

ENVIRONMENTAL CONCERNS AND INTENTION TO PRACTISE SOLID WASTE SEGREGATION-AT-SOURCE

Cheng Kai Wah¹
Syuhaily Osman¹
Zuroni Md Jusoh¹
Nur Jasmine Lau Leby¹

Abstract

This paper aims to analyse the egoistic concern, altruistic concern descriptively, and biospheric concern to practise solid waste segregation-at-source. A multistage sampling method was used to choose 400 respondents from the townships of Selangor's nine districts, namely Sabak Bernam, Ulu Selangor, Kuala Selangor, Gombak, Ulu Langat, Petaling, Klang, Kuala Langat, and Sepang. A self-administered bilingual questionnaire was used to investigate their intention to practise solid waste segregation-at-source to collect research data. The present quantitative data was then descriptively analysed using IBM SPSS Statistics 28.0. The descriptive investigation's findings indicated that, overall, most Selangor's households demonstrated a high level of egoistic, altruistic, and biospheric concern to practice solid waste segregation-at-source throughout the research. The current research has considerably enriched the existing scarce and limited Malaysian literature. In addition, it has significantly highlighted the better understanding of studied variables in the research area.

Keywords: Altruistic concern; Biospheric concern; Egoistic concern; Environmental concerns; Intention to practise solid waste segregation-at-source

Introduction

The harmful impact of fast industrialisation on the environment has become a worldwide source of concern (Prakash *et al.*, 2019). Consequently, the Malaysian Ministry of Housing and Local Government has gradually implemented a mandatory waste segregation-at-source policy for all Malaysian citizens through the Solid Waste and Public Cleansing Management Act 2007 (Act 672). It is a revised act in the 11th Malaysian Plan (2016 – 2020) (Cheng *et al.*, 2021).

Researchers have focused more on environmental concerns and how they have emerged as a significant determinant of consumer behaviour (Yadav, 2016). However, compared to earlier literature, the existing literature of environmental concern in the current research topic is still scant. As a result, the current scenario leads to an

¹Department of Resource Management and Consumer Studies, Faculty of Human Ecology, Universiti Putra Malaysia

understanding of environmental concern that is still accruing and remains unclear to the body of knowledge. Hence, in order to enrich the existing literature, this research divides the single environmental concern variable into three dimensions (egoistic concern, altruistic concern, and biospheric concern) by using Value-Basis Theory, in order to examine the environmental concern holistically, particularly in the local context of household intention to practise solid waste segregation-at-source.

According to the Value-Basis Theory, objects (e.g., plants, animals, other people) are valued based on the extent to which they are incorporated within an individual's cognitive representation of the self (Schultz, 2000; Schultz & Zelezny, 1999). This theory fits with several other areas of social psychological research (Aron *et al.*, 1991; Batson, 1994; Cialdini *et al.*, 1997).

In terms of academic discussion, to the best of our knowledge, this current research serves as preliminary research because it is the first time that environmental concerns have been divided into three different dimensions, namely egoistic concern, altruistic concern, and biospheric concern, in order to investigate the Selangor household's intention to practise solid waste segregation-at-source. As a result, this paper aims to present a descriptive analysis of egoistic concern, altruistic concern, and biospheric concern to practise solid waste segregation-at-source.

Literature Review

Egoistic concern

The egoistic concern primarily focuses on the individual's environmental psychology domain (Yadav, 2016). On the other hand, individuals with egoistic concerns are only concerned with environmental issues personally. The Value-Basis Theory conceptualises the egoistic concern as to how a person is more likely to behave when he is aware of the potential adverse effects brought valued things that are oriented to self, in terms of "my lifestyle", "my future", "my health", and "me" (Stern & Dietz, 1994). In the context of this present research, a Selangor household may be concerned about the solid waste segregation-at-source policy due to the effects that solid waste problems may have on "my health". Taken together, the current researcher concluded that an egoistic concern might motivate and encourage Selangor households to be more environmentally aware and to act in a pro-environmental manner, that is, to practise solid waste segregation-at-source, to ensure their well-being free from the harmful environmental degradation that can result for self.

The current researcher discovered that the general environmental concern was recognised as a significant predictor of ecological, behavioural decisions (Chen & Hung, 2016; Paul *et al.*, 2016; Verma & Chandra, 2018). However, in the intention to practise solid waste segregation-at-source domain, egoistic concern, which was

identified as one of the environmental concern dimensions, had yet to be empirically tested. Nevertheless, to the best of the researcher's knowledge, egoistic concern has recently been used to predict the intention to buy eco-friendly packaged products (Prakash *et al.*, 2019), organic food consumption (Yadav, 2016), general environmental behaviour (Gkargkavouzi *et al.*, 2021; McConnell & Jacobs, 2020), local food consumption (Birch *et al.*, 2018), climate change (Helm *et al.*, 2018; Karpudewan, 2019), willingness to pay for wildlife (Ojea & Loureiro, 2007), conservation (Aprile & Fiorillo, 2017; Pinder *et al.*, 2020; Zhang *et al.*, 2015), donation (Feiler *et al.*, 2012), and green purchase behaviour (Albayrak *et al.*, 2013; Sarpong *et al.*, 2021). Hence, the present research expands the limited literature on practising solid waste segregation-at-source in the Malaysian context (Farrow *et al.*, 2017).

Altruistic concern

People with altruistic concern will be more concerned with the well-being of others (Aprile & Fiorillo, 2017). As Stern and Dietz (1994)'s Value-Basis Theory outlined, individuals, have several reasons or motivations for their particular concern. Their view of the relative priority influences people with altruistic concerns about various environmental severe problems they place primarily on other people-oriented issues. An individual is more likely to be concerned about environmental issues if an action occurs because of the harmful and threatening impacts incurred on other people, including "all people", "people in my community", "my children", and "children". Thus, action will be categorised as having an altruistic concern. Taken together, the present researcher might conclude that altruistic concern is focused on environmental destructions and issues affecting human well-being.

Numerous typologies of altruistic concern have been developed in various contexts, including volunteering (Binder & Blankenberg, 2016), willingness to pay more for consumer goods (Choi *et al.*, 2020; Shin *et al.*, 2017), consumer-brand relationship (Gupta *et al.*, 2019), sustainable consumer behaviour (Nanggong, 2019), general pro-environmental behaviour (Cheng *et al.*, 2020; Gkargkavouzi *et al.*, 2019; Punzo, 2019; Rhead *et al.*, 2015; Wang *et al.*, 2020), pro-environmental behavioural intention (De Groot & Steg, 2010), preference of public transport (Mannino, 2020), and conservation behaviour (Jia & Linden, 2020). Nonetheless, despite the increasing research, a recent literature search revealed a lack of clear evidence on how altruistic concern influences the intention to practise solid waste segregation-at-source, especially in the Malaysian context. Notably, this current research contributes to the existing literature on solid waste segregation-at-source by creating a deeper understanding of the influence of altruistic concern on Malaysian households' intention to practise solid waste segregation-at-source.

Biospheric concern

The specific inherent care of the natural surroundings is emphasised in biospheric concern (Arnocky *et al.*, 2007). Global warming, air pollution, deforestation, water scarcity, and ecosystem damage are examples of global environmental deterioration (Niankara and Zoungrana, 2018). Since the harmful repercussions of environmentally degraded human behaviour have become more apparent, this condition has prompted people worldwide to show their heightened concern and awareness for various environmental issues. However, people's levels of concern for the natural environment vary widely. It has been proposed that different types of factors underpinning people's general environmental concerns vary by individuals. An individual with biospheric concern, for example, will take action to preserve the bad environmental situation over "plants", "animals", "marine life" as well as "birds" (Stern & Dietz, 1994), even if it involves inconvenience, discomfort, and expense. Hence, the present researcher may interpret this circumstance as placing a high value on all living things in the biosphere and identifying the self as a part of all kinds of life in the natural environment.

An individual with a high level of biospheric concern is more likely to engage in environmentally friendly activities (Chen *et al.*, 2021; Chng & Borzino, 2021; Kim & Koo, 2020; Taso *et al.*, 2020) to protect the natural environment, including gas use reduction behaviour (Boer & Fischer, 2013; Steg *et al.*, 2014). In terms of household energy consumption, an individual with biospheric solid concern is more likely to double-check the acts of others and oneself in light of the negative and positive effects on nature (Martin & Czellar, 2017). According to research conducted by Namazkhan *et al.* (2019), higher biospheric concern levels are significantly correlated with lower room temperature settings for households in terraced houses during the daytime in winter. This explanation is also consistent with earlier literature, which discusses the role of biospheric concern in predicting household energy consumption (Abrahamse & Steg, 2011).

Methodology

In terms of research design, this research implemented a quantitative approach under the positivism research paradigm, which developed a set of administrated bilingual questionnaires as the research instrument. Indeed, this kind of research paradigm allowed a social science researcher to understand the phenomenon in reality by exploring the relationship between an independent variable and one or more dependent variables through measurement, sampling, and application of questionnaire (Taylor & Medina, 2011).

Besides that, Selangor was purposefully chosen as the research location because it has the highest population density, the highest household's consumption rate,

aggressive economic development, the greatest urbanisation, the potential to be transformed into a low carbon city, and a unique geographical background when compared to other Malaysian states and federal territories (Cheng *et al.*, 2020).

The respondents are 400 male and female adult households living in Selangor's nine districts, namely Sabak Bernam, Kuala Selangor, Klang, Kuala Langat, Sepang, Hulu Langat, Gombak, Petaling, and Hulu Selangor. The sample size determination equation proposed by Yamane (1967) determines the number of respondents to produce a valid and trustworthy representative for this research. In addition, the multistage sampling method is also used to ensure that the respondents chosen are more precise for the research's outcome.

The researchers are required to identify the potential respondents based on the five screening questions as follows:

- i. Are you a Malaysian citizen?
- ii. Are you eighteen years old and above?
- iii. Do you have any mental health problems?
- iv. Are you the one who manages the solid waste at home?
- v. Are you a permanent resident?

Before the answering session started, the respondents were briefed on the information stated in the cover letter. In addition, a cover letter was attached as the cover page of the bilingual questionnaire. As a result, self-administrated bilingual questionnaires are distributed to the respondents during data collection.

Meanwhile, the researchers declared no conflicts of interest in this research. The Selangor households participated in this research voluntarily. They might withdraw anytime without the loss of benefit or penalty imposed to which the respondent is entitled. All information and responses given in this research were purely for research purposes and confidential. Token was given to the respondents at the end of the data collection.

Research instrumentation

The self-administered questionnaire was initially in English. However, since Malaysia is a multiracial country, the questionnaire was also translated into Malay via back-to-back translation (Brislin, 1970) to let the respondents quickly reference specific phrases or questions in Malay to enhance the comprehension among all classes of citizens. The translated self-administered questionnaire was then checked by the Centre for the Advancement of Language Competence, Universiti Putra Malaysia, to make sure the questions written in English preceded the corresponding questions written in Malay.

Section A: Respondents' background

This section contained the questions on the socio-demographic profile of respondents, which included sex, age, ethnic group, marital status, and monthly household income. This section also consisted of both open-ended questions and closed-end questions. The open-ended question allowed respondents to generate their answers without limitation, which included the age of respondents. They were required to fill in the blank for their ages to obtain the exact value. It was measured by using a continuous scale. After processing all the collected information, the age of respondents was classified into several categories, namely "1" for " ≤ 20 years old", "2" for "21 – 30 years old", "3" for "31 – 40 years old", "4" for "41 – 50 years old", "5" for "51 – 60 years old", and "6" for "> 61 years old".

On the contrary, closed-end questions were adopted for the remaining questions in Section A, which sought to identify respondents' personal information. A nominal scale was used in this section. The respondents were required to select their answers from the given options that applied to them, including sex, ethnic group, marital status, and monthly household income. These questions were measured categorically.

Section B: Environmental concerns towards intention to practise solid waste segregation-at-source

The three dimensions of environmental concern applied in the research were called egoistic concern, altruistic concern, and biospheric concern. A total of twelve positive closed-end questions were designed to observe the three dimensions of environmental concern towards the intention to practise solid waste segregation-at-source. In particular, all the questions in this section were adapted from Stern and Dietz (1994) to investigate the three dimensions of environmental concern as a whole in the present research. Respondents were asked to choose the most appropriate response to measure the intensity of respondents' views concerning the statements constructed in this section to test the mediating variable of environmental concern in this research. Consequently, the five-point Likert scale ranged from (1) strongly disagree to (5) strongly agree (De Groot & Steg, 2010) was used in this section. The higher the score achieved by the respondents, the greater the concern of respondents towards the environment.

Section C: Intention to practise solid waste segregation-at-source

In this research, the measurement of the intention to practise solid waste segregation-at-source was completed by using eight closed-end questions, reflecting the tendency of respondents to perform the repeated action to segregate the unwanted household solid waste based on their different recycling potential. The measuring items for the dependent variable were adapted from Ayob *et al.* (2017),

Ghani *et al.* (2013) as well as Ioannou *et al.* (2013). Consequently, a five-point Likert scale (1) strongly disagree to (5) strongly agree is employed to measure this current dependent variable in research. Hence, the higher the score, the higher the respondent’s intention to practise solid waste segregation-at-source.

Results and Discussions

Respondents’ background

The particulars of the respondents consist of socio-demographic information and socio-economic information. Table 1 shows the distribution of respondents’ backgrounds involved in the research.

Table 1: Distribution of Respondents’ Particulars ^a (N = 400)

| Item | Number of respondents | Percentage (%) |
|--|-----------------------|----------------|
| Sex | | |
| Male | 148 | 37.0 |
| Female | 252 | 63.0 |
| Age (years old) ^a | | |
| ≤ 20 | 7 | 1.8 |
| 21 – 30 | 177 | 44.3 |
| 31 – 40 | 39 | 9.8 |
| 41 – 50 | 93 | 23.3 |
| 51 – 60 | 73 | 18.3 |
| > 61 | 11 | 2.8 |
| Ethnic Group ^a | | |
| Bumiputera | 291 | 72.8 |
| Chinese | 95 | 23.8 |
| Indian | 8 | 2.0 |
| Others | 6 | 1.5 |
| Marital Status ^a | | |
| Never been married | 260 | 65.0 |
| Married | 137 | 34.3 |
| Widowed | 0 | 0.0 |
| Divorced | 2 | 0.5 |
| Separated | 1 | 0.3 |
| Monthly Household Income ^a | | |
| ≤ RM3000 | 186 | 46.5 |
| RM3001 – RM5000 | 99 | 24.8 |
| RM5001 – RM7000 | 44 | 11.0 |
| RM7001 – RM9000 | 20 | 5.0 |
| > RM9000 | 51 | 12.8 |

Note: Sd = Standard deviation; N = Total number of respondents; ^a = Totals do not sum to 100.0 due to rounding.

As shown in Table 1, the data collected was 37.0 per cent male and 63.0 per cent female among the 400 respondents. This sample's youngest and oldest respondents were 21 and 78 years old, respectively. 44.3 per cent of the respondent's ages ranged from 21 to 30. There were only seven respondents below 20, and eleven were above 61. Bumiputera respondents appeared to be the largest ethnic group in the sample (72.8%), followed by the percentage distribution of the Chinese and Indian ethnic groups, comprising 23.8 per cent and 2.0 per cent, respectively. In this research, respondents who have never been married were 65.0 per cent, while those who were married were 34.3 per cent. In terms of the cross-tabulation between age and marital status, the respondents aged 27-year-old remarked as the largest married population (11.0%). Lastly, there were only 5.0 per cent of respondents whose monthly household incomes was ranged between RM7001 and RM9000 in the research.

Environmental concerns towards intention to practise solid waste segregation-at-source

This research was designed to explore the influencing power of environmental concerns within the intention to practise solid waste segregation-at-source. By utilising the Value-Basis Theory (Stern and Dietz, 1994), the intention to practise solid waste segregation-at-source among Selangor households were examined through three dimensions of environmental concern, that is, in the egoistic concern, altruistic concern, and biospheric concern (Schultz, 2000; Stern & Dietz, 1994) in this perspective.

A measurement scale that consisted of four positive statements was established and employed to evaluate the egoistic concern. In addition, a five-point Likert scale which ranged from (1) “strongly disagree” to (5) “strongly agree” was applied in a bid to assess the measurement of egoistic concern. Subsequently, Table 2 presents the mean, frequency, and percentage distributions for each statement tested in this section.

Table 2: Descriptive Analysis of Egoistic Concern with Intention to Practise Solid Waste Segregation-at-Source ^a (N = 400)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|---|-----------------------|------------|--------------|---------------|--------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1. | I am very concerned about the impacts of having the intention to practise solid waste segregation-at-source in a bid to maintain my well-being. | 0 (0.0) | 8 (2.0) | 90 (22.5) | 204 (51.0) | 98 (24.5) | 3.98 |

Table 2 (continues)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|---|-----------------------|-------------|---------------|----------------|----------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 2. | I believe that the intention to practise solid waste segregation-at-source can bring a lot of positive effects on my lifestyle. | 0 (0.0) | 6 (1.5) | 55 (13.8) | 198 (49.5) | 141 (35.3) | 4.19 |
| 3. | I can enhance my good health by having the intention to practise solid waste segregation-at-source in my daily life. | 2 (0.5) | 8 (2.0) | 64 (16.0) | 209 (52.3) | 117 (29.3) | 4.08 |
| 4. | I am willing to practise solid waste segregation-at-source to maintain a continued high quality of life for my future. | 1 (0.25) | 2 (0.50) | 61 (15.25) | 213 (53.25) | 123 (30.75) | 4.14 |

Note: N = Total number of respondents; % = Percentage; 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree; ^a = Totals do not sum to 100.0 due to rounding.

In order to create a higher impact on the data interpretation, the researcher had combined the “Strongly disagree” (1) option and “Disagree” (2) option to be “strongly disagree” response as well as “Agree” (4) option and “Strongly agree” (5) option to be “strongly agree” response. As a result, more than four-fifths of respondents strongly agreed that the intention to practise solid waste segregation-at-source could bring a lot of positive effects on personal lifestyle (mean = 4.19). Furthermore, since solid waste management is an essential public health service, it is further assumed that an improper waste management system will jeopardise the health state of residents.

The percentage distribution was then followed by a substantial number of surveyed households (84.1%) also strongly agreed that having the intention to practise solid waste segregation-at-source could maintain a high quality of life for their future (mean = 4.14), which in turn will enhance the good health (81.6%) as well. It is assumed that households create various kinds of waste through their daily domestic activities. Therefore, having the intention to master the correct way to handle, store, collect, and dispose of solid waste can indirectly reduce the harmful risks brought to the public and the environment. It is further assumed that accessing the improved sanitation living space contributes to welfare, well-being and quality of life for the long term.

The second dimension of environmental concern is called altruistic concern. The measurement of altruistic concern in this research comprises of four positive

statements with five-point Likert scales ranging from (1) “strongly disagree” to (5) “strongly agree”. Table 3 depicts the agreeable level of respondents on each statement in this section.

Table 3: Descriptive Analysis of Altruistic Concern with Intention to Practise Solid Waste Segregation-at-Source ^a (N = 400)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|--|-----------------------|------------|--------------|----------------|---------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1. | For the benefit of the people in my community, I should be prepared to segregate my daily household solid waste. | 0 (0.0) | 6 (1.5) | 67 (16.8) | 214 (53.5) | 113 (28.3) | 4.09 |
| 2. | Thinking about the environmental conditions of my future generations, I should always try to practise solid waste segregation-at-source. | 0 (0.0) | 4 (1.0) | 51 (12.8) | 210 (52.5) | 135 (33.8) | 4.19 |
| 3. | I feel that everyone should tend to recycle used glass and paper in a bid to conserve and preserve the limited natural resources. | 1 (0.3) | 4 (1.0) | 51 (12.8) | 178 (44.5) | 166 (41.5) | 4.26 |
| 4. | I have a strong interest in the intention to practise solid waste segregation-at-source because of what it can contribute to the welfare and pleasure of children. | 0 (0.0) | 5 (1.3) | 65 (16.3) | 208 (52.00) | 122 (30.5) | 4.12 |

Note: N = Total number of respondents; % = Percentage; 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree; ^a = Totals do not sum to 100.0 due to rounding.

The higher score indicates a higher degree of agreeableness to the altruistic concern, while the lower score indicates less agreeableness among respondents on the particular situation. Similar to egoistic concern, by comparing all statements in Table 3, the findings found that 86.3 per cent of respondents strongly agreed that they should always try to practise solid waste segregation-at-source to ensure that their future generation lives in a clean environment. Meanwhile, the statement of “For the benefit of the people in my community, I should be prepared to segregate my daily household solid waste” marked the lowest mean (mean = 4.09) in this section. Therefore, this result proves the respondents in this research were less likely to start

segregating their daily household solid waste for the sake of the people in their community as compared to the concern on “natural resources” (mean = 4.26), “future generation” (mean = 4.19), and “children” (mean = 4.12).

The biospheric concern is the last dimension of environmental concern. It was examined by using four positive statements and a five-point Likert scale, which ranges from (1) “strongly disagree” to (5) “strongly agree”. The mean, frequency, and percentage distributions of each statement are further highlighted in Table 4.

Table 4: Descriptive Analysis of Biospheric Concern with Intention to Practise Solid Waste Segregation-at-Source ^a (N = 400)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|---|-----------------------|-------------|--------------|---------------|---------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1. | I am more likely to perform solid waste segregation-at-source to prevent any species of birds from becoming extinct as a result of environmental pollution. | 2 (0.5) | 12 (3.0) | 83 (20.8) | 179 (44.8) | 124 (31.0) | 4.03 |
| 2. | I am prone to carry out solid waste segregation-at-source when I think about the harm to marine life caused by human’s excessive consumption pattern. | 1 (0.3) | 6 (1.5) | 69 (17.3) | 184 (46.0) | 140 (35.0) | 4.14 |
| 3. | I become upset when I think about the negative consequences to animals caused by human’s irresponsible behaviour towards the environment. | 0 (0.0) | 7 (1.8) | 82 (20.5) | 180 (45.0) | 131 (32.8) | 4.09 |
| 4. | I get depressed when I think of excessive deforestation for aggressive economic development, which has threatened the plants. | 4 (1.0) | 12 (3.0) | 98 (24.5) | 159 (39.8) | 127 (31.8) | 3.98 |

Note: N = Total number of respondents; % = Percentage; 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree; ^a = Totals do not sum to 100.0 due to rounding.

Similar to the way of data interpretation on egoistic concern and altruistic concern, the figures in Table 4 displayed that the statement of “I am prone to carry out solid waste

segregation-at-source when I think about the harm to marine life caused by human’s excessive consumption pattern” recorded the highest mean (mean = 4.14) and the highest percentage distribution (81.0%) for “strongly agree” response among the Selangor households. This scenario proved that the respondents strongly agree that they will reconsider their daily actions towards the environment to enlighten the natural degradation of the marine ecosystem. In addition to that, respondents will get upset when they think of the adverse effects brought to animals (mean = 4.09) and birds (mean = 4.03) due to human’s irresponsible behaviour as well as environmental pollution. However, the statement “I get depressed when I think of excessive deforestation for aggressive economic development, which has threatened the plants” indicated the lowest mean (mean = 3.98) compared to the other three statements in this section. Therefore, it can be interpreted as the surveyed households thinking that the detrimental effects brought to the plants by humans were not as high as marine life, animals, and birds.

As pioneer research that bridged the knowledge gap in this particular research topic, this environmental concerns variable is the first time applied as a studied variable to enhance the understanding of the intention to practise solid waste segregation-at-source among Selangor households. Hence, for researchers' best knowledge, the descriptive analysis in this section was incomparable to the past research.

Intention to practise solid waste segregation-at-source

In this research, the dependent variable, namely the intention to practise solid waste segregation-at-source, is measured using eight positive statements presented in this section. The five measurement scales in this section range from (1) “strongly disagree” to (5) “strongly agree” in an attempt to examine the dependent variable. Table 5 displays the statements' mean, frequency, and percentage distributions.

Table 5: Descriptive Analysis of Intention to Practise Solid Waste Segregation-at-Source ^a (N = 400)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|---|-----------------------|-------------|---------------|---------------|---------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 1. | I truly intend to separate my household solid waste at home as much as possible in the next three months. | 5 (1.3) | 12 (3.0) | 100 (25.0) | 189 (47.3) | 94 (23.5) | 3.89 |
| 2. | I am willing to segregate piles of household solid waste into different categories if proper waste segregation facilities are provided. | 0 (0.0) | 8 (2.0) | 75 (18.8) | 186 (46.5) | 131 (32.8) | 4.10 |

Table 5 (continues)

| No. | Statement | Total Frequency / (%) | | | | | Mean |
|-----|---|-----------------------|-------------|--------------|---------------|---------------|------|
| | | 1 | 2 | 3 | 4 | 5 | |
| 3. | I will try my best to separate most of my household solid waste at home if I am convinced with the benefits of solid waste segregation-at-source. | 1 (0.3) | 8 (2.0) | 75 (18.8) | 188 (47.0) | 128 (32.0) | 4.09 |
| 4. | I will make an effort to segregate my household solid waste at home if the local authority enforces public participation in solid waste segregation-at-source. | 4 (1.0) | 9 (2.3) | 66 (16.5) | 184 (46.0) | 137 (34.3) | 4.10 |
| 5. | I plan to separate my household solid waste at home if the local authority provides satisfactory services for the separated household solid waste collection. | 4 (1.0) | 6 (1.5) | 74 (18.5) | 173 (43.3) | 143 (35.8) | 4.11 |
| 6. | I expect that I will take part in solid waste segregation-at-source activities if I am satisfied with the household garbage collection measures by the local authorities. | 4 (1.0) | 5 (1.3) | 80 (20.0) | 178 (44.5) | 133 (33.3) | 4.08 |
| 7. | I tend to separate unwanted household solid waste according to their recycling potential systematically. | 3 (0.8) | 11 (2.8) | 84 (21.0) | 185 (46.3) | 117 (29.3) | 4.01 |
| 8. | I will be willing to support the mandatory solid waste segregation-at-source policy under the Solid Waste and Public Cleansing Management Act 2007 (Act 672). | 2 (0.5) | 8 (2.0) | 67 (16.8) | 180 (45.0) | 143 (35.8) | 4.14 |

Note: N = Total number of respondents; % = Percentage; 1 = Strongly disagree; 2 = Disagree; 3 = Neither agree nor disagree; 4 = Agree; 5 = Strongly agree; ^a = Totals do not sum to 100.0 due to rounding.

The higher the mean score, the more favourable the respondents' intention to practise solid waste segregation-at-source. According to the statistics in Table 5, the statement "I will be willing to support the mandatory solid waste segregation-at-source policy under the Solid Waste and Public Cleansing Management Act 2007 (Act 672)"

had the highest mean (mean = 4.14) of the statements in this section. Furthermore, the majority of Selangor respondents agreed to separate piles of household solid waste into different categories as much as possible in the next three months (47.3%) if they were convinced of the benefits of solid waste segregation-at-source (47.0%) and proper waste segregation facilities (46.5%). Meanwhile, 46.3 per cent of all respondents in Selangor agreed that they tended to systematically separate unwanted household solid waste based on its recycling potential (46.3%) on the condition that local authorities enforced public participation (46.0%) through the mandatory solid waste segregation-at-source policy under the Solid Waste and Public Cleansing Management Act 2007 (Act 672) (45.0%). However, 44.5 per cent of respondents said they would agree to participate in this specific pro-environmentally practice if and only if the local authorities could supply them with satisfactory solid waste collection services (44.5%). Finally, when compared to the other states in the “agree” response, the statement “I plan to separate my household solid waste at home if the local authority provides satisfactory services for the separated household solid waste collection” had the lowest percentage distribution (43.3%) in the research.

It should be noted that this research is represented as one of the pioneering research which attempts to explore the concept of intention to practise solid waste segregation-at-source in the context of Selangor, Malaysia. As a result, to the best of the researcher’s knowledge, the descriptive analysis in this present section is incomparable to the past research.

Conclusion, Limitation, and Practical Implication

37.0 per cent of the 400 respondents were male, while 63.0 per cent were female. There was also a more significant proportion of female Bumiputera respondents aged 22 to 31. They were 37.9 years old on average. The respondents aged 27 were noted as having the most significant married population (11.0%). With a distribution of 5.0%, the most significant share of monthly household income was between RM7001 and RM9000.

Finally, the environmental concern variable was further classified into three sub-dimensions, particularly egoistic concern, altruistic concern, and biospheric concern. A close investigation of the present research results revealed that a majority of the Selangor’s households depicted a high level of egoistic concern, altruistic concern, and biospheric concern to practise solid waste segregation-at-source, respectively. Therefore, current researchers assume that the surveyed Selangor households were highly concerned about the harmful impacts on their community, future generations, children, and people in the country. As a result, these specific concerns had triggered them to strengthen their intention to practise solid waste segregation-at-source. This assumption was consistent with the present research findings, which reported that 41.5 per cent of respondents strongly agreed that everyone should tend to recycle

used glass and paper in a bid to conserve and preserve the limited natural resources so that the Malaysian citizen can learn to reduce the amount of solid waste that produced every day and cherish the benefits to conserve the limited natural resources for the next generation.

The research limitation should also be stated in this section because it could potentially affect the quality of the present research findings. Due to social desirability, the assessed respondents may be dishonest while answering the instruments given. There is a great tendency for households to express their socially desirable responses in research of this nature. To present themselves more favourably, households may not be willing to admit they are undesirable behaviour truthfully. Instead, they may be more preferred to give positive answers. Hence, those surveyed respondents may attempt to inflate their perceived identity by completing the questionnaires to either over-reporting good behaviour or under-reporting lousy behaviour. Thus, the accuracy of the data collected may not be perfect as it depends on the honesty of participants while answering the instruments. Consequently, the present researchers assume that in a bid to reduce the effect of dishonesty, it is assumed that participants' anonymity shall be used to ensure greater confidence in the research's end findings.

Last but not least, from the perspective of the practical implication, since the present research was one of the leading research in Malaysia, the research findings were expected to contribute to the non-governmental organisations and voluntary bodies by building a good and reliable dataset concerning the intention to practise solid waste segregation-at-source. Essentially, the Waste Management Association of Malaysia, Friends of the Earth Malaysia, Malaysian Nature Society, and Greenpeace Malaysia might benefit from this current research and thus work collaboratively to support the solid waste segregation-at-source policy at the social level. Furthermore, social workers might plan some community activities to assist the local households to segregate their domestic solid waste effectively. This effort was in line with the present research findings, reporting that 42.3 per cent of the surveyed Selangor's households strongly agreed that all citizens were responsible for inculcating the intention to practise solid waste segregation-at-source as their daily routine. Hence, relevant programmes should be organised frequently to strengthen the sense of responsibility among households to maintain the cleanliness of the environment in Selangor, Malaysia.

References

Abrahamse, W. & Steg, L. (2011). Factors related to household energy use and intention to reduce it: The role of psychological and socio-demographic variables. *Human Ecology Review*, 18(1), 30-40.

- Albayrak, T., Aksoy, S., & Caber, M. (2013). The effect of environmental concern and scepticism on green purchase behaviour. *Marketing Intelligence and Planning*, 31(1), 27-39.
- Aprile, M. C. & Fiorillo, D. (2017). Water conservation behaviour and environmental concerns: Evidence from a representative sample of Italian individuals. *Journal of Cleaner Production*, 159, 119-129.
- Arnocky, S., Stroink, M., & DeCicco, T. (2007). Self-construal predicts environmental concern, cooperation, and conservation. *Journal of Environmental Psychology*, 27(4), 255-264.
- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology*, 60(2), 241-253.
- Ayob, S. F., Sheau-Ting, L., Abdul Jalil, R., & Chin, H. C. (2017). Key determinants of waste separation intention: Empirical application of TPB. *Facilities*, 35(11/12), 696-708.
- Batson, C. D. (1994). Why act for the public good? Four answers. *Personality and Social Psychology Bulletin*, 20(5), 603-610.
- Binder, M. & Blankenberg, A. K. (2017). Green lifestyles and subjective well-being: More about self-image than actual behaviour?. *Journal of Economic Behaviour and Organisation*, 137, 304-323.
- Birch, D., Memery, J., & Kanakaratne, M. D. S. (2018). The mindful consumer: Balancing egoistic and altruistic motivations to purchase local food. *Journal of Retailing and Consumer Services*, 40, 221-228.
- Boer, D. & Fischer, R. (2013). How and when do personal values guide our attitudes and sociality? Explaining cross-cultural variability in attitude-value linkages. *Psychological Bulletin*, 139(5), 1113.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology*, 1(3), 185-216.
- Chen, C. F., Eccarius, T., & Su, P. C. (2021). The role of environmental concern in forming intentions for switching to electric scooters. *Transportation Research Part A: Policy and Practice*, 154, 129-144.

- Chen, S. C. & Hung, C. W. (2016). Elucidating the factors influencing the acceptance of green products: An extension of theory of planned behaviour. *Technological Forecasting and Social Change*, 112, 155-163.
- Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2020). The determinants of intention to practise solid waste segregation-at-source among Selangor households. *Malaysian Journal of Consumer and Family Economics*, 25(S1), 67 – 90.
- Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2020). What are the current scenarios of Selangor households' intention to practise solid waste segregation-at-source? *Malaysian Journal of Consumer*, 35, 141 – 156.
- Cheng, K. W., Osman, S., Jusoh, Z. M., & Lau, J. L. (2021). Multidimensional factors that influence the intention to practise segregation-at-source of solid waste: An empirical study. *Management Science Letters*, 11(2), 379-390.
- Chng, S. & Borzino, N. (2021). Predictors of environmental behaviour: The role of value orientations, environmental concern, and beliefs in Singapore. *Sustainability and Environmental Decision Making*, 85-106.
- Choi, Y. H., Ahn, G. Y., Kim, E. H., & Lee, K. H. (2020). Effects of consumers' altruistic and egocentric values on social responsibility and willingness-to-pay a price premium for ethical fashion products. *Fashion and Textile Research Journal*, 22(5), 570-583.
- Cialdini, R. B., Brown, S. L., Lewis, B. P., Luce, C., & Neuberg, S. L. (1997). Reinterpreting the empathy–altruism relationship: When one into one equals oneness. *Journal of Personality and Social Psychology*, 73(3), 481-494.
- De Groot, J. I. & Steg, L. (2010). Relationships between value orientations, self-determined motivational types and pro-environmental behavioural intentions. *Journal of Environmental Psychology*, 30(4), 368-378.
- Farrow, K., Grolleau, G., & Ibanez, L. (2017). Social norms and pro-environmental behaviour: A review of the evidence. *Ecological Economics*, 140, 1-13.
- Feiler, D. C., Tost, L. P., & Grant, A. M. (2012). Mixed reasons, missed giving: The costs of blending egoistic and altruistic reasons in donation requests. *Journal of Experimental Social Psychology*, 48(6), 1322-1328.

- Ghani, W. A. W. A. K., Rusli, I. F., Biak, D. R. A., & Idris, A. (2013). An application of the theory of planned behaviour to study the influencing factors of participation in source separation of food waste. *Waste Management*, 33(5), 1276-1281.
- Gkargkavouzi, A., Halkos, G., & Matsiori, S. (2019). Environmental behaviour in a private-sphere context: Integrating theories of planned behaviour and value belief norm, self-identity and habit. *Resources, Conservation and Recycling*, 148, 145-156.
- Gkargkavouzi, A., Paraskevopoulos, S., & Matsiori, S. (2021). Assessing the structure and correlations of connectedness to nature, environmental concerns and environmental behavior in a Greek context. *Current Psychology*, 40(1), 154-171.
- Gupta, A., Dash, S., & Mishra, A. (2019). All that glitters is not green: Creating trustworthy eco-friendly services at green hotels. *Tourism Management*, 70, 155-169.
- Helm, S. V., Pollitt, A., Barnett, M. A., Curran, M. A., & Craig, Z. R. (2018). Differentiating environmental concern in the context of psychological adaption to climate change. *Global Environmental Change*, 48, 158-167.
- Ioannou, T., Zampetakis, L. A., & Lasaridi, K. (2013). Psychological determinants of household recycling intention in the context of the Theory of Planned Behaviour. *Fresenius Environmental Bulletin*, 22(7), 2035-2041.
- Jia, L. & Linden, S. (2020). Green but not altruistic warm-glow predicts conservation behavior. *Conservation Science and Practice*, 2(7), 1-7.
- Karpudewan, M. (2019). The relationships between values, belief, personal norms, and climate conserving behaviours of Malaysian primary school students. *Journal of Cleaner Production*, 237, 117748
- Kim, M., & Koo, D. W. (2020). Visitors' pro-environmental behavior and the underlying motivations for natural environment: Merging dual concern theory and attachment theory. *Journal of Retailing and Consumer Services*, 56, 102147.
- Mannino, A. (2020). Why leave the car at home, if that doesn't save the climate?: A consequence-based approach to an altruistic public goods problem. *Grazer Philosophische Studien*, 97(4), 693-704.
- Martin, C. & Czellar, S. (2017). Where do biospheric values come from? A connectedness to nature perspective. *Journal of Environmental Psychology*, 52, 56-68.

- McConnell, A. R. & Jacobs, T. P. (2020). Self-nature representations: On the unique consequences of nature-self size on pro-environmental action. *Journal of Environmental Psychology*, 71, 101471.
- Namazkhan, M., Albers, C., & Steg, L. (2019). The role of environmental values, socio-demographics and building characteristics in setting room temperatures in winter. *Energy*, 171, 1183-1192.
- Nanggong, A. (2019). Perceived Benefit, Environmental Concern and Sustainable Customer Behaviour on Technology Adoption. *The Asian Journal of Technology Management*, 12(1), 31-47.
- Niankara, I. & Zoungrana, D. T. (2018). Interest in the biosphere and students environmental awareness and optimism: A global perspective. *Global Ecology and Conservation*, 16, e00489.
- Ojea, E. & Loureiro, M. L. (2007). Altruistic, egoistic and biospheric values in willingness to pay (WTP) for wildlife. *Ecological Economics*, 63(4), 807-814.
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behaviour and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123-134.
- Pinder, J., Fielding, K. S., & Fuller, R. A. (2020). Conservation concern among Australian undergraduates is associated with childhood socio-cultural experiences. *People and Nature*, 2(4), 1158-1171.
- Prakash, G., Choudhary, S., Kumar, A., Garza-Reyes, J. A., Khan, S. A. R., & Panda, T. K. (2019). Do altruistic and egoistic values influence consumers' attitudes and purchase intentions towards eco-friendly packaged products? An empirical investigation. *Journal of Retailing and Consumer Services*, 50, 163-169.
- Rhead, R., Elliot, M., & Upham, P. (2015). Assessing the structure of UK environmental concern and its association with pro-environmental behaviour. *Journal of Environmental Psychology*, 43, 175-183.
- Sarpong, K. A., Amankwaa, G., Frimpong, O., Xu, W., Cao, Y., Ni, X., & Nkrumah, N. K. (2021). Consumers' purchasing intentions for efficient water-saving products: The mediating effects of altruistic and egoistic values. *AQUA—Water Infrastructure, Ecosystems and Society*, 70(2), 226-238.

- Schultz, P. W. & Zelezny, L. (1999). Values as predictors of environmental attitudes: Evidence for consistency across 14 countries. *Journal of Environmental Psychology*, 19(3), 255-265.
- Schultz, P. W. (2000). New environmental theories: Empathising with nature: The effects of perspective taking on concern for environmental issues. *Journal of Social Issues*, 56(3), 391-406.
- Shin, Y. H., Moon, H., Jung, S. E., & Severt, K. (2017). The effect of environmental values and attitudes on consumer willingness to pay more for organic menus: A value-attitude-behaviour approach. *Journal of Hospitality and Tourism Management*, 33, 113-121.
- Steg, L., Perlaviciute, G., Van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behaviour*, 46(2), 163-192.
- Stern, P. C. & Dietz, T. (1994). The value basis of environmental concern. *Journal of Social Issues*, 50(3), 65-84.
- Taso, Y. C., Ho, C. W., & Chen, R. S. (2020). The impact of problem awareness and biospheric values on the intention to use a smart meter. *Energy Policy*, 147, 111873.
- Taylor, P. C. & Medina, M. (2011). Educational research paradigms: From positivism to pluralism. *College Research Journal*, 1(1), 1-16.
- Verma, V. K. & Chandra, B. (2018). An application of theory of planned behaviour to predict young Indian consumers' green hotel visit intention. *Journal of Cleaner Production*, 172, 1152-1162.
- Wang, Y., Fan, R., Shen, L., & Miller, W. (2020). Recycling decisions of low-carbon e-commerce closed-loop supply chain under government subsidy mechanism and altruistic preference. *Journal of Cleaner Production*, 259, 120883.
- Yadav, R. (2016). Altruistic or egoistic: Which value promotes organic food consumption among young consumers? A study in the context of a developing nation. *Journal of Retailing and Consumer Services*, 33, 92-97.
- Yamane, T. (1967). *Elementary Sampling Theory*. New Jersey: Prentice-Hall.
- Zhang, B., Wang, Z., & Lai, K. H. (2015). Mediating effect of managers' environmental concern: Bridge between external pressures and firms' practices of energy conservation in China. *Journal of Environmental Psychology*, 43, 203-215.