

Sustainable Consumption Practices of Students through Practice-Oriented Approach of Education for Sustainable Development

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Abstract

Sustainable consumption practice is an effective approach to educating the younger generation in how to achieve sustainability in the future in agreement with sustainable development principles. This article aims to examine Education for Sustainable Development (ESD) knowledge and sustainable consumption practices. This study has three areas of focus, namely, (i) to study the difference between ESD knowledge and sustainable consumption practices among genders; (ii) to assess the difference between ESD knowledge and sustainable consumption practices by location; and (iii) to analyse the relationship between the variables of ESD knowledge and sustainable consumption practices. This quantitative study was conducted by using a questionnaire instrument. Two types of sampling techniques have been used, namely stratified sampling technique for the selection of schools and random sampling technique to select respondents at the selected schools. This study finds that ESD knowledge among male and female students differs, while sustainable consumption practices are the same in both genders. Next, in terms of sustainable consumption practices, there are differences between male and female students. Findings in regard to the location show that there is no difference between the school students in urban and rural areas in terms of ESD knowledge, except for the sustainable consumption practices variable, which shows significant mean differences between the groups of students from urban and rural areas. Overall, the students had acquired ESD knowledge and sustainable consumption practices. However, when examining the location of the schools, it turns out that the ESD knowledge of the students is similar but in practice the urban school students are better at implementing it. Thus, all parties, especially the schools, local communities, government agencies and non-governmental organisations can expand sustainability practices towards all levels of age and all school locations.

Key words: ESD, ESD knowledge, sustainable consumption practices, secondary school students

Introduction

The rise in environmental issues has increasingly threatened the global wellbeing and this has raised the awareness of the need to emphasise the importance of the environment in everyday life. The interdependence between living things and the environment is an important and fundamental element in survival (Donna, 2015; Erten, 2008; Hazura & Syarifah Norhaidah, 2007; Zurina & Hukil, 2006). The increase in extinction of natural treasures is in large part due to the greed of human behaviour in chasing profits and a lack of concern for its impact on the environment (Jeevan, 2015 ;Shaharudin, 2015). This uncontrollable consumption, excessive consumption or wasteful consumption is known as unsustainable consumption or environmentally unfriendly consumption behaviour (Meenakshi & Leela, 2014). Unsustainable consumption has become a threat to the environment and this has ultimately raised awareness of the need to implement sustainable development principles.

Sustainable development is supported globally to undertake development that meets the needs of the present without compromising the ability of future generations. Malaysia has also undertaken various efforts and initiatives to preserve the environment and help in achieving the goals of sustainable development. These efforts included signing on to Agenda 21 (Er, Nur Azlin & Mohd Fakhrulrazi, 2015). However, the spread of development in a settlement will have a direct impact on the people who inhabit that area. Unplanned development can negatively affect the population, change the physical landscape and may ultimately undermine the quality of life (Samruhaizad, Azahan, & Noviarti, 2016). Therefore, well-planned management is required to ensure that the negative impact of development can be minimised.

The development of an area can bring problems caused by a booming population and this can place the environment under increasing pressure, such as from pollution resulting from human activities. Waste disposal (such as garbage) causes pollution to increase over time (Laily, Aini & Sharifah, 2009). Therefore, one of the efforts that should be carried out in an attempt to preserve and conserve the environment is by adopting sustainable consumption practices. Sustainable consumption practice refers to the consumption of products or services for basic use with good quality of life. It can also minimise the use of natural resources and reduce the production of residual wastes without having a negative effect to the environment (United Nations Environment Programme, 2010). At the same time, the life cycle of these services and products are taken into account in order to ensure that the environment can be continuously protected for future generations (Ministry of Domestic Trade, 2016).

Environmental issues and sustainable consumption practices have gained the attention of many researchers. Among them, Nin, Zhoumin and Zaoying, (2016) stated that green consumption practice is harder to implement in China due to the background and other factors such as knowledge, attitude and psychology concerning the environment. This has been proven by their research, which found that there is no significant association between green consumer attitude and behaviour. In addition, a study by Sebastian (2003) also finds that environmental concern attitude has a direct relation with behaviour and explained that environmental concern will lead to positive behaviour towards the environment. A study by Arezoo and David, (2014) was conducted to enhance green strategies and implement sustainable consumption practices in regard to the economic context. The results show that the marketing mix method is an

effective approach to reduce the gap between green consumers' confidence and behaviour, and can also encourage sustainable consumption.

A study of environmental awareness among students was conducted by Milutin, Stanko, and Sonja (2014) and they find that the level of environmental awareness, attitude, behaviour and knowledge of the students from primary to secondary schools are at a low level. This happens because of the lack of proper knowledge regarding the environment among the students. In addition, Tan and Norzaini (2011) also support these findings and they demonstrate that people were aware of the environmental issues that have occurred; however, the level of environmental protection practice is still low. These findings are consistent with a study by Nor Azizah and Zanaton (2015), which reveals that the public, especially students, have a high sensitivity with respect to the environment but the level of readiness to engage in solving environmental issues was still low. Unfortunately, awareness will be meaningless if there is no change in terms of practice and behaviour of society towards environmental protection. A study by Shahariah, Jamaliah, and Zahariah (2012) finds that there is a significant relationship between environmental behaviour by area and parents' education level of UiTM Shah Alam students. This situation shows that environmental behaviour is related to background and education level. A high level of education encourages the creation of good environmental behaviour among students.

Research findings by Azizi, Masitah, Nazifah, Khaidir and Noriati (2015) with regard to the level of knowledge of school administrators prove that the principals' level of knowledge concerning the environment is at a medium level and there is no significant relationship between level of knowledge and attitude, awareness and instructional leadership practice towards the environment. Principals play an important role in encouraging teachers and students towards environmental protection. Medium level of knowledge regarding environmental protection has indirectly influenced the principals to enculturate environmental aspects in the school. Clearly, a change in behaviour is very important to ensure the conservation and preservation are done to protect the environment and reduce excessive consumption (Midden, Kaiser & McCalley, 2007). Teachers also play an important role in influencing sustainability practices among students. A study by Hanifah, Shaharuddin, Noraziah and Mohamad Suhaily Yusry (2015) reveals that the level of sustainable consumption practices among teachers in Puchong, Selangor was at a high level. This is great in a case where teachers are a motivating factor in increasing the students' sustainable consumption level.

Sustainability awareness enculturation should be inculcated at an early age to promote a positive attitude towards the environment. In-depth knowledge concerning the environment will lead to changes in behaviour (Hanifah, Muhammad Suhaily Yusri & Nurul Izza 2015; Jamilah, Hasrina, Hamidah, & Juliana, 2011; Nurul Hidayah Liew, Haryati, & Seow, 2013). Schools are the early institution responsible in instilling the love of the environment. Therefore, studies on the relationship between the knowledge of education for sustainable development and its relation to sustainable consumption practices among students should be implemented.

Literature Review

Education for Sustainable Development Knowledge and Sustainable Consumption Practices

Global environmental issues such as destruction of biodiversity, degradation of natural resources, global warming and environmental pollution problems are increasing every day and they are becoming a challenge for the implementation of sustainable development (Auwalu, 2015). These environmental problems have attracted attention from all around the world (Asmawati, Nor Ba'yah, & Fatimah, 2011). For example, rampant forest clearing has threatened the sustainability of resources. A shortage of resources should be taken seriously because it would threaten the security of natural resources for future generations. Awareness of the importance of the environment should be emphasised because it is one of the basic components of the effort to achieve sustainable development goals (Aisyah & Zainora, 2012).

To achieve these efforts, education is seen as the best approach to create a knowledgeable generation that is aware of its responsibility to the environment (Jamilah et al. 2011; Hanifah & Mohamad Suhaily Yusry, 2015). Education application, whether formally or not, has been proven as able to promote sustainable behaviour (Norzaini, Ibrahim, Sharina, & Ruslin, 2010; Hanifah, Yazid, Mohmadisa, & Nasir, 2016). A study by Ruzian and Norizan (2014) stresses that environmental preservation and conservation activities are the responsibility of all humankind. Therefore, a great amount of awareness among the public should be applied to ensure that the environment is sustained in the future.

Based on the research findings by Shivakumara., Sangeetha, Diksha, and Nagaraj (2015), there is no significant difference between environmental knowledge among students in regard to gender. The situation is factored by the natural feelings they possess within themselves and this lead to the formation of good behaviour among male and female students (Aaron, 2010). This is in contrast to the studies by Vinz (2009), Xiao and Hong (2010), Heinzle, Kanzig, Nentwich, and Offenberger (2010), which state that there is a significant difference in terms of sustainability practices implementation based on gender. The findings of these studies clearly show that women are more sensitive to the environment and they possess better pro-environmental attitude as compared with men, which is in agreement with the research findings by Lynnette, Poh, and Christina (2000), and Madhumala, Jayanti, and Pintu Kumar (2010). A study by Eunsil, Nam-Kyu and Ju Hyoung (2013) also states that women tend to allocate a larger amount of expenses than men to practice energy conservation. This situation is due to the natural consciousness that exists in women.

The studies of sustainable consumption practices within the communities have varying results. For example, studies on sustainable consumption practices among teachers in Puchong, Selangor, which is located in a rapidly growing city, clearly shows that the teachers' knowledge about the environment was at a high level (Hanifah et al., 2015). In contrast, a study by Azizi et al. (2015) reveals that the level of knowledge, attitude and awareness of teachers in the northern zone of Malaysia was at a low level. The difference in these findings may be accentuated by geographical factors that influenced the access to information among teachers. The effect of knowledge towards environmentally friendly behaviour is seen as a dominant factor and should be reviewed. A study by Neeraj (2015) finds that the level of environmental awareness of students in rural areas is higher compared to students who live in urban areas,

which is in agreement with the findings by Arba’at, Tajul, and Suriati (2010). This condition is due to the higher exposure to the environment experienced by students in rural areas than students who live in urban areas who are often exposed to the concrete jungle. However, Auwalu (2015) finds that location does not affect the level of students' awareness towards the environment because students have the same perception towards the environment. A study conducted by Nurmaziah, Ahmad Hariza, and Shamsul Azahari (2015) shows that respondents' behaviour is influenced by the acceptance of zero waste practices, either during the time of purchase and also during recycling activities. This situation clearly shows that the respondents are aware of the responsibility to conserve the environment.

A study by Mohd Hariz (2009) shows that recycling practice among students is still at a low level. A study by Musfirah (2011) shows that even though recycling bins are provided in schools, 59.3 percent of the students do not use them. This situation explains that being aware about the existence of recycling bins in the school area does not influence the students to use them. This clearly shows that the practice of sustainable consumption concerning recycling among students is still unsatisfactory. Those findings are in agreement with the findings by Hanifah, et al. (2015), which reveal that sustainability behaviour through recycling practice among pre-school students are at a medium level. This medium level of sustainability behaviour among the respondents needs further research to identify the causes and how to address them. A study by Hanifah, Shaharuddin and Muhammad Suhaily Yusri (2014) discusses Education for Sustainable Development (ESD) practices knowledge, and finds that the ESD attitude and behaviour of students show no significant association with ESD knowledge of the parents or guardians. This proves that the parents' education does not directly affect the ESD knowledge, practices, attitudes and behaviours of the students. The students' high level of knowledge and attitude towards ESD are not translated into behaviour and commitment (Hanifah, Mohamad Suhaily Yusry, & Shaharuddin, 2013).

Several theories and models are used to explain the relationship between environmental awareness and sustainable development. The theory of reasoned action (TRA), which was introduced by (Fishbein & Ajzen, 1975) is a general theory for predicting behaviour (see Figure 1). This theory states that behaviour can be predicted by intention to act where the intention is determined by the attitude towards behaviour and subjective norms. This theory also explains that intention is to be driven by good attitude to encourage positive behaviour. Therefore, a person's intention is very important in influencing behaviour.

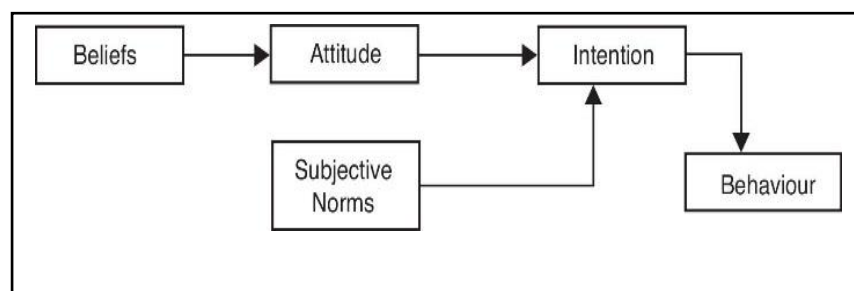


Figure 1: Theory of reasoned action (TRA)

Next, the theory of planned behaviour (TPB) was introduced by Ajzen and Fishbein in 1980 (see Figure 2). This theory is an extension of the TRA and is also often used by many researchers to refer to a person's behaviour and preferences regarding a particular matter. The proposed behaviour is influenced by attitude, subjective norms and perceived behavioural control. The three main factors are interrelated and used to predict and explain the proposed behaviour of individuals.

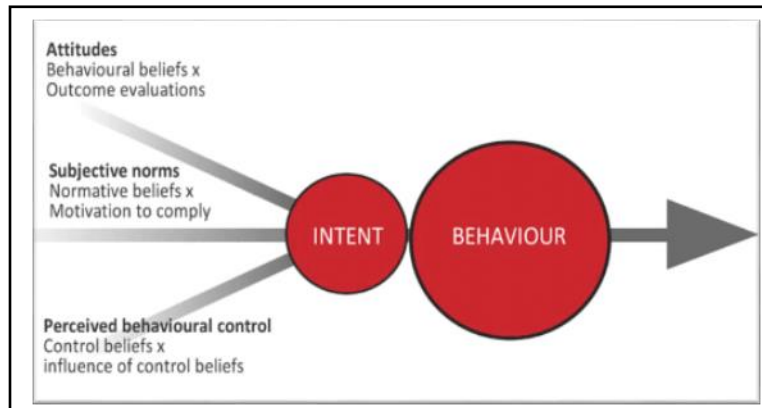


Figure 2: Theory of Planned Behaviour

Academics have also argued that knowledge, attitude and practice were a series of human behaviours. For example, the Knowledge, Attitude, Practice/Behaviour model (Figure 3), which was introduced by (Ramsey & Rickson, 1976), states that a man with knowledge will influence attitude and consequently affect practice. Based on the model, knowledge will influence behaviour. The KAP model is commonly used in various fields, including health, food security (Food Standard Agency, 2009), community development, and education (Jamilah, Shuhaida, & Nurzali, 2015). The KAP model is also used in environmental studies to assess knowledge, attitude and practice associated with environmental awareness. For example, Emanuel (2010) used the model to examine changes in the behaviour of society in waste water management in the Caribbean region.

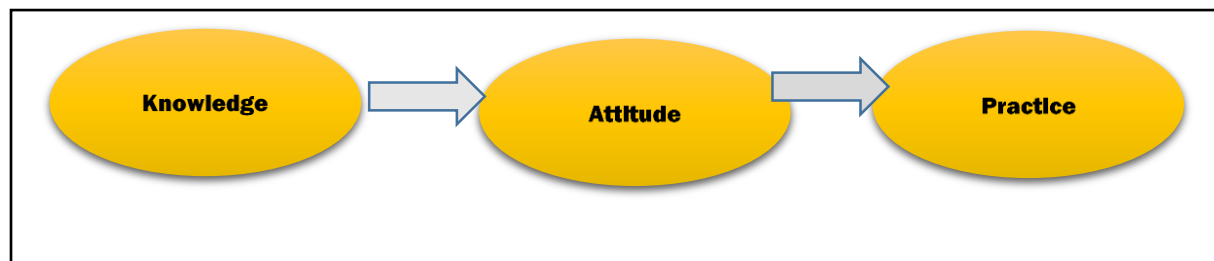


Figure 3: KAP Model

Montoute and Cashman (2015) also adopted the KAP model to study water hygiene and sanitation in Anse La Raye village located in the floodplain of the west coast of Saint Lucia in the Caribbean, and found that 42 percent of households in the area had no water connection and 29 percent did not have a toilet at home. However, the residents in the area had knowledge about water borne disease and practiced regular hygiene measures to prevent infection. Obviously, the high knowledge among the population has led to good practice in implementing measures to maintain cleanliness of the water. The KAP model has also been used in the study of solid waste management among undergraduate students at the University of Filipina. The findings of this study show that there are higher levels of knowledge and attitude, which is not in agreement with the level of practices among the students. The practice is still at a low level, which is due to the social status of the family. Meanwhile, a high level of family education influences the students' solid waste management practices (Eveth, Lustina, & Christian Paul, 2016).

In Malaysia, several studies have adopted the KAP model to determine how knowledge influences sustainability practices. Tan, Md. Salleh, Jusang, and Ramdzani (2013) conducted a study in regard to the knowledge, attitude and practice of recycling among civil servants. Their findings reveal that the practice of recycling among employees was at a medium level. This is due to the lack of awareness about the importance of recycling. A high level of environmental knowledge does not ensure the formation of good recycling practice. Next, the research findings by Arbaat, Norshariani, and Sharifah Intan Sharina (2013) also show that the students had high level of environmental knowledge, awareness and attitude but only a medium level of environmental practices. Meanwhile, in terms of relationship, there were significant differences in terms of knowledge, awareness and practice towards the environment. Significant differences also existed in terms of attitude. Their study finds that the female students had higher attitude towards the environment compared to the male students.

The shaping of attitude and behaviour towards the environment should be inculcated at an early age. Students should be equipped with a variety of appropriate knowledge and skills to help them make rational decisions based on the needs of environmental problems, especially in the context of sustainable consumption practices (Joseph, Victoria, Campbell, & Louie, 2004). The involvement and participation of students in environmental preservation and sustainable development is very important because it will influence their lives and affect the future of the environment (Ermolaeva, 2011).

Therefore, this study examines the relationship between ESD knowledge and sustainability consumption practices from the students' perspective in Malaysia. We have used three key variables that refer to the KAP model, namely: knowledge, attitude and practices. Environmental awareness application is very important because the intrinsic value occurs as a result of lessons learned with regard to life. The quality of the future environment will also be improved because the values inculcated influence decision-makers in managing the environment and will ultimately lead to a more sustainable future.

Areas and Methodology

This study involved 24 schools in Malaysia (Figure 4). Determination of the states in Malaysia is set based on the zone to facilitate data collection and validity (see Table 1). Each zone will be represented by four schools, consisting of urban and rural areas.

Table 1: The number of schools sampled respondents in Malaysia

Zone	Number of Schools Sampled	
	Urban Area	Rural Area
Northern	113	107
Central	102	103
Southern	117	105
East Coast	118	120
East Malaysia	187	108
Jumlah	637	543

This study is quantitative, involving the application of a questionnaire instrument to measure ESD knowledge and sustainable consumption practices. Stratified sampling method was used for the study area, which was classified into five main zones, namely the northern zone, southern zone, east coastal zone, central zone and eastern Malaysia zone. Meanwhile, the simple random sampling technique was used to obtain samples of respondents, which consisted of 1180 Form 4 students of selected schools from all over the country (see Table 1). Several statistical tests were used to answer the research objectives, including the t-test, ANOVA and correlation analysis.

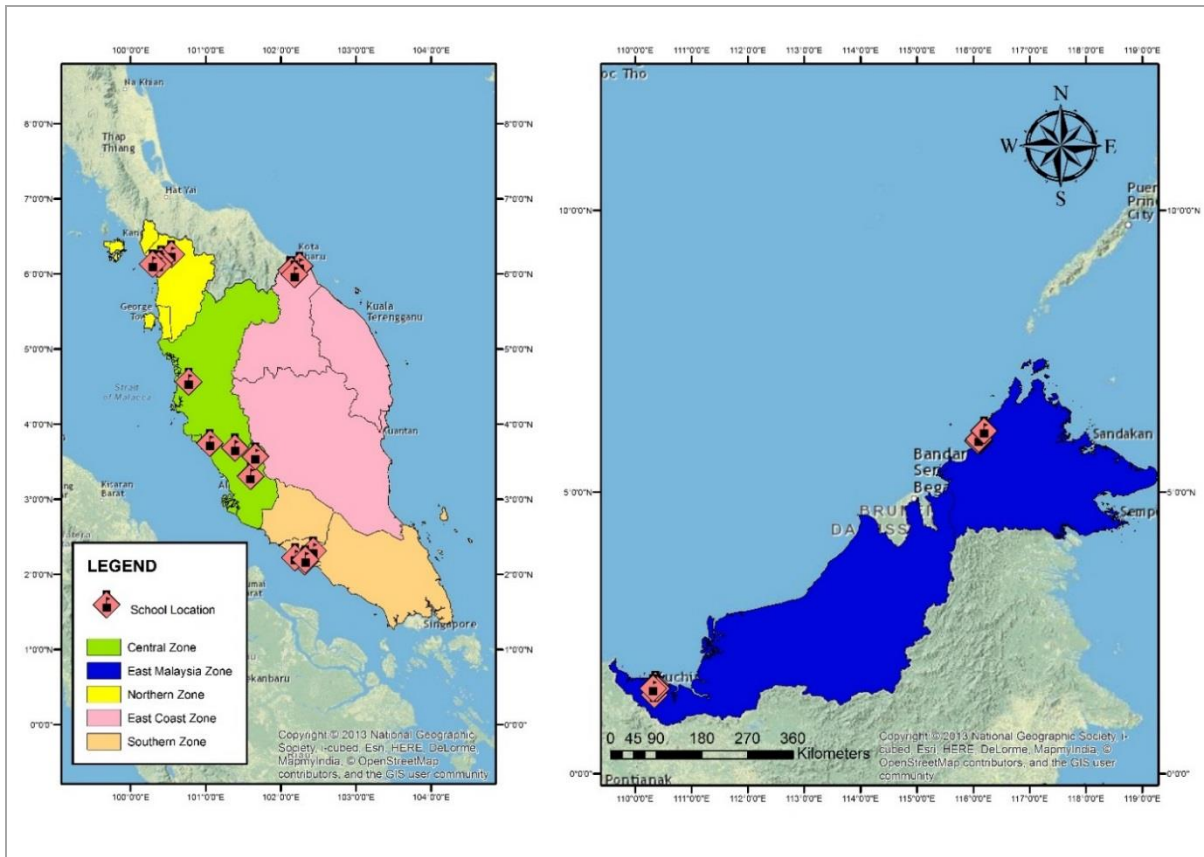


Figure 4: Location of the schools

Research Instrument

This study used a questionnaire instrument, which was divided into three main parts, namely Part A, B and C. Part A involved students' background, part B involved questions related to ESD knowledge. The items were modified from studies by Suriati (2009) and Hanifah (2014), and the reliability had been re-measured to ensure that the items that we used actually represent the study variables. Part C refers to the questions of sustainable consumption practices related to the consumption of resources and expenditure among students (Ministry of Green Technology & Water, 2011).

Table 2 also shows that the reliability value of Cronbach's alpha study variables exceeds 0.6, which is at an acceptable level (Kline, 2000; Juul, Van Rensburg, & Steyn, 2012). The research instrument had also been reviewed for its validity by experts, who were five academics from *Universiti Pendidikan Sultan Idris* and *Universiti Kebangsaan Malaysia*. For the face validity, five Form 4 students had also been involved to test the suitability and comprehensibility of the questionnaire content.

Table 2: The items' reliability

Section	Variables	No. of items	Alpha value (A pilot study)	Alpha value (The Real)
B	ESD Knowledge	12	0.809	0.626
C	Sustainable Consumption Practices	10	0.927	0.841

Results and Discussion

The respondents comprised of 1180 Form 4 students. A total of 637 respondents (54%) came from the urban areas, and a total of 543 respondents (46%) came from the rural areas. There were 449 male students (38.1%) and 731 female students (61.9%).

A relationship study was used to compare between two averages (means) for an independent variable to see whether or not there was a significant difference to the dependent variable and a t-test was conducted. The significance level used in this study was a probability level of 95 percent ($p < 0.05$). To determine significant differences for the ESD knowledge and sustainability practices variables, a null hypothesis was formed. The null hypothesis (H_0) formed was: there was no significant difference between male and female students with regard to ESD knowledge and sustainability consumption practices.

A t-test was used to examine the relationship between ESD knowledge variable by gender. The results (Table 3) show that there is no difference in regard to ESD knowledge between male and female students (mean= 3.71) where the value of $t = -1.853$ with $p > 0.05$. The value of $t (1178) = -1.853$. The value of $p 0.180$ was higher than 0.05 level of significance. The study found that the value of t was -1.853 with 1178 degrees of freedom equals to the value of $p 0.180$ where the value was greater than the significance level of $p < 0.05$. Thus, the null hypothesis of the two groups differs significantly and shall be accepted. In conclusion, there is no significant difference of the means for ESD knowledge between the male and female groups. This finding is supported by a study by Shivakumara. et al. (2015), who finds that there was no significant difference between male and female. This condition was caused by the natural awareness they had within themselves, which led to the formation of good behaviour among male and female students in addition to the social and cultural characteristics that influence the level of sensitivity towards the environment (Aaron, 2010). The sustainability consumption practice variable showed difference between male students (mean=3.51) and female students (mean=3.47), where the value of $t = 2.802$ with $p > 0.05$. The value of $t (1027) = 2.802$. The value of $p 0.002$ was lower than the significance level of 0.05. The results of our study found that the value of t was 2.802 with 1027 degrees of freedom which equals to the value of $p 0.002$ where the value of p was less than the significance level of $p < 0.05$. Thus, the means for the null hypothesis of the two groups are significantly similar and shall be accepted. In conclusion, there is a significant difference of the means for sustainable consumption practices between the male and female students. This study found that sustainability consumption practice among the female students is lower than the male students. However, there is a significant difference in sustainability consumption practices based on gender among the students. This situation is encouraged by their attitude and social life, which makes it easier for them to practice

sustainable consumption. These findings are in contrast to those of Xiao and Hong (2010), Heinzle, Kanzig, Nentwich, Offenberger, (2010), and Vinz (2009), which had argued that there was a significant difference in the attitude towards the environment based on gender. Research consistently shows that women have a more pro-environmental attitude than men. This study also found that women tend to make energy-saving practices that lead to sustainability consumption practices. A study by Lynnette, Poh, and Christina (2000) also shows that females are more sensitive to the environment and are like to engage in activities related to the environment as compared to males. Female students have more sense of responsibility and are more sensitive to the environment (Madhumala et al., 2010).

Table 3: Relevance of ESD knowledge and practice sustainable consumption by gender

Variables	Gender	N	Mean	SD	df	t	p
ESD knowledge	Male	449	3.71	0.387	1178	-1.853	0.180
	Female	731	3.53	0.376			
Sustainable Consumption Practices	Male	449	3.51	0.357	1027	2.802	0.002
	Female	731	3.47	0.346			

Next, we examined the difference between ESD knowledge and sustainability practices by location. The results (Table 4) show that there is a difference in ESD knowledge between the students in urban areas (mean=3.78) and the students in rural areas (mean=3.69), where the value of $t = 3.49$ with $p < 0.05$. The value of $t (1178) = 3.49$. The value of $p 0.112$ was higher than the significance level of $p > 0.05$. The study found that the value of t was 3.49 with 1178 degrees of freedom, which equals the value of $p 0.112$ in which p is greater than the significance level of $p > 0.05$. Thus, the means for the null hypothesis of the two groups are not significantly different and shall be accepted. In conclusion, there is no significant difference in means for ESD knowledge among the groups of students from urban areas and students from rural areas. This finding indicates that ESD knowledge among the students from rural areas is lower than the students from urban areas and is supported by Neeraj (2015), who finds that the level of awareness of the students in rural areas is lower than in urban areas.

The sustainable consumption practice variable showed that there was a difference between the students in urban areas (mean=3.78) and the students in rural areas (mean=3.69), in which a value of $t = 3.49$ with $p < 0.05$. The value of $t (1178) = 2.29$. The value of $p 0.01$ is lower than the significance level of $p < 0.05$. The study found that the value of t was 2.29 with 1178 degrees of freedom equals to the value of $p 0.01$ where the value of p is less than the significance level of $p < 0.05$. Thus, the means for the null hypothesis of the two groups are significantly different and shall be rejected. In conclusion, there is a significant difference in terms of sustainable consumption practices between the groups of students from urban and rural areas, which is in agreement with the study by Mahendraprabu and Arumugam (2014). This study also found that sustainable consumption practices among the rural areas students are lower than the urban areas students.

This finding is in agreement with the findings by Suriati (2009), which show that respondents living in urban areas are significantly more environmentally friendly than those living in rural areas. In addition, this study also proves that there are differences between the students in urban areas and rural areas. The students in rural areas have lower levels of ESD

knowledge and sustainable consumption practices compared to the students who reside in urban areas. This finding totally contradicts the findings by Auwalu (2015), which state that school’s location does not have an influence on the students’ environmental awareness. However, there are similarities with the findings by Arba’at et.al (2010), who finds that students who live in urban areas have a higher environmental awareness than their friends living in the suburbs.

Table 4: Relationship between ESD knowledge and sustainable consumption practices with location

Variables	Location	N	Mean	SD	df	t	p
ESD Knowledge	Urban	637	3.78	0.477	1178	3.49	0.112
	Rural	543	3.69	0.432			
Sustainable Consumption Practices	Urban	637	3.54	0.737	1178	2.29	0.01
	Rural	543	3.45	0.661			

Analysis of the Relationship between the Research Variables

Inferential statistical analysis was used in this study to examine the relationship of each of the study variables using the Pearson correlation coefficient analysis. Some assumptions of this study were observed, namely the normally distributed data, the relationship between variables X and Y was linear and the measurement scale was in interval form. Classification of correlation relationship was based on the guidelines of Hair, Money, Samouel, and Page (2007), which are shown in Table 5.

Table 5: Classification relationship/correlation

R Value	Correlatin Interpretation
0.91-1.00	Very Strong
0.71-0.90	Strong
0.41-0.70	Moderate
0.21-0.40	Weak
0.01-0.20	Very Weak

This study also examined the relationship between the variables of ESD knowledge and sustainable consumption practices among students in Malaysia (see Table 6). Correlation analysis found that there was a significantly weak relationship between ESD knowledge and sustainable consumption practices = 0.133** at the significance level of $p < 0.00$. The results of the correlation analysis are shown in Table 6. The study showed that there was a relationship between ESD knowledge and sustainable consumption practices. This finding can be supported by the findings obtained by Hanifah, Shaharuddin, and Muhammad Suhaily Yusri (2014), which state that knowledge alone does not help in creating awareness among students. High level of knowledge and attitude of students towards ESD are certainly not translated into behaviour and commitment (Hanifah, Suhaily& Shaharuddin, 2013). In addition, Jamilah et al., (2011) also pointed out that a high level of knowledge among students does not ensure that it will lead to

good practice. Consequently, the KAP model is unsuitable to be applied in this study because the model assumes that knowledge will change behaviour. This study clearly demonstrates that high environmental knowledge does not necessarily convert actions into a more positive direction with regard to the environment.

Conclusion

In conclusion, in the context of the study on ESD knowledge and sustainable practices based on gender and location, we have given an indication of the actions that need to be taken. Students, regardless of gender and location, should be provided with information and should be able to implement conservation practices on an ongoing basis. Even when discussing the location of the schools, it turns out that the students' ESD knowledge is similar but when it comes to practicing the behaviour the students in the urban areas practise it better than the students in the rural areas. The differences may also be due to various factors that need to be investigated (including the school administrators, teachers, community or government agencies) in exposing the students to ESD knowledge as well as sustainable consumption practices.

The students are less exposed to sustainability in the context of their impact in implementing environmental awareness, especially in promoting sustainable consumption. Therefore, the school is the institution that is best able to apply the basic principles of sustainable development. Students are also seen as an important asset to maintain sustainability in the future. Application of the environmental values should be inculcated from the early phase to shape positive behaviours towards the environment. Various efforts in shaping students' behaviour should be done to increase sustainability practices, such as resource conservation, recycling, water and energy conservation, and the use of environmentally friendly products. These efforts could include promoting design competitions, awareness campaigns, outdoor activities (such as outdoor educational camping programmes) and environmental-related activities (such as a visit to the area hit by a natural disaster). This can increase the awareness and commitment of the students, and ultimately the environment can be maintained properly.

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