Determinants of Recycling Behaviour in Tioman Island

Saripah Abdul Latif, Mohd Shukri Omar

Faculty of Business Management,
Universiti Teknologi MARA Kelantan Campus, Malaysia

saripah@kelantan.uitm.edu.my

Abstract

The rapid increase in solid waste is a major environmental problem and recycling is argued to be a better solution to the problem. However, there is a broad agreement that there is a gap between the increasing awareness for recycling and the recycling behaviour among the consumers. The aim of this study is to investigate the recycling behaviour among 62 residents of Tioman Island. A structured questionnaire that included 33 items is used to obtain the data. The findings show a significant relationship between recycling behaviour and collectivism; a positive, weak relationship with recycling attitudes; and a negative relationship with materialism.

Keywords: recycling behaviour; recycling attitudes; materialism and collectivism.

1.0 Introduction

The rapid increase in solid waste, which all contemporary societies face, is considered to be a major environmental problem. And recycling is argued to be a better solution to the problem of post-purchase waste. Recycling is often considered as an emerging trend, commencing with the greening of society during the 1970s, and which really took off during the early 1990s (Boks et al., 1998). Gilpin (2000) defined recycling as the return of discarded or waste materials to the productive system for utilisation in the manufacture of goods, with a view to ~~the~~ conservation as far as practicable of non- renewable and scarce resources, contributing to sustainable development. He further added that recycling actually goes beyond the reuse of a product (such as glass milk bottles) and involves the return of salvaged materials (such as paper, metals, plastics or broken glass) to an early manufacturing stage (pulping or melting). Some recycling has always been profitable   in certain industries such as the return of steel scrap to the iron and steel industry, glass cullet to the glass industry, and aluminium drinks cans to the aluminium industry.

Though recycling is a rather complex process that requires certain technological applications, it also incorporates a marketing aspect. From a marketing viewpoint, recycling is an issue of distribution channel (Fuller et al., 1996). In this sense, recycling is an issue of post-purchase consumer behaviour, as it is an activity that consumers undertake after a particular purchase has been made or even after the product of this purchase has been used.

The area researched on pertains to post-purchase behaviour of consumers. This study aims to identify what the customers actually do with the packaging of the products after they have consumed them. There is apparent evidence in the literature analyses into the driving forces of environmental concern and green consumer behaviour that there is no easy answer towards the differentiated behaviour among the consumers. Many of the studies exhibit conflicting results; others fail to find consistent relationships and the interactions that are revealed are usually complex and require further research. It has been previously advocated that consumer behaviour can be better understood in terms of personal values (Granzin and Olsen, 1991; Richins, 1994; Shrum and McCarty, 2001; Tilikidou and Delistavrou, 2001).

Past research on recycling behaviour has mostly been conducted   in the context of developed countries. There is a need to investigate this topic in developing countries such as Malaysia. The generation of waste in Malaysia is 17 000 tons per day, but only 5% is recycled (Chenayah and Takeda, 2005). Following this suggestion, this study focuses on the selected psychological and cultural factors such as attitude, materialism, collectivism and individualism to recycling. The main objective of this study is to investigate the recycling behaviour in relation to the specific recycling attitudes and selected cultural characteristics among the residents of Tioman Island. It is aimed at revealing the most powerful determinants of the recycling behaviour in the Tioman Island.

2.0 Literature Review

Generally, the review of the literature indicated that academic research related to recycling has placed a focus on determining the factors that could describe and predict recycling behaviour better (Tilikidou and Delistavrou, 2001). A positive relationship between attitudes and behavior has been indicated in some cases (Kallgren and Wood, 1986; McGuiness et al., 1977; Tilikidou, 2001), whilst no relationship was found in others (Ebreo and Vining, 1994; Oskamp et al., 1991). However, there is an agreement in the literature that specific recycling attitudes are better predictors than are general pro-environmental attitudes (Martin and Siminitras, 1995; Schlegelmilch et al., 1996; Shrum et al., 2001).

McCarty and Shrum (1994) were the first researchers to introduce the constructs of 'individualism' and 'collectivism' in their study. Their model was based on the idea that a consumer is not likely to receive any immediate benefit by engaging in the recycling behaviour. People who place importance on immediate benefits can be considered as being individualistic, while people who consider the impact of their behaviours on others and on society are known as collectivists. Thus, behaviours such as recycling, which include a focus on social benefits, may be considered as a function of 'collectivism and individualism' (Shrum and McCarty, 2001).

Tilikidou (2001) discussed the relationship between materialism and pro-environmental behaviour. Richins (1994) in Tilikidou and Delistavrou, (2001), stated that materialism is a value that represents the individual perspective, giving a central role to possession in that person's life, happiness and success. Therefore, it can be assumed that consumers' attitudes and beliefs, in terms of material goods and pleasures, relate to their recycling behaviour, since the recycling behaviour aims to achieve environmental protection.

Generally, people seem to have the awareness and positive attitudes towards disposal of waste materials (Berger and Corbin, 1992). However, positive attitudes do not guarantee participation in waste management programmes (McCarty and Shrum, 1994; Tilikidou and Delistavrou, 2001; Kurz et al., 2007). Adding to this problem, not much is known about the factors that influence individual recycling behaviour. Most studies only examine a small number of variables in segregated manner.

The availability of literature on integrated theoretically based model for understanding the relationships between environmental beliefs, attitudes and behaviour is minimal (Hopper and Nielson, 1991; Tilikidou and Delistavrou, 2001; Barr et al., 2003; Do Valle et al., 2005; Kurz et al., 2007). Then literature revealed conflicting findings of researches in this field. Furthermore, there is no research as yet on the predictors of recycling behaviour among Malaysian consumers in the perspective of post-purchase behaviour or the reverse distribution channel.

Hence, it was assumed that consumers who held positive recycling attitudes and had higher collectivistic values were more likely to be involved in the recycling behaviour. On the other hand, consumers who held higher individualistic and materialistic values were less

likely to be involved in the recycling behaviour.

3.0 Methodology

This is an exploratory research, adapted from a study done by Tilikidou and Delistavrou (2001) in Greece.

3.1 Sample and Procedure

The data of the study were collected through a survey of personal interviews of the residents on Tioman Island, specifically near the Tioman Marine Park area. This location was chosen for the study with the rationale that the residents near a marine park should be more aware of environmental issues. The sample size was 62 (n=62). The instrument of the study was a structured questionnaire that included 33 items. Undergraduate students from the Faculty of Business Management, University Teknologi MARA Kelantan Campus acted as the interviewers. These students were undergoing the Environmental Marketing course.

3.2 Variables Measurement

All the questionnaire measures are presented in Table 1. 'Recycling behaviour' was the dependent variable of the study and 'recycling attitudes', 'materialism', 'collectivism' and 'individualism' were the independent variables.

In order to measure the recycling behaviour, four self-reported items were used, measured on a five point frequency scale from 1 (never recycle) to 5 (always recycle). It is noted that each item used represents one of the recyclable materials at consumers' disposal. Other recyclable materials such as fabric, batteries, etc. were not included, as no relevant recycling programmes have been delivered in Malaysian neighbourhoods yet.

The recycling attitudes variable was measured on a 15-item scale (see Tilikidou, 2001). It was measured on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The measures of individualism and collectivism were adopted from Shrum and McCarty (2001). The individualism construct contained three items and the collectivism construct contained five items, all measured on a five point importance scale with anchors of 1 (not at all important) to 5 (extremely important). The measure of materialism was adopted from Richins (1987). It contained six items, all measured in this study, on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

The waste components chosen were paper, plastic, bottles and metal. These are readily recyclable materials in Malaysia (Hassan et al., 2000).

4.0 Results and Discussions

The results of the study are presented in two sections.

4.1 Descriptive Statistics

The descriptive statistics showed that the mean for all types of recycling materials; paper, aluminium cans (metal), plastic bottles and glass were below the value of three. With the range value of four for recycling materials, the most recycled material, which was the plastic bottles, had a mean value of only 2.84. This value was thought to be as rather low.

All items measuring attitudes, materialism, collectivism and individualism had a mean above the value of three, except for item C6 (item 6 for materialism), which was actually a reverse-coded item. The lower mean value for C6 was appropriate with the expected results. Consumers who held higher materialistic values than their counterparts were less likely to engage in the recycling behaviour.

Table 1: Descriptive Statistics of All Variables Used in the Tioman Island Survey

Variables	Number (n)	Range	Mean	Standard deviation
Recycling behaviour	62	4	2.85	1.28
Recycling attitudes	62	3	3.94	0.62
Materialism	62	3	3.42	0.67
Collectivism	62	2	3.95	0.69
Individualism	62	3	3.53	0.76

As is shown in Table 1, the mean for the recycling behaviour (2.85) was rather low as compared to the mean of the recycling attitudes (3.94). When the sample under study had a very positive attitude towards recycling, they should also have a very high recycling behaviour. However, the results showed a conflicting outcome. These results confirmed the gap between behaviour and the 'claimed' attitude towards recycling of the respondents. This finding conforms to the researches done by McCarty and Shrum (1994), Tilikidou and Delistavrou, (2001) and Kurz et al., (2007).

Another significant finding was the mean for collectivism (3.95) which was higher than the mean for individualism (3.53). This showed that the sample for this study had a more collectivistic characteristics rather   than individualistic.   This implied that the mean for the recycling   behaviour should have been higher than what was shown here.

However, the mean for materialism (3.42) was rather high. This could explain the low participation in recycling among the residents of Tioman Island in this case study. The higher the mean value for materialism, the lower the mean value for the recycling behaviour should be.

4.2 Correlations Results

Table 2: Pearson Correlation Between Recycling Behaviour (Dependent Variable) and Independent Variables

		Recycling behaviour	Recycling attitudes	Materialism	Collectivism	Individualism
Recycling behaviour	Pearson Correlation Sig. (2-tailed) N	1 62	0.194 0.132 62	-0.216 0.092 62	0.309* 0.015 62	0.097 0.451 62
Recycling attitudes	Pearson Correlation Sig. (2-tailed) N	0.194 0.132 62	1 62	0.145 0.261 62	0.069 0.594 62	0.004 0.973 62
Materialism	Pearson Correlation Sig. (2-tailed) N	-0.216 0.092 62	0.145 0.261 62	1 62	0.081 0.533 62	0.263* 0.039 62
Collectivism	Pearson Correlation Sig. (2-tailed) N	0.309* 0.015 62	0.069 0.594 62	0.081 0.533 62	1 62	0.144 0.265 62
Individualism	Pearson Correlation Sig. (2-tailed) N	0.097 0.451 62	0.004 0.973 62	0.081 0.533 62	0.144 0.265 62	1 62

Pearson's parametric correlation was calculated as shown in Table 2. The results indicated a positive and weak (r = 0.194) relationship between recycling behaviour and recycling attitudes. On the other hand, there was a higher (r = -0.216) but negative relationship between recycling behaviour and materialism. More importantly, the table also showed a positive (r = 0.309) relationship between recycling behaviour and collectivism, whilst the relationship between recycling behaviour and individualism was very weak though positive.

In this study on the Tioman Island, only the relationship between recycling behaviour and collectivism was significant. While the other 45 three relationships between recycling behaviour and recycling attitudes, and materialism and individualism were not significant. Therefore, only the hypothesis that consumers who had higher collectivistic values than their counterparts were more likely to engage in the recycling behaviour was supported. In other words, the recycling attitudes, individualism and materialism were not significant predictors of the recycling behaviour in the case of Tioman Island.

As compared to the study done by Tilikidou and Delistavrou (2001) in Greece, they found that the relationships between recycling behaviour and recycling attitudes, materialism and collectivism were significant. The sample size used by Tilikidou and Delistavrou (2001) was

424, while this case study had a sample size of 62 respondents only, which was very much lesser. Furthermore, there was the issue of the difference in cultural background and economic status to be considered. It should be noted that Malaysia is an Asian country with the status of a developing nation, while Greece is a member of the developed European Union (EU).

5.0 Conclusion

This study has attempted to shed more light on the post-purchase behaviour of the consumers. The main objective was to investigate the recycling behaviour in relation to attitude, materialism, collectivism and individualism among the residents in Tioman Island. It was aimed at revealing the most powerful determinants of the recycling behaviour in the Tioman Island. It was posited that consumers who held positive recycling attitudes and had higher collectivistic values were more likely to be involved in the recycling behaviour. On the other hand, consumers who held higher individualistic and materialistic values were less likely to be involved in the recycling behaviour.

It has been suggested in previous research by Tilikidou and Delistavrou (2001) that the 'materialism' variable was the most powerful determinant of recycling, stronger even than the 'recycling attitude' variable. A higher correlation coefficient was obtained for the 'materialism' variable than for the 'recycling attitudes' or 'collectivism' variables. In this case study, only the relationship between recycling behaviour and collectivism   was significant. The analysis supported the hypothesis that consumers who had higher collectivistic values than their counterparts were more likely to engage in the recycling behaviour. According to Hofstede (1991), in collectivist societies, the interests of the group took centre stage. Members in such societies differentiated between in-group members who were part of its group and all then other people. They remained loyal to the group throughout their lives. The people on Tioman Island seemed to have these collectivistic values.

When the sample under study had very positive attitudes towards recycling, they should also have a very high recycling behaviour. However, the results showed a conflicting outcome. These results confirmed that there was a gap between behaviour and the 'claimed' attitude towards recycling of the respondents. This finding conformed to the researches done by McCarty and Shrum (1994), Tilikidou and Delistavrou (2001) and Kurz et al. (2007). Thus, it can be concluded that positive attitudes towards recycling among the respondents could not guarantee high participation in recycling. Therefore, the hypothesis that consumers who hold positive recycling attitudes are more likely to engage in recycling behaviour is not supported.

The correlation coefficient for the relationship between materialism and recycling behaviour was quite high and negative, though not significant. This meant that the consumer' values on the possession of material goods and the happiness they perceived they obtained through money could be the stronger constraints on their engagement in recycling. Thus, it can be partially concluded that consumers who held high personal materialistic values were

less likely to understand the importance of environmentally friendly behaviour. Finally, it should be noted that there was a very weak relationship between individualism and recycling behaviour. Tilikidou and Delistavrou (2001) also found no evidence of a direct relationship between individualism and recycling behaviour.

Though the study was done on a rather small scale, the findings presented in this article have highlighted some significant academic and policy implications. It is hoped that the findings could provide the authorities with reliable information in order to create effective strategies and to encourage participation in recycling. It is suggested that a nationwide study be carried out so that the results would be more accurate. Some other predictors should also be included, such as socio-economic status, provisions of recycling facilities and enforcement of legislation. These predictors might shed more light on the overall pattern of the recycling behaviour.

Acknowledgement

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