

Study on Public Awareness Toward Recycling Activity in Mukim Bandar Segamat

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Abstract:

People have created solid waste in daily life, which can intensify cause environmental issues. The practical method to decrease the municipal solid waste or Households Solid Waste (HSW) by the recycling practice. In order to accomplish reduce solid waste through recycling activity, people should understand the awareness of recycling practices behaviour. The objective of the study is to determine the relationship between the level of awareness of the public and recycling practices behaviour and identify the factor influence of waste separation among the Residences Mukim Bandar Segamat. The study area that been select are Taman Mida, Taman Perling, Taman Sri Pelangi and Taman Segar. This study used a questionnaire survey to collect data using two platform questionnaire form and online Google Form. Distributed to 200 respondents randomly in the study area which need to answer 4 sections. Data analyses that have been used are Descriptive analysis, Regression and Correlation Analysis. The outcome shows that 98 respondents (49%) have a good level of awareness about proper waste separation and 124 respondents (62%) satisfied the quality of their residential waste management. The Theory of Planned Behaviour (TPB) determinants show The Moral Norm have highest r – value ($r=0.531$) that been the influential component which positive relationship between Intention and Moral Norm. To enhance continuously increasing the awareness of recycling and waste separation government may able to stimulation the Separation at Source Initiative (SSI) legislation and implementation, focusing more on the intrinsical motivation of families member and communities.

Keywords: Recycling, Waste Separation, Theory of Planned Behaviour

1. Introduction

Solid waste involves any scrap or other object comprising of undesired extra material or rejected product that must be disposed of as worn, polluted, or otherwise degraded as broken by the authorities [1]. According to the study, solid waste created in 2005 amounted to over 19,000 tonnes per day in 2012, above the 30,000 tonnes projected by 2020 [2]. Therefore, the practical method to decrease the

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municipal solid waste or Households Solid Waste (HSW) by the recycling practice. It also can ensure people in proper solid waste separation. If recycling is practice, it has the potential; to minimise the quality of solid waste as well as the difficulties associated with solid waste management and disposal [5]. Malaysia government has been working nonstop to boost the country's recycling rate by launching a public awareness campaign on the benefits of trash minimization and recycling [13]. Furthermore, the problem that we are facing in Mukim Bandar Segamat participating people practice and implement recycling in their daily routine. For example, the campaign of 3R, (Recycle, Reduce and Reuse) not likely to attract the community concerning recycling behaviour. The degree of concern and understanding among Malaysian does not equal the contributor's lifestyle standard when it comes to sustainable waste management through the 3R's [5]. According to research, Malaysia's recycling rate is only 5 percent compared to 74 percent in Germany, 71 percent in Belgium, 67 percent in Austria and 66 percent in Netherland [1]. Five significant problems with solid waste management are linked to recycling, according to Malaysia's Minister of Housing and Local Government [9]. An ever-increasing volume of solid waste and operational expenditures, a lack of proper waste management and recycling databases, and a lack of awareness of the 3R (reducing, reusing, and recycling) culture, a lack of partners to encourage 3R culture, and a lack of awareness and networking among stakeholders are just a few of the issues, are all contributing factors. The objective of the study is to determine the relationship between the level of awareness of the public and recycling practices behaviour and identify the factor influence of waste separation among the residences of Mukim Bandar Segamat.

2.1 Solid waste management policy and plan strategies

Effective handling of solid waste and proper final recycling of solid waste, including public maintenance facilities, was enforced by Act 672 (2007) [7]. Act 672 went into effect on September 1, 2011, following a decade of examination and approval by the Malaysian Parliament on July 17, 2007. Act 672 attempts to harmonise Malaysia's waste disposal management and public cleansing services. Source separation is required because it improves the reclamation of recyclable materials and increases the capacity of landfills. The goal is to reduce littering and unlawful dumping while also emphasising the need for waste management that is both sustainable and clean [7]. Act 672 defines standards, specifications, and codes of practice, as well as allowing for the issuance of licenses and approvals. SWCorp is in charge of enforcing solid waste management and public cleaning rules, as well as offering suggestions for improvement [9]. Each household is required to separate its garbage from the source, as well as to apply the 2+1 household waste recycling procedure. However, instead of concentrating on the main components of solid waste, minimization, especially in the separation of sources and recycling the SWCorp Strategic Plan 2014-2020 wants to build a culture of cleanliness among Malaysians. The proposed solutions for source separation and recycling usually focus on three aspects: raising public awareness, improving recycling facilities (such as additional recycling bins in public locations), and increasing collaborative government-private business connections.

2.2 Initiative recycling programs in Malaysia

In Malaysia's recycling history, a national recycling campaign was begun in 1993 while formally established in December 2003 to promote public recycling practices [2]. In reality, after 13 years launched the first recycling program, a nationwide recycling rate of just 5.5% was reached in 2006 [12]. Several successive initiatives, such as recycling ads, have been carried out to raise awareness among Malaysia that cannot stimulate the community's tendency to participate positively. According to many of the research, Malaysia's inability to recycle items from the inefficient and cumbersome recycling facilities available [18].

2.3 Theory of Planned Behaviour

The Theory of Planned Behavior (TPB) has been frequently utilized to assess the latent factors that support source separation behaviour [8]. There is the link to the social norms in which both social pressures and willingness to cooperate with the expectations and assumed behavioural control included the existence of influences that can make it easier or more difficult behavioural progress that determines clear intentions [8]. Described TPB as a beneficial hypothesis to be incorporate in a methodological or framework context for the study of recycling and behaviour in waste minimization [10]. An attitude

toward an act or action in the aspect of life is a human conviction in certain behaviour that create a good or bad impact on that person's life [3]. Next, Subjective norms are concerned with everything about a person, including societal standards, social constraints, cultural norms, and community beliefs. Perceived Behaviour Control (PBC) in how simple or difficult it is to demonstrate a specific behaviour is believed to represent knowledge as well as expected obstacles [14]. Moral standard or norm is defined as people's feeling with moral accountability and obligation for actions that essentially influence their behaviour [14][16].

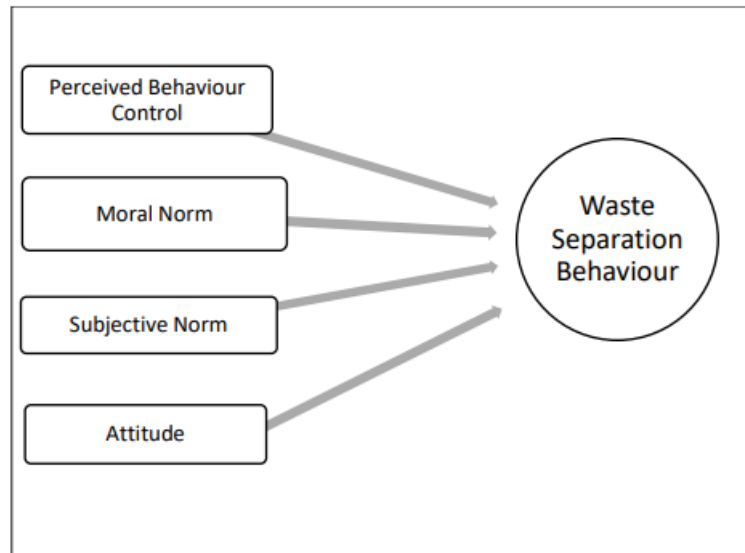


Figure 1: Conceptual Model of Theory of Planned Behaviour

3. Materials and Methods

This study focus to gather data on the relationship between respondents and awareness of recycle practice and determinant of factor influence toward recycling behaviour. The instrument of measurement used to collect data is a questionnaire survey as a common tool in many kinds of research. The questionnaire divided into four sections that section A on personal background respondents. Next, section B on the knowledge of recycling activity, section C on determinant Theory of Planned Behaviour and the last section on Intention waste Separation Behaviour. Since some determinants cannot be calculated directly, the metrics are used to represent the determinants, which cannot be measured. All measures are of an ordinal form, seen in the Likert scale from 1 to 5 (strongly disagree, disagree, neither agree nor disagree, agree and strongly agree). The questionnaire is distributed using two platforms that are questionnaire form and online google form.

The study area was conducted in Mukim Bandar Segamat in one of the sub-district of Segamat. The residential area that were selected are Taman Mida, Taman Perling, Taman Sri Pelangi and Taman Segar. The location of this study area was very suitable to distribute the questionnaires because of the high growth population as strategies to collect more respondents in an urban area. 200 randomly respondents in the four selected residential areas to answer the questionnaire survey. After assuming that the study anticipates no problems with incomplete data or non-normal distribution, a sample size of 200 are recommended as the minimum sample size that is suitable for any structural model [17]. The pilot study construct based on the past study from other researchers to identify the suitable question as output to the questionnaire. Statistical Package for Social Sciences was used to analyse the data (SPSS). The statistical analysis tools been used were Descriptive Statistics, Regression and Correlation analysis. The percentage of accurate responses to total items under each question linked to the recycling activity was used to determine the answer score. The difference incorrect answer scores obtained for questions linked to recycling activities acknowledged was assessed using regression and correlation, respectively.

4. Results and Discussion

4.1 Descriptive Statistic's

200 respondents who participated in this study fulfilled the criteria of the questionnaire; they had to answer the given question with the answer of their choice. Table 1 shows the demographic data of respondents. The number of respondents who participate in the survey more likely male respondents with 53.5% (107 respondents) than female respondents (46.5%, 93 respondents). This also affected by the ages of the respondents, which was in the range of ages 20 to 29 years old with 31.5% (63 respondents). The most participate races are Malay with 55.5% (111 respondents) and followed by Chinese with 32.5% (65 respondents) and India with 12% (respondents). For the Education level, 76 respondents show the majority have STPM/matriculation/Diploma/Foundation with 38%. Besides, the education level verified that education had an impact on families' solid waste disposal options [11]. Monthly household income shows that the average income between respondents is RM 3,000 to RM 5,000 with 69 respondents give this answer (34.5%). Therefore, the gap between monthly incomes give little effect on the production of waste. 108 respondents have lived in Bandar Segamat for 10 years and above with a percentage of 54%. Therefore, this duration is settlement important to the survey because it indicate respondents are aware of the recycling activity and waste collection service in their residential area.

Table 1: Demographic data of respondents

Item	Frequency (n)	Percentage (%)
Gender		
Male	107	53.5
Female	93	46.5
Ages		
Below 20	39	19.5
20 - 29	63	31.5
30 - 39	53	26.5
40 - 49	26	13.0
50 - 59	16	8.0
60 and above	3	1.5
Race		
Malay	111	55.5
Chinese	65	32.5
India	24	12.0
Education Level		
Secondary	36	18.0
STPM/Matriculation/Diploma/Foundation	76	38.0
Degree	70	35.0
Master	7	3.5
PhD	2	1.0
No Education	9	4.5
Monthly Household Income		
< RM 3,000	62	31.0
RM 3,001 – RM 5,000	69	34.5
RM 5,001 – RM 7,000	45	22.5
RM 7,001 – RM 9,000	18	9.0

>RM 9,001	6	3.0
Duration of Settlement		
Less 1 year	6	3.0
1-5 years	24	12.0
6-10 years	62	31.0
10 years above	108	54.0

Table 2 shows the knowledge of respondents toward the recycling and waste management. 124 respondents with 62% are satisfied with the quality waste management in their residential area. Meanwhile, 72 respondents with a percentage of 36% recycling service collect their recyclable materials is 3 times a month. Some respondents with 33.5% (67 respondents) argue that waste management services need to improve in the ways of collection of waste by the authorities. The percentage of respondents that put the trash into the required bin was 82.5% (165 respondents) and 17.5% (35 respondents) not put the trash into the required bin for recycling. This shows that respondents have recycled practices based on their knowledge and awareness in separate the recyclable material in their house. Moreover, the percentage of 98 respondents, which is 49%, known proper separation of waste according to Mandatory Source Separation. Compared to previous study, 88 respondents (75%) agreed that trash separation can be done effectively with proper recycling expertise, and 153 respondents (39.8%) agreed that it could minimize household waste output.

Table 2: Knowledge of recycling and waste management

Item	Frequency (n)	Percentage (%)
Quality waste management		
Satisfied	124	62.0
Unsatisfied	9	4.5
Need Improvement	67	33.5
The proper separation of waste		
Yes	98	49.0
No	61	30.5
Maybe	41	20.5
Put the trash in the required bins		
Yes	165	82.5
No	35	17.5
Recycling services collect your recyclables material		
1 time	33	16.5
2 times	48	24.0
3 times	72	36.0
>3 times	25	12.5
Never	22	11.0

Section D, which are referred to the willingness of the public to participate in recycling activity and waste separation. The result of data descriptive analysis shows that the overall mean score for each answer between 3.95 to 4.26 in categorizing as high determinant level in answer agrees with the statement of the question. This part correlates with the Theory of Planned Behaviour components as a factor that influences waste separation behaviour.

4.2 Correlation Analysis

Table 3 below shows the correlation between the variables in the Theory of Planned Behaviour (TPB). The results of the analysis in Section C obtained that all the independent variables show a linear and significant positive relationship to the dependent variables. While the value of r between 0.269 to 0.531 indicates a weak relationship between the variables. The highest r - value which is moral norm with $r = 0.531$ that positive linear relationship. Over than that, the R square value (R^2) was 0.35 where the effect of the predictors (Perceived Behavioural Control, Subjective Norm, Attitude, Moral Norm) with percentage of 35% toward the intention behaviour. While result from past study, the R Square value is 0.661, which is higher than 0.500, indicating that the independent factors explain 66 percent of the dependent variable [3]. This result had been supported by the past study that among Iranian families, moral responsibility (moral norm) is the most powerful indicator of intention [15]. Moreover, also discovered that the moral standard has a significant impact on the desire to recycle among Greek people [16].

Table 3: Pearson Correlation of Theory Planned Behaviour

		ATT	SN	PBC	MN	ITN
Attitude	Pearson Correlation	1				
Subjective Norm	Pearson Correlation	.447**	1			
Perceived Behavioural Control	Pearson Correlation	.434**	.495**	1		
Moral Norm	Pearson Correlation	.392**	.269**	.411**	1	
Intention	Pearson Correlation	.323**	.312**	.445**	.531**	1

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

5. Conclusion

In conclusion, this study shows young residences have a good awareness of recycling activity that highly participate in this survey. In general, respondents' demographic information were linked to their recycling knowledge, attitudes, and practices of recycling. Based on the knowledge respondents, most of them knew about the mandatory source separation campaign and because of that, they implement the campaign by putting their recyclable materials in the required bin. Meanwhile, for the correlation analysis, The Moral Norm have highest R-value with ($r = 0.531$) that been the influential component which is positive relationship between Intention Waste Separation and Theory of Planned Behaviour. Besides, comparison between present data and previous data have slightly difference in percentage of answer because of number of participation. Based on the result of this research, local governments in Malaysia may be able to enhance the Separation at Source Initiative (SSI) legislation and implementations, focusing more on the intrinsically motivated families member and communities. Some suggestions to improve the awareness public toward recycling practices by provided facilities that are convenient and good waste collection services for the households to separate waste. Others, the recycling practices should start from home or school to enhance public to isolate the waste at source efficiency.

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