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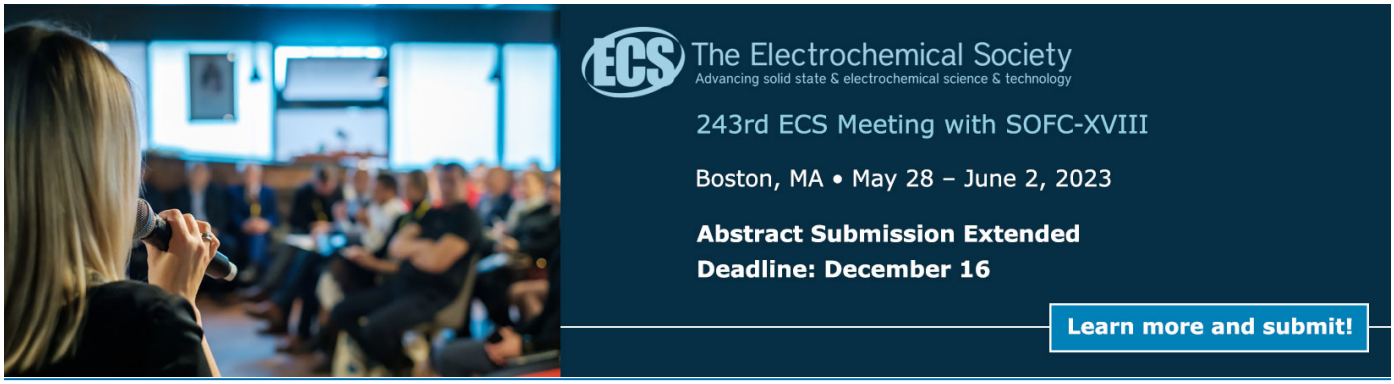

Knowledge, Attitude and Practices on Environmental Sustainability Among The Residents At Jalan Tualang, Kulai Johor Based on Their Educational Background

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Abstract. The environmental sustainability concept is vital to conserve earth resources and protect the earth ecosystems to maintain future generations' health and well-being. People are becoming aware of the importance of environmental sustainability, but many of them lack practices and attitudes. Therefore, this study was conducted to determine the level of knowledge, attitude, and practices on environmental sustainability among the residents of Jalan Tualang, Kulai, Johor based on their educational background. The correlation between knowledge practices and attitudes toward environmental sustainability was also analysed. In this study, the survey questionnaires were distributed using an online platform. About 132 respondents from the residential area were involved in this survey. The data from this study were analysed using Kruskal-Wallis and Spearman's Rho Analysis using SPSS version 20.0 software. Based on the Kruskal-Wallis test, there are no significant differences of knowledge, practices and attitudes on environmental sustainability between different levels of educational background. Besides, results from Spearman's Rho show a moderate and positive relationship correlation between knowledge-practices, and knowledge-attitudes toward environmental sustainability respectively. A strong and positive relationship was observed between practices and attitudes. In conclusion, the knowledge, attitude and practices on environmental sustainability should be expanded and promoted at all levels of educational background to raise good environmental behaviour through various environmental awareness programs and activities at the community level.

1. Introduction

Environmental sustainability is one of the most pressing concerns confronting humanity today. It is defined as the ability to retain things or qualities that are valued in the physical environment such as plants, water, air, and energy for future [1]. It is strongly connected to social and economic sustainability [2]. People rely on the physical environment in so many ways hence, maintaining desirable environmental conditions can contribute to the long-term survival of people and societies (social sustainability). On the other hand, economic viability is clearly dependent on environmental resources and service flows, thus economic sustainability is also dependent on environmental sustainability [1]. Therefore, living in a sustainable lifestyles and behaviours is important to protect our ecosystem because when the damage is done to the environment it is irreversible and would be difficult to survive in such condition [3].

Sustainable communities lead to healthy communities where sustainable development and human well-being can be achieved [4]. For this reason, environmental knowledge as well as environmental behavior of the people is important to build a sustainable community. According to Chukwuma [5], public awareness is more significant factor in protecting the nature than environmental policy. Research from various study revealed that level of knowledge, attitude, value and practices are critical factors determining quality of environment [6, 7]. Higher levels of environmental knowledge demonstrate better desire to act positively on environmental issues [8-10]. Knowledge proven to be one of the most important keys in many of the theoretical models that related to behaviours and attitudes. Birou et al. [11] also stated that environmental knowledge can improve the sustainability outcomes such as reducing or eliminating waste that can cause environmental degradation.

Other studies investigate the influence of socio demographic factors on the level of knowledge, awareness, attitude, practices and/or behaviour. Zarrintaj et. al. [12] revealed that age and level of educational groups are found to effect on increasing of environmental awareness and attitude among Iranian students in Malaysian universities. Diamantopoulos et al. [13] and Gilg et al. [14] also suggested that higher education people have better knowledge on environmental issues and are more concerned on sustainable consumption. Besides, our previous study [15] also showed that the graduated group of Sustainable Science program in Universiti Malaysia Kelantan have better knowledge, attitude and practices of environmental sustainability compared to different undergraduates group year of study. However, study on environmental sustainability's knowledge, attitude and practices of Malaysian's public is still lacking. To the best of our knowledge, no study on environmental awareness was conducted in the residential area of Jalan Tualang, Kulai, Johor. This residential area was built in 2014 and is resented by multi-race Malaysian with various educational backgrounds. From the observation, the public area in this area is always littered with rubbish and pet faeces. Thus, this residential area was selected to investigate the level of knowledge, practices, and attitudes of the residents in Jalan Tualang, Kulai, Johor towards environmental sustainability based on their education level. It is hoped that this study will provide helpful input in understanding people's environmental behaviour in Jalan Tualang.

2. Methodology

Data collection which is based on five point online survey was performed on 132 residents of Jalan Tualang, Kulai Johor. The survey is based on the Likert scale which consists of three sections related to knowledge, attitude and practices on environmental sustainability respectively and one section on demographic of respondent. The Cronbach's Alpha was employed to test the reliability of the questionnaire set and the results are shown in Table 1 with good internal consistency.

In this study, the p value obtained for Shapiro-Wilk was less than 0.05. Thus, A non-parametric analysis using The Kruskal-Wallis H test is used to determine statistically differences in knowledge, attitude and practices among residents based on their educational background. Whilst, the Spearman's Rho analysis was used to determine the relationship between variables 'Knowledge and Practices' and 'Practices and Attitude'.

3. Result and discussion

3.1. Demographic study of respondents

Based on the Table 2, 78 % of respondents are male and 22 % are female. Most male (33 respondents) hold a master's degree while most female (12 respondents) are a degree holder. The majority of respondents are Malay (87 %) and Muslim (90.2 %). Most of them are above 50 years old followed by 31-40 years old, 41-50 years old, 21-30 years old, and 13-20 years old.

3.2. Knowledge of respondents on environmental sustainability

Table 3 shows the summary data of knowledge on the environmental sustainability. Based on the table, the mean value of knowledge is 4.56 which is in a high range according to Yogendra et al. [16]. This means that the residents of Jalan Tualang have a good understanding of environmental sustainability.

Table 1. Results from pilot test.

Variables	Cronbach's Alpha (α)
Knowledge	.931
Practices	.835
Attitudes	.853
Total	.935

Table 2. Socio-demographic of respondents.

Factors		Frequency (N)	Percentage (%)
Gender	Male	103	78.0
	Female	29	22.0
Races	Malay	115	87.0
	Chinese	9	6.8
	Indian	4	3.1
	Others	4	3.1
Religion	Islam	119	90.2
	Buddhist	2	1.5
	Cristian	6	4.5
	Hindu	3	2.3
	others	2	1.5
Age (year)	< 12	-	-
	13-20	2	1.5
	21-30	9	7.0
	31-40	23	17.7
	41-50	23	17.4
	>50	75	56.8

The result data shows that all statements have a mean of more than 4. The highest mean (4.68) is scored for statement no 1 which is about the basic understanding of environmental sustainability term. Meanwhile, the lowest mean (3.90) is for statement no 3 on Local Agenda 21 which is a local planning program specifically designed for sustainable development. This is probably because they have low access to the information and low awareness on the Agenda 21.

The variation in the overall knowledge based on educational level was examined using Kruskal Wallis test and is presented in Table 4. The result revealed that insignificant differences with p-values >0.05 (Sig. = 0.798). This means that the educational background levels do not influence the residents' knowledge on environmental sustainability. The finding is quite contradicted with our previous study on environmental sustainability knowledge among Sustainable Science students of UMK where results are statistically significant between knowledge and year of study [15]. This happen because although, the respondent of Jalan Tualang have higher level of education background but, their field of study probably not related to environment or sustainability.

Table 3. The data of knowledge on the environmental sustainability of residents at Jalan Tualang.

No.	Knowledge on Environmental Sustainability	Mean	Std Dev.
1	I understand that what is meant by preserving the environment.	4.68	0.042
2	I know about the importance of caring for the environment.	4.65	0.043
3	I know about Local Agenda 21.	3.90	0.077
4	I know that one of the causes of water quality deterioration is the dumping of food waste and used oil into water sources	4.63	0.052
5	I understand that wasting energy means we are contributing to more fuel sources that will pollute the environment	4.55	0.050

6	I know that disposing of waste in the right way can avoid environmental pollution	4.66	0.048
7	I know that open burning can increase the amount of carbon dioxide in the air and cause global warming.	4.63	0.046
8	I know that uncontrolled deforestation not only destroys natural life but also disrupts natural water catchment areas.	4.75	0.044
9	I know that the increase in domestic waste can cause problems to the environment and human health.	4.59	0.046
10	I know that rising of temperature can cause global warming and it will affect the whole world.	4.64	0.046

Table 4. Kruskal –Wallis Test of knowledge based on education background.

Items	Year of Study	*N*	Mean Rank	Chi- Square, *H*	Sig., *P*
Knowledge	Secondary school	34	61.29	1.013	0.798
	Diploma	34	67.19		
	Degree	31	70.45		
	Master Degree	33	67.44		

3.3. Attitude of respondents on environmental sustainability

The mean value of attitude based on Table 5 is 3.88. Although the mean is a bit lower than knowledge and practices, but according to Yogendra et al. [16] it is still in a high range. The reason why it is a bit lower is because of statement no 2 that was negatively constructed and need respondents to answer strongly disagree or disagree. Thus, if this statement was excluded, the mean value will increase to 4.09.

Besides, statement no 4, 9 and 10 also has lower mean in a range of 3.06 to 3.98 which are regarding to supporting ecofriendly product, membership in environment associated body, and awareness of environmental problem on local and abroad. Statement 4 has low mean because the green product is recognized in the market as an expensive item due to its eco-friendly, safety, high quality, and less harmful to the environment criteria [17]. Thus, increasing environmental knowledge and awareness will result in a positive strong attitude towards the willingness to pay for eco-friendly product as stated by [18, 19]. Statement 9 and 10 has low mean because environmental issue is not a hot topic to talk about in the media social. The study of media and Environmental Non-Governmental Organizations (ENGOs) roles in environmental sustainability in Malaysia found that only 8 out of 11 of the ENGOs interviewees and 5 out of 13 media interviewees mentioned about the importance of educating the public and delivering environmental messages. Most media interviewees only emphasized the importance of newspaper articles as the primary medium for keeping up to speed on environmental issues or incidents that occur locally or internationally [20]. Besides, our young generations have less interest in newspaper reading.

Meanwhile, statement no 8 has the highest mean (4.60) with 130 respondents (98.5 %) agree, 1 respondent (0.8 %) not sure, and 1 respondent (0.8 %) strongly disagree. This is expected because unfix leaking pipe will cost higher bill. This statement was in line with statement no 6 where majority of respondents will take actions if they saw their neighbor's water pipe stay open unattended. The residents of Jalan Tualang also show a good attitude towards participating in cleaning (statement no 3) and environmental awareness activities (statement no 5) where 87.1 % and 91.7 % respondents supported the idea respectively.

Kruskal Wallis test was done to see if the education level was statistical significance to the attitude towards environmental sustainability (Table 6). The result shows insignificant differences of background education level on attitudes towards environmental sustainability. Therefore, the level of education also does not determine a good attitude towards environmental sustainability life. However, good attitudes need to be learned from the early stage of education to have a better understanding about sustainability [21].

Table 5. The data of attitude on the environmental sustainability of residents at Jalan Tualang.

No	Attitude on Environmental Sustainability	Mean	Std Dev.
1	I will notify the authorities if I see someone committing an act that is harmful to the environment.	4.21	0.068
2	I believe that environment should have been taking care of by the government only.	1.98	0.103
3	I will volunteer to participate in the communal work to keep the environment clean.	4.17	0.062
4	I am willing to buy the eco-friendly product even though the price is expensive.	3.81	0.068
5	I will participate in activities that involve caring for the environment in the area near my home.	4.20	0.056
6	I would not ignore my neighbour if I saw their water pipe stay open unattended.	4.44	0.048
7	I support the recycling program and invite family members, neighbours, and close friends to implement it together.	4.37	0.055
8	I will replace the leaking pipe immediately.	4.60	0.051
9	I have membership in an association or body related to the environment.	3.06	0.098
10	I am always aware of environmental problems that occur locally and abroad.	3.98	0.066

Table 6. Kruskal –Wallis Test of knowledge based on education background.

Items	Year of Study	*N*	Mean Rank	Chi- Square, *H*	Sig. *P*
Attitudes	Secondary school	34	71.91	1.773	0.621
	Diploma	34	66.22		
	Degree	31	68.05		
	Master Degree	33	59.76		

3.4. Practices of respondents on environmental sustainability

Table 7 reveal the summary and data of environmental sustainability practices of the resident at Jalan Tualang. The overall mean value is in high range. Only three statements (no. 6, 8 and 9) have moderate mean (3.3 to 3.92) which is related to recycling used oils, composting, and buying food packaged in a styrofoam container. The lowest mean belongs to question no. 8 with 21 respondents did not recycle their used cooking, 40 residents (30.3%) were not sure and only 21 respondents (15.9 %) recycled their used cooking oil. According to a study conducted by [22] in Petaling, Malaysia, only 12 % of the resident's household recycle their used cooking oils while the remaining 88 % do not recycle theirs due to lack of awareness.

Meanwhile, statement no 6 which is about composting food waste has a mean of 3.36. This is because not many Malaysian know how to do composting as reported by [23]. Besides, other contributing issues are a lack of composting facilities and a lack of information about the composting process. Thus, it is hoped that the simplified review of Malaysian food waste management and composting practices would help the community understand the importance of food waste separation and composting in preventing environmental pollution.

Statement 9 is about buying food packaged in a Styrofoam container and Rajendran et al. [24] had done a study about Malaysia consumers' preference for green packaging and the result shows about 61 % of respondent unwilling to pay high price for eco- friendly packaging due to their lower income. Meanwhile, statement 4 has the highest mean (4.58) with 83 respondents (62.9 %) turn off the electrical appliances, 2 respondents do not and 1 respondent not sure. This

is because respondent has prioritized environmental elements related to saving energy and they gain some economic advantages by reduced the house electricity bill [25, 26].

Result from Kruskal-Wallis test concluded that background education is not significant to environmental sustainability practices. This result contradicts the study conducted by Shahariah et al. [27], who finds a significant relationship between environmental behavior and educational background. According to them, a high level of education encourages good environmental behavior among students. In this study, although the respondents are highly educated, but their background study could probably not relate to environmental field as discuss in section 3.2. Hence, the poor environmental sustainability practices.

Table 7. The data of attitude on the environmental sustainability of residents at Jalan Tualang.

No.	Practices on Environmental Sustainability	Mean	Std Dev.
1	I will bring my own bag for groceries shopping.	4.02	0.081
2	I will wash the clothes when the washing machine is full.	4.15	0.080
3	I always close the water tap while brushing teeth.	4.45	0.061
4	I turn off the electrical appliance after use	4.58	0.058
5	I practice sorting waste according to its type and choose to recycle used items.	4.01	0.078
6	I decomposed my leftover food to make fertilizer.	3.36	0.090
7	I use energy-saving electrical appliances at home.	4.21	0.070
8	I stored my used cooking oil to send/sell to the recycling centre.	3.30	0.102
9	I try to avoid buying food packaged in a Styrofoam container	3.92	0.086
10	I choose to buy product that does not contain harmful materials to the environment.	4.29	0.068

Table 8: Kruskal –Wallis Test of practices based on education background.

Items	Year of Study	N	Mean Rank	Chi- Square, *H*	Sig. *p*
Practices	Secondary school	34	75.15	4.801	0.187
	Diploma	34	68.44		
	Degree	31	67.05		
	Master Degree	33	55.08		

3.5. Relationship of respondent's knowledge, attitude and practices on environmental sustainability

The correlation between knowledge, attitude and practice toward environmental sustainability was examined using the Spearman correlations that range from -1 to +1. The sign of the coefficient indicates whether the relationship is positive or negative monotonic. A positive correlation indicates that as one variable increases, the other tends to increase as well. A negative correlation means that as one variable increases, the other tends to decrease. Values close to -1 or +1 indicate stronger relationships than values close to zero [28]. According to Prion et al. [29], the rank order for correlation coefficients for Spearman are 0.00 to 0.20 for no or negligible relationship, 0.21 to 0.40 for weak relationship, 0.41 to 0.60 for moderate relationship, 0.61 to 0.80 for strong relationship and 0.81 to 1.00 for very strong relationship.

Based on Table 9, the correlation between knowledge-practices and knowledge-attitudes are moderate relationship and strong relationship respectively. Thus, it can be concluded that adequate knowledge can lead to good attitude and will encourage practices. Whilst, attitudes-practice has strong and positive relationship with r = 0.658, p= 0.00. This indicate that a positive attitude towards environment will encourage them to have a good level of environmental sustainability practices.

Table 9: Relationship between knowledge, practices, and attitudes towards environmental sustainability.

Factor	Knowledge	Practices	Attitudes
Knowledge	1	0.477**	0.489**
Practices	0.477**	1	0.658**
Attitudes	0.489**	0.658**	1

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

4. Conclusion

This study revealed that the residents of Jalan Tualang have a high level of relationship knowledge, attitude and practices in environmental sustainability. However, there is no significance among the knowledge, practices and attitudes based on the level of background education. This is because, every person has a different exposure and perspective about sustainability in their life. Besides, a higher level of education does not reflect a higher knowledge of environmental sustainability. They might have a master's degree but could lack environmental education.

Furthermore, this study also found a moderate positive relationship between knowledge-practices and knowledge-attitude towards environmental sustainability. It shows that adequate knowledge of environmental sustainability can enhance attitudes and practices. Thus, it is suggested that environmental education should be compulsory and taught starting from preschool. The youngsters should be involved in environmental programs such as recycling, river cleaning, planting trees, etc., to cultivate good attitudes and practices. These activities should be started early and continue until adulthood to build good attitudes towards the environment. Moreover, the district council and elected representatives should organize environmental awareness programs for the local community to encourage good environmental behaviour.

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