control will be more likely to demonstrate recycling behaviour.

2.2.4 Situational Factors in Recycling

Many previous studies demonstrated that situational factor as a significant predictor of recycling behavior (Kaplowitz et al., 2009; Abdul Latif et al., 2012; Prestin and Pearce, 2010; Omran et al., 2009). Recycling is one activity that demands considerable amount of personal resources such as time, space, money and effort (Hornik et al., 1995) because waste must be sorted, prepared, stored and transferred to recycling point. Abdul Latif et al. (2012) explained that factors such as time, cost and the facilities conditions inhibit the recycling behavior (Abdul Latif et al., 2012). A study found out that inconvenience and

proximity of recycling points were major constraints to recycling practice among college students (Kaplowitz et al., 2009). The same study also reported students did not recycling because of lack of storage space as well as absence of recycling bins at convenient locations (Kaplowitz, et al., 2009). This finding was similar with study conducted by Omran et al. (2008), stating that the respondents claimed that lack of space for recyclables was the main reason for not recycling. It seems that people are discourage to recycle if the recycling points are far from their living place and if they felt that recycling is time and space consuming. Thus, improving the recycling facilities and their location as well as making recycling convenient could increase the motivation to recycling. Prestin and Pearce (2010) found out that school students believed that a good recycling infrastructure would increase recycling behavior, not only in schools, but also at home and in public area. This means that greater number of recycling bins available will make recycling easier and more convenience, and in turn recycling behavior was increased. This was evidence as recycling participation among the college students increase when recycling points were located in their classrooms (Kaplowitz et al., 2009). More attention needed in this matter because negative situational factors may deter recycling behaviour. Thus, in order to make recycling a habit, supportive infrastructure must be in place. In view of the significance of these factors, situational factors was included as one of the variable tested as determinant of recycling behavior in this study.

Therefore, the following hypothesis is formed:

H5: There is a relationship between situational factors and recycling behavior.

2.2.5 Consequences of Recycling

Knowledge and belief held with much of the same conceptual mind, plus they often related to each other in literature (Prestin and Pearce, 2010). John Locke (1689) defining

knowledge as “the perception of the agreement or disagreement of two ideas” and it is categorized as one type of beliefs, justified true belief to be specifically (Schwitzgebel, 2010). Schwitzgebel (2010) elaborated that developing beliefs is one of the most basic and significant characteristics of the mind, still, a lot of things that we believe, in our pertinent mind, are quite mundane. Researchers on epistemology debated about when and how beliefs are justified or qualify as knowledge.

Studies showed that environmental knowledge usually developed when children reach the adolescent stage or when they reach junior high school. These adolescent years enable them to build well-defined beliefs about environmental issues including recycling (Prestin and Pearce, 2010). Thus, commonly, children obtained a basic understanding of the definition of recycling and the benefits of the practice as early as six years old (Prestin and Pearce, 2010) and majority of high school students knowledgeably aware of the consequences of not recycling (Busteed et al., 2009). However, many children cannot explain the connectedness between the benefits of recycling and the consequences of not recycling to the environment (Prestin and Pearce, 2010). The children are incapable to see the big picture of this situation, thus in their mind, small amount of trash they litter is not going to make a big bad difference to the world (Busteed et al., 2009). They do not really comprehend the messages of recycling. Thus, education is the key factor for adolescent to help them to see the big picture. There is a need for a new paradigm in adolescent to make them understand that recycling is not just a matter of right or wrong and not only to make the world cleaner and beautiful, but it is more of global commitment, a civic obligation that everyone should plays a role to make it successful.

Therefore, the following hypothesis is formed:

H4: Adolescents who have knowledge of consequences of recycling will be more likely to demonstrate recycling behavior.

2.2.6 Monetary Incentives of Recycling

One assumption in economic theory is that individuals are utility maximizers who make their choice based on a rational assessment of costs and benefits. Thus, in attempt to change the relative costs and benefits of environmentally desirable behaviour, economic incentives is one of the means introduced so that the behaviour seems more profitable for the individual to behave in accordance with the collective interest (Kinnaman and Fullerton, 2000). Recycling behaviour has been investigated from the several points of view of various disciplines. Economists particularly often looked at the external incentives and assess the effects toward the environmentally desirable behaviour in individuals. Several studies have emphasized external incentives such as monetary rewards, and recognize external incentives themselves can initiate and sustain recycling behaviour (Hornik et al., 1995). Because student's role in making recycling program successful is very crucial, many efforts are carried out aimed at encouraging pro-recycling behaviour including external incentives and Kaplowitz et al. (2009) stated that incentives such as monetary reward has been shown to increase student's participation in recycling programs. A study conducted in Hong Kong investigating the influence of economic incentives in domestic waste recycling found out that economic incentives have a significant positive relationship with the recycling activities (Yau, 2010). These findings show that people are utility maximizer whose can be regulated by a sufficient amount of manipulation of rewards to achieve the desirable behaviour.

Although external incentives such as monetary reward have the potential to increase recycling behaviour, there are several downside of this factor have been identified. Particularly in environmentally relevant behaviour, a risk exist in which external incentives such as monetary incentives could undermined the intrinsic or internal motivation to behave in environmentally desirable behaviour. Many empirical evidence

indicating that there is a stronger reason for people to do environmentally behaviour when they are given an external reason rather than just self-determination. In other words, internal motivation such as self-determination is undermined when people are given external incentives like monetary reward. However, this condition is not absolute as the behaviour can be positive, neutral or negative depending on whether the strength of motivation comes from external incentives is larger or smaller than the decrease in internal motivation (Thogersen, 2003). The next disadvantage of the external incentives happened when the desired behaviour vanish when the incentive was withdrawn. When people recycles and expecting to gain monetary rewards, it is not questionable when people stop recycling when the rewards are no longer given. Studies have found that environmentally desirable behaviour usually remains only in the period where the incentives remain. When monetary incentives become the primary motivation in recycler, recycling stopped when the incentives ended (Hornik et al., 1995).

The most concerning downside of monetary incentives is the negative impact it causes on intrinsic motivation to recycle. A reframing of the recycling behaviour might be planted in people's mind when they implement economic incentive. Reframing of the recycling behaviour means a shift to a different mind setting that might change the original goals and decisions, including the actions taken (Thogersen, 1996). Strong and obvious monetary incentives might convert people who recycle because of high awareness and realizing values of recycling into people who recycle because it pays. This condition not only weakens the intrinsic motivation but also destroys the moral obligation. However, on the positive side, monetary incentives have the potential to strengthen the recycling behaviour if it is perceived only as a token of approval among people who recycle based on self-determination (Thogersen, 1996). In other words, people who recycles because of intrinsic motivation gets more motivated when they are rewarded. Monetary incentives are

generally successful at activating a desired behavior, however, it does have the less positive aspects. It is very beneficial in stimulating recycling behaviour especially for those with big intrinsic motivation.

Therefore, the following hypothesis is formed:

H6: There is a relationship between monetary incentive and recycling behaviour.

2.3 Theoretical Framework and Hypothesis

The Theory of Planned Behavior introduced by Azjen (1991) serves as the basis for a conceptual framework to investigate the determinants of recycling behavior.

2.3.1 The Theory of Planned Behavior

Theory of planned behavior will be used in this study to explain the attitudes and behaviors of high school students toward recycling program. This theory identifies several factors which influence people's behavioural choices and has been utilized successfully in diverse areas such as recycling decisions and investment decisions (Tonglet et al., 2004). Recycling is a practice which involves the process of collecting, cleaning, sorting and transporting the recyclables to the recycling facilities. It is clear that recycling requires a considerable effort and it took a number of factors to be considered and those factors are influencing people's recycling decision. Therefore, Theory of Planned Behaviour provides a theoretical framework for identifying the factors which influence the recycling decision systematically. This theory was chosen because there are several studies have confirmed its usefulness in investigating the determinants of recycling behaviour (Boldero, 1995; Chan, 1998; Tonglet et al, 2004; Ramayah et al, 2012; Klockner and Oppedal, 2010; Mahmud and Osman, 2010). However, Boldero (1995) has suggested that inclusion of

additional variables is needed as the variables in the theory alone are not sufficient enough in explaining recycling behaviour.

According to the theory, people will participate in recycling if they have the intention to do so, and thus, will result to positive attitude toward recycling (Klockner and Oppedal, 2010). The theory also proposes that environmental behavior influenced by subjective norms, which are a representation of perceived expectations of relevance reference groups toward individual to take hold of certain behavior and motivated the individual to comply with the reference groups (Prestin and Pearce, 2010; Klockner and Oppedal, 2010). Adolescents tend to follow his or her reference groups acts or behaviors. Thus, for example, if the reference groups were actively involved in recycling, they will get motivated to do the same things. Furthermore, adolescents usually concerned about the perceptions and expectations of their reference groups toward him or her. They will care much about how others would react to his or her not recycling (Prestin and Pearce, 2010).

The last assumption of the theory is people recycle if they possess perceived behavioral control, which is a feeling of having the capability to perform the specific intended behaviors (Klockner and Oppedal, 2010). Adolescent, who have high amount of this trait believed they can do well in specific things that they really intended to do. They will participate in the recycling program if they have the intention to do the activity, and if they feel capable of recycling (Klockner and Oppedal, 2010).

2.3.2 Theoretical Framework

The dependent variable is recycling behaviour of high school students, which is the variable of primary interest. There are six independent variables in this study which are (1) Attitude (2) Subjective Norm (3) Perceived Behavioural Control (4) Situational Factors (5) Consequences of recycling (6) Monetary incentive

Recycling attitude refers to one's feelings, beliefs and behavioral predispositions toward recycling. Subjective norms are the behavioral expectations and cues within a society or group. Perceived behavioral control explains that people performs certain desired behavior when they feel that they have the capability and confidence to perform the intended behavior. Situational factors refer to the external factors that may affect recycling behavior. Consequences of recycling particularly refer to knowledge of students about the benefit of recycling and the consequences of not recycling. Monetary incentive is a type of external motivation used in attempt to stimulate recycling behavior especially among students.

Attitude is one intrinsic motivator that is very important for people to perform the intended behavior. Along with other antecedents such as acquisition of recycling knowledge and skills, recycling attitude will contribute to recycling behavior in students.

Subjective norms play an important role in encouraging students to recycle. Adolescents may participate in pro-social act for many reasons such as to gain approval from the reference groups as well as accomplishing the expectations of the groups toward him or her. For example, adolescent will involve in recycling campaign if their peers expect them to get involve too.

Perceived behavioral control in recycling will be more favorable if the students have good deal of knowledge and beliefs on how to recycle and the benefits of the practice, as well as good opportunities and cooperation of others. For example, if they know well the separation of the recyclables, they are more likely to recycle. Students who do not have the knowledge about how to separate the recyclables will be more hesitant to do so.

Situational factors in recycling need to be identified as it were one of the obstacles to recycling behavior. Students did not participate in recycling maybe because of their own attitude or other external conditions such as inconvenience. For example, they refuse to

recycle because the recycle bins were located far from their classroom. Thus, they prefer to throw their waste into trash bin inside their classroom rather than walking to the recycle bins.

Environmental awareness and a sense of responsibility for the environment are critical to a successful recycling program. Thus, students need to understand the benefits of recycling to the environment, as well as to the people and other living things.

Monetary incentive is an external incentive that could influence people to start recycling when they actually do not intend to. This type of incentive would seem attractive to students as it rewards money, especially to those comes from low to middle income family. Besides, it also will boost further the motivation of students with positive recycling attitude to recycle. These relationships are outline in Figure 2.1;

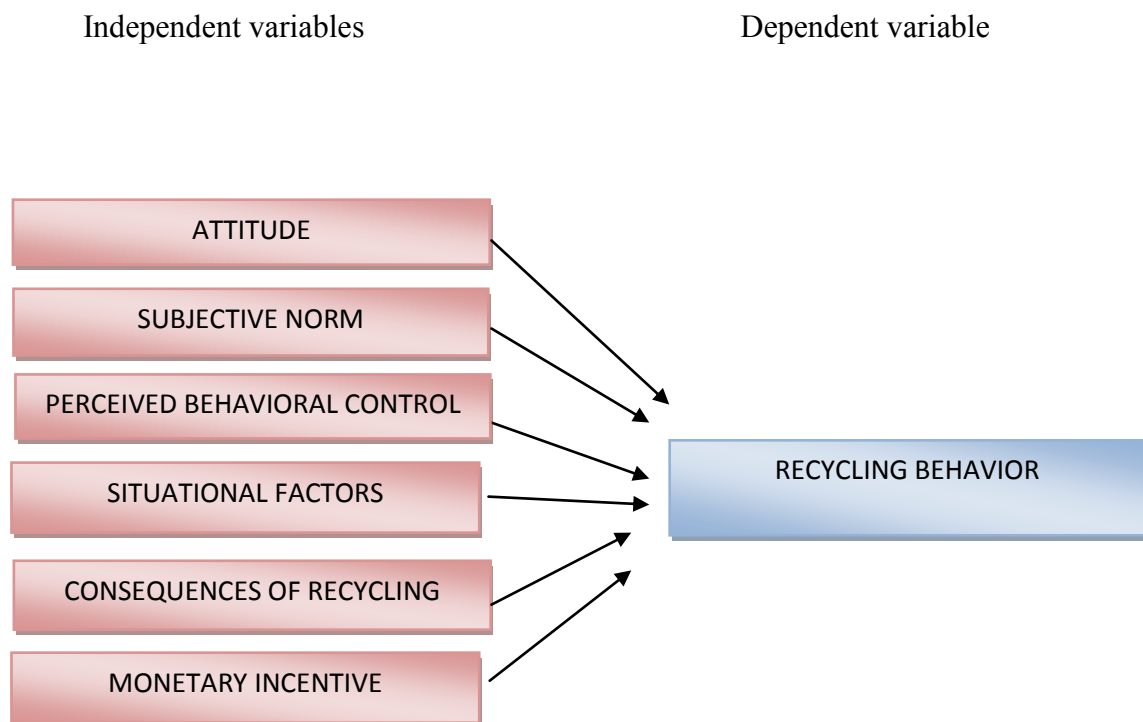


Figure 2.1: Theoretical Framework

2.4 Summary

This chapter reviewed the literature of recycling and the Theory of Planned Behaviour. Based on the past findings, the theoretical framework and the general hypotheses of the relationship between factors that influence recycling behaviour among secondary school students were formulated.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter discusses on the methodology and tools used to analyze the data collected and to test the hypotheses for this study. It comprises the research design, study sites, population, variables, questionnaire design and data analysis plan. The following section provides the summary details on this.

3.2 Research Design

This study investigates the factors that influence the recycling behaviour of secondary students in Penang specifically by using the Theory of Planned Behaviour. Survey and non-participatory observation were conducted to examine the determinants that are influencing the student behaviours toward recycling practice. Survey method is the foundation of the research design for this study. The questionnaire is measured using five-point Likert scale and it is designed to obtain information on demographic of the respondents and the variables tested. This research was designed to empirically test the research model developed in theoretical framework. The respondents are the secondary school students in Penang. The students are from two schools namely Sekolah Menengah Kebangsaan Bukit Jambul and Sekolah Menengah Kebangsaan Datuk Haji Mohd Nor Ahmad.