

RELATIONSHIP BETWEEN ATTITUDE AND BEHAVIOR TOWARDS ENVIRONMENTAL SUSTAINABILITY

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Abstract

This quantitative study explores the attitude–behavior gaps in young Malaysians’ environmental sustainability awareness. It involves 1,000 young Malaysians selected from five regional zones (north, central, south, east coast, and east Malaysia). A stratified random sampling technique based on age gender, and location was used to select respondents. The study instrument was a questionnaire that involved two environmental sustainability awareness variables comprising attitude and behavior. A descriptive analysis is used to represent level, frequency, and percentage. The level of the attitude and behavior variables was high. The relationship between the attitude and behavior variables and sub-variables reveal significantly moderate and weak relationships. There was no gap between attitude and behavior towards environmental sustainability awareness amongst young Malaysians. It is hoped that this study will provide the basis for further investigations into the levels of—and any gaps in—attitude and behavior towards environmental sustainability in Malaysian society, and increase awareness of the issue.

Keywords: attitude, behavior, awareness, environment, society, Malaysia

Introduction

Symbiosis between nature and human beings has been continuous; people are in great need of the environment just as the environment needs people, for example as part of the oxygen and carbon dioxide cycle (Dan & Diana, 2011). Natural products provided by the earth enable humans to generate economies and to develop nations (Jalaluddin, 2016). However, human greed in pursuit of modernization has negatively impacted the environment. The issue of environmental quality degradation has alarmed many, as it threatens catastrophic disaster resulting in the destruction of property and loss of life. Human neglect of the environment and exploitation of its natural resources have begun to be felt in the form of rising global temperatures and environmental pollution (David & Clarence, 2001). Because of this situation, many parties such as governments and private and non-governmental organizations (NGOs) have begun to work together and holistically to control human activities that harm and even destroy the natural environment and its resources. Numerous international conferences (such as those held in Stockholm and Kyoto) have been held to discuss global environmental issues and promote sustainable development.

The term sustainable development was used in the World Conservation Strategy: Living Resource Conservation for Sustainability report of 1980 (Conservation of Nature and Natural Resources, 1980) and by the World Commission on Environment and Development in its

Bruntland Report (World Commission Environment and Development, 1987). Sustainability is generally defined as the use of resources in a manner that does not adversely affect the environment and the wellbeing of humans living on earth, and does not destroy the ability of future generations to meet their needs. According to Telfer and Sharpley (2008), the best definition emphasizes development that does not compromise the ability of future generations to satisfy their requirements. Sham (2001) points out that even though sustainable development consists of many aspects that vary according to current trends and different definitions, three keywords are a constant: environment, future, and equality. This means that future generations should be compensated for all declining resources caused by the current generation.

Sustainable development is also synonymous with the concept of Local Agenda 21 (LA21), which was introduced at the Earth Summit Conference in Rio de Janeiro, Brazil. LA21 is a global sustainable development programmed (Abdul Halim et al., 2013). Malaysia is one of 178 countries that have signed LA21. It contains 40 chapters that explain the need for sustainable development. It is important that awareness of sustainable development is emphasized in society (Norfadillah et al., 2012). Education is necessary to produce a generation that is environmentally literate, either formally or informally (Du, Wang, Brombal, Moriggi, Sharpley, & Pang, 2018; Nuhoglu & Imamoglu, 2018). To that end, the years 2004 to 2015 were designated as the Decade of Education for Sustainable Development (DEfSD). Sustainable Development Goals (SDGs) 2030 is the latest agenda for achieving economic development and enhancing people's wellbeing through the wise use of resources. The aim is to ensure that environmental conservation is implemented on a large scale (United Nations, 2020).

The basis for sustainable development are individuals who, through education and experience, are environmentally aware (Hanifah et al., 2018; Tan & Norzaini, 2011). Environmental awareness is the ability to understand environmental degradation and the importance of protecting it (Buzov, 2014). To determine the level of environmental awareness, one must first understand the environmentalism movement. The ideology of environmentalism is an awakening of the human need and responsibility to respect, protect, and preserve the nature from its anthropogenic effects, that is, the environmental effects caused by humans (Argrou, 2005). The environmentalism movement began in the nineteenth century, when the Industrial Revolution brought about many changes to the environment. Human use of technology has been recognized as having a negative impact on the environment (Stradling & Thorsheim, 1999). Industries that use coal burning factories have polluted the air and water, and the increased exploitation of timber has led to deforestation and has disrupted the ecosystem (Mgbemene, Nnaji, & Nwozor, 2016). In just a few decades, the environment has been largely destroyed by humans, with the assistance of modern science and technology. It is only recently that awareness of the importance of environmental protection has begun to be voiced at the national and international levels. This is a sign that the public has also started to take seriously the issue of environmental despoliation.

Therefore, a mechanism for measuring the level of environmental awareness in the community should be implemented to assess the level of awareness from time to time. Aspects of awareness, such as attitude and behavior towards environmental sustainability, should be measured to establish whether there is any relationship or gap between them. This article assesses the gaps in attitudes and behavior in environmental awareness, and serves as a basis for raising awareness of sustainability, so that specific plans might be developed and put in place to address the problem.

Attitude in Environmental Awareness

Attitude is recognized as a key predictor in influencing an individual's behavior. Attitude exists before the behavior is performed, and influences the way a person acts; in other words, attitude is an important factor influencing behavior (Ramsey & Rickson, 1976). Attitude is generally defined as a tendency to act in a certain way towards an object, event, or situation (Tonglet et al., 2004). Edwards (1990) separated attitude into two, namely affective and cognitive. Attitude determines what a person will see, hear, think, and do. Thus, attitude is subjective and at the thinking level. It is not yet manifested in the form of visible action.

Attitude towards the environment refers to the feeling that motivates one to act positively or negatively towards it (Pelstring, 1997). Attitude also involves the ability of the existing intellect and knowledge to gauge the degree of emotional engagement when viewed in an effective way (Corno & Snow, 1986). Schultz, Shriver, Tabanico, and Khazian (2004) define attitude as a combination of a belief, feelings, and behavioral suggestions held by an individual towards activity and environmental issues. Kellert (1979) did not view attitude in psychological terms; he divided it into egoistic and moralistic. An egoistic attitude is a concern for the environment as a system, which is the relationship between living species and their original habitat. A moralistic attitude is one that cares about right or wrong behavior towards the environment. Those who are moralistic will strongly oppose any form of environmental exploitation and injustice.

Jamilah, Hasrina, Hamidah, and Juliana (2011) categorized the attitude of the public in Kuala Lumpur towards environmental issues as low level. A study by Norshahida and Wan Nor Azilawanie (2019) stated that the attitude of the Terengganu riverbank community who played a significant role in maintaining the river's sustainability appeared to be at a moderate level. Chin, De Pretto, Thuppil, and Ashfold (2019) claimed that the level of the public's attitude towards the environment was good in terms of air pollution, and that the public was more aware of air quality and the environmental significance of different modes of travel. This shows that the level of society's attitude towards environmental awareness is increasing. To further encourage this, positive attitudes should be nurtured continuously from an early age (Bryant & Hungerford, 1977). There is a belief that improving environmental attitudes can promote positive behavior towards the environment (Arcury & Johnson, 1987).

Behaviour in Environmental Awareness

Behavior is generally based on knowledge and attitude (Grob, 1995; Schahn & Holzer, 1990). According to Ramsey and Rickson (1976), behavior can be changed by making the individual more knowledgeable about a certain issue. Environmental behavior is a person's actual actions on an issue regarding the environment (Leff, 1978). Ecological behavior is defined as actions that contribute to the preservation and conservation of the environment (Axelrod & Lehman, 1993).

More and more attention is being paid to human behavior as the most critical element in the environmental degradation crisis. Politicians, scientists, and academics are more focused on finding the root cause in order to modify human behavior. The environmental sustainability behavior of the Malaysian public has been seen to improve as environmental-related programmes have gained attention. Fazli and Teoh (2006) showed that consumers in Malaysia had a moderate level of behaviour in terms of sustainable consumption. In addition, a study by Neo, Choong and Rahmalan (2016) also indicated that the environmentally aware behavior of Malaysians was high for climate change and water pollution and moderate for waste management. While there has been an increase in awareness, there are some elements that need to be improved. However, as has been noted, Jamilah et al.'s (2011) study categorized

behaviour towards environmental issues in Kuala Lumpur, as with attitude, as being at a low level, so there has clearly been some improvement.

Behavior towards the environment is the actual act carried out by a person on any issue related to the environment. It is influenced by a variety of external and internal factors, and changes over time. Education also influences behavior towards the environment. Unlike demographic factors that are beyond the control of individuals, educational factors can be strengthened to build and nurture good behavior. The question of whether there is a gap between attitude and behavior in environmental sustainability awareness should continue to be explored in the context of Malaysian society.

Attitude and Behaviour Gaps in Environmental Sustainability Awareness

An attitude–behavior gap is a state in which the value of an individual’s attitude is not related to their behavior. In other words, this gap is the difference between an individual’s attitude and their behavior. Debates regarding the gap take place in environmental and social contexts as well as in research, and they are often based on the cognitive theories of formed attitude and how this influences the individual’s behavior (Horen, Wal, & Grinstein, 2018). One of the most commonly used theories in debates on attitude and behavior is that of reasoned action (TRA), which was developed by Ajzen and Fishbein in 1975 (Fishbein & Ajzen, 1975). The TRA contains three general concepts, namely purpose, attitude, and subjective norms, as shown in Figure 1.

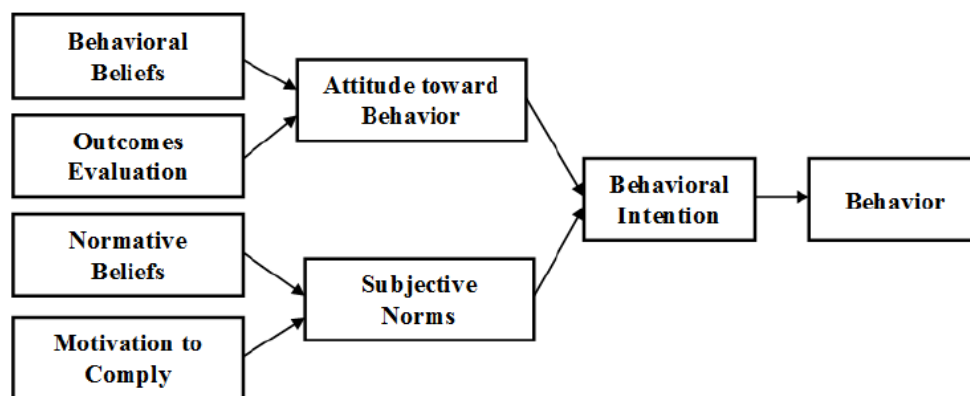


Figure 1. Theory of Reasoned Action (TRA) Model. Source: Ajzen & Fishbein (1975)

The TRA explains that a person’s behavior is determined by their purpose/intention to do something. It is also related to the person’s attitude and subjective norms. Therefore, to ensure good, kind and positive behavior, the purpose must also be led by a good attitude. Subjective norms are a combination of expectations from specific individuals or groups combined with the intention to meet these expectations (Ajzen, 2005). Thus, each individual’s behaviour is influenced by the attitude of that individual as well as their willingness to do something according to the consideration achieved based on the circumstances. The purpose or intention is definitely important in influencing an action/behavior. A good or pure intention can result in a positive action or behavior.

Methodology

This study used a questionnaire to gather data using online survey. For the purpose of studying the attitude–behavior gap in terms of environmental sustainability awareness in Malaysian society, a research instrument incorporating attitude and behavior was developed.

Population and Study Samples

This study used a sample involving 1,000 young Malaysian citizens selected by stratified random sampling involving location, gender and age. The study population consisted of 20 to 39 year-olds. The ages were decided upon in accordance with the National Youth Development Policy (1997) as well as the Malaysian Youth Index (2015). Next, the sample was broken down into two age categories, namely 20 to 29 years and 30 to 39, to establish if there were any differences between them: an early youth phase (20 to 29 years old) and a final youth phase (31 to 39 years old) was suggested by Erikson’s theory of psychological development (Erikson, 1963). The age selection was based on the view that 20 to 39 year-olds would be more mature in their way of thinking and decision making than those under the age of 20.

Table 1 shows the total population of young Malaysians between the ages of 20 and 39 (11,146,000). The sample was based on the following: (a) Krejcie and Morgan’s (1970) sample table; (b) Cohen, Manion and Morrison’s (2000) table, where if 10 study variables are used for multiple regression analysis at the level of significance of 0.05, then the sample size is 833 people. (In this study, the estimated variables based on previous studies were 10 to 15 variables [actual numbers were to be determined based on CFA analysis]); and (c) the conditions specified by Tabachnick and Fidell (1996), that is, the sample was suitable for factor analysis when it consisted of 300 respondents or 50 respondents for each factor. In addition, Comrey and Lee (1992) stated that 1,000 is an excellent sample size. Based on these guidelines, this study thus determined a sample size of 1,000 people (Table 2). Therefore, the samples were directly selected for each level using the stratified sampling method based on location, gender, and age category for each of the areas displayed in Table 2.

Table 1. *Young Malaysian Population by Age*

Age	Total population	Phase	Total
20 until 24	2,272,000	Early	4,509,000
25 until 29	2,237,000		
30 until 34	3,288,000	End	6,637,000
35 until 39	3,349,000		
Total	11,146,000	Total	11,146,000

Source: Department of Statistics Malaysia (2016)

Table 2. *Breakdown of Study Sample*

Location	Category								Total	
	Rural				Urban					
	20 – 29 years old		30 – 39 years old		20 – 29 years old		30 – 39 years old			
Gender	M	F	M	F	M	F	M	F		
North (Perlis, Pulau Pinang, Perak)	25	25	25	25	25	25	25	25	25	200
Central (Selangor, Kuala Lumpur dan Putrajaya)	25	25	25	25	25	25	25	25	25	200
South (Negeri Sembilan, Melaka, Johor)	25	25	25	25	25	25	25	25	25	200

East Coast (Pahang, Kelantan, Terengganu)	25	25	25	25	25	25	25	25	200
East Malaysia (Sarawak, Sabah, Labuan)	25	25	25	25	25	25	25	25	200
Total	125	125	125	125	125	125	125	125	1000

Legend:

M=Male F=Female

Instrument

The study used a questionnaire as its instrument. It consists of three sections (Table 3). Section A concerns the profile information of the respondents. Section B deals with the attitude variable, and considers three sub-variables, namely cognitive (knowledge), affective (emotion) and psychomotor (behavior). Section C focuses on the behavior variable, and considers five sub-variables, namely 3R (reduce, reuse, recycle), green purchases, electricity saving, water saving, and travel modes.

Table 3. *Respondent Questionnaire Information*

Part	Variable	No. of Item	Source of Item
A	Information Of The Respondents Location Age Gender	3	Built according to research needs
B	Attitude Towards Sustainable Environment Cognitive (Knowledge) Affective (Emotion) Psychomotor (Behaviour)	5 5 5	Hanifah et al. (2017), Salwati (2013) and Sara et al. (2009)
C	Behavior Towards Sustainable Environment 3R Green Purchases Electricity Saving Water Saving Travel Modes	7 7 7 7 7	Hanifah et al. (2017) and National Geography (2019)

Instrument Reliability

Table 4 shows the reliability of environmental sustainability knowledge with Cronbach's alpha value, which measures the internal consistency of the variables. The result shows that the Cronbach's alpha values are in the high and very high classification, ranging between 0.70–0.95. This study instrument has high reliability according to Babbie's (2007) classification.

Table 4. *Reliability of the Environmental Sustainability Knowledge Questionnaire*

Variable	No.of Item	Cronbach Alpha	Sub Variable	No.of Item	Cronbach Alpha
Attitude Towards Sustainable Environment	15	.899	Cognitive (Knowledge) Affective (Emotion) Psychomotor (Behaviour)	5 5 5	.609 .884 .900
Behaviour Towards Sustainable Environment	35	.923	3R Green Purchases Electricity Saving Water Saving	7 7 7 7	.827 .858 .714 .744

Data Analysis Method

A descriptive analysis was used for the purpose of describing and summarizing the information from the sample. A descriptive analysis can interpret the data or information by summarizing several sets of data or information in various media, such as tables and diagrams. For purposes of classifying responses according to levels, Landell (1997) was used as a benchmark. This consisted of a low level (mean score 1.00–2.33), a moderate level (mean score 2.34–3.66), and a high level (mean score 3.67–5.00).

The Pearson's correlation test was used to examine the relationship between the attitudes and behavior of the respondents towards environmental sustainability. Several assumptions had been made in this study: for example, the data appeared to be normally distributed, the relationship between the attitude and behavioral variables was linear, and the measurement scale was in the form of an interval. Based on the Pearson's coefficients, the strength of the relationship between the variables and sub-variables was categorized using Cohen's (1992) index: that is, (a) a correlation coefficient below 0.30 indicates a weak correlation; (b) a correlation coefficient of 0.30 to 0.50 indicates a moderately strong relationship; and (c) a correlation coefficient greater than 0.50 indicates a strong relationship.

Study Findings and Discussion

Respondents' Backgrounds

Table 5 shows the 1,000 respondents' backgrounds. The selection was based on age, gender, and location. The latter was divided into five zones, namely the northern zone (Perlis, Penang, and Perak), central zone (Selangor, Kuala Lumpur, and Putrajaya), southern zone (Negeri Sembilan, Melaka, and Johor), eastern coastal zone (Pahang, Kelantan, and Terengganu), and east Malaysia zone (Sarawak, Sabah, and Labuan). Five hundred of the respondents were living in urban areas and 500 in rural areas. Approximately half were male. Five hundred respondents were between the ages of 20 and 29, and 500 were between 30 and 39.

Table 5. *Respondents' Backgrounds*

Respondents' Backgrounds		N	%
Location	Urban	500	50.0
	Rural	500	50.0
	Total	1000	100
Gender	Male	500	50.0
	Female	500	50.0
	Total	1000	100
Age	20 - 29 years old	500	50.0
	30 - 39 years old	500	50.0
	Total	1000	100

Level of Environmental Sustainability Attitude amongst Young People in Malaysia

Table 6 shows young Malaysians' attitude towards environmental sustainability. The overall level was high, with values of $M = 4.181$ and $SP = .732$. The sub-variables of attitudes towards environmental sustainability—cognitive ($M = 4.033$, $SP = .779$), affective ($M = 4.383$, $SP = .830$), and psychomotor ($M = 4.125$, $SP = .970$)—were also high.

The findings of this study are in line with those of Norshahida and Wan Nor Azilawanie (2019), who showed that the Malaysian community had a good attitude towards the environment, and that they play a significant role in protecting the rivers. Similarly, a study by Chin et al. (2019) indicated that the attitudes of society towards the environment was at a high level.

Table 6. *Level of Environmental Sustainability Attitude among Young People in Malaysia*

Variable	Low Level		Medium Level		High Level		Mean	SD	Mean Level
	N	%	N	%	N	%			
Attitude Towards Sustainable Environment	41	4.1	152	15.2	807	80.7	4.181	.732	High
• Cognitive (Knowledge)	29	2.9	254	25.4	717	71.7	4.033	.779	High
• Affective (Emotion)	57	5.7	88	8.8	855	85.5	4.383	.830	High
• Psychomotor (Behaviour)	94	9.4	150	15.0	756	75.6	4.125	.970	High

Level of Environmental Sustainability Behaviour among Young Malaysian People

Table 7 shows the environmental sustainability behavior variable. It shows that overall behavior is at an average level, with values of $M = 3.868$ and $SP = .544$, while the environmental sustainability behavior sub-variables 3R ($M = 3.902$, $SP = .701$), green purchases ($M = 3.848$, $SP = .719$), electricity saving ($M = 4.072$, $SP = .600$), water saving ($M = 3.731$, $SP = .719$), and modes of travel ($M = 3.787$, $SP = .711$) are respectively high. These findings are in line with those of Mohamad Fazli and Teoh (2006) and Neo et al. (2016), which were referred to previously. This indicated that the behavior of the Malaysian public towards environmental sustainability began to increase after environmental-related programmed were introduced.

Table 7. *Levels of Environmental Sustainability Behaviour in Malaysian Society*

Variable	Low Level		Medium Level		High Level		Mean	SD	Mean Level
	N	%	N	%	N	%			
Behaviour Towards Sustainable Environment	11	1.1	337	33.7	652	65.2	3.868	.544	High
• 3R	25	2.5	312	31.2	663	66.3	3.902	.701	High
• Green Purchases	35	3.5	304	30.4	661	66.1	3.848	.719	High
• Electricity Saving	12	1.2	203	20.3	785	78.5	4.072	.600	High
• Water Saving	49	4.9	368	36.8	583	58.3	3.731	.719	High
• Travel Modes	37	3.7	364	36.4	599	59.9	3.787	.711	High

The Relationship between Attitude and Behavior towards Environmental Sustainability among Young Malaysians

Table 8 shows the correlation analysis of the relationship between attitude and behavior towards environmental sustainability. The results showed that there was a moderate significant relationship between the attitude and behavior variables ($r = .334$ and $p = .000$ [$p < .01$]). The sub-variables 3R behavior and psychomotor behavior ($r = .309$, $p = .000$) and green purchasing

behavior and psychomotor attitudes ($r = .325, p = .000$) showed a moderate relationship. The value of r was less than .300 for the other sub-variables, which indicated a weak relationship.

The assumption that a change in attitude and awareness will improve one's behavior and that, theoretically speaking, increased knowledge can have a positive impact on behavior (Bruvold, 1973; Lantermann, Döring-Seipel & Schima, 1992; O'Riordon, 1976) applied in this study, where each of the variables and sub-variables had a positive relationship with each other. The findings are in line with those of Fam et al. (2009), where there was a positive relationship between an individual's environmental attitude and behavior in China. Goldberg et al. (2018) noted the same. This relationship can be influenced by the individual's experience, as Glasman and Albarracin (2006) described. Thus, it can be seen that a better understanding of an individual's attitude and behavior (as well as the beliefs held by local stakeholders) is an important first step in effective communication to influence conservation activity, while at the same time enhancing the ideology of environmentalism, which raises the human need and responsibility to respect, protect, and conserve nature.

Table 8. Relationship between Environmental Sustainability Attitudes and Behavior Variables in Malaysian Society

Variable	Attitude Towards Sustainable Environment		Cognitive (Knowledge)		Affective (Emotion)		Psychomotor (Behaviour)	
	r	p	r	p	r	p	r	p
Behaviour Towards Sustainable Environment	.334**	.000	.229**	.000	.241**	.000	.365**	.000
• 3R	.297**	.000	.217**	.000	.221**	.000	.309**	.000
• Green Purchases	.288**	.000	.202**	.000	.192**	.000	.325**	.000
• Electricity Saving	.292**	.000	.196**	.000	.239**	.000	.298**	.000
• Water Saving	.194**	.000	.154**	.000	.115**	.000	.218**	.000
• Travel Modes	.249**	.000	.137**	.000	.191**	.000	.290**	.000

**significant at $p < 0.01$

* significant at $p < 0.05$

This study found that there was no gap between attitudes and behavior towards environmental sustainability amongst young people in Malaysia; the relationship was positive in both cases. This may be seen as a preliminary step in helping stakeholders raise environmental awareness of the issue in Malaysian society more generally.

Conclusion

The role of attitude in shaping behavior towards environmental sustainability is an important consideration in efforts to create individuals who practice environmentalism. Behavior is also influenced by a variety of external and internal factors that change over time, such as demographic factors, but these are largely beyond one's control. In this study, it was observed that when attitudes towards environmental sustainability were at a high level, so was behavior. Similarly, the correlation test also showed a positive correlation between the variables and sub-variables of environmental attitude and behavior. Therefore, the study did not reveal a gap between attitude and behavior amongst young Malaysian people. It is hoped that studies such as this will give early indications of gaps between the attitude and behavior towards environmental sustainability of other age groups in Malaysian society, and help stakeholders to raise awareness further.

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