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The status on the level of environmental awareness in the concept of sustainable development amongst secondary school students

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Abstract

This paper aims to identify the status on the level of environmental awareness in the concept of sustainable development among secondary school students. The survey was conducted on 340 respondents (n=340) of Form Four and Form Five students from urban and suburban area in the district of Hulu Langat, Selangor (Bandar Baru Bangi and Mukim Hulu Langat). Dependents variables were the level of environmental awareness in the concept of sustainable development and practices, attitudes and moral values for sustainability. Independent variables on the demographic factors were gender, types of subject streaming, and school locations. The research instrument used was the questionnaire, using Likert scale. Methods of analyzing data were descriptive, t-test, Pearson correlation using SPSS software ver. 11.5. Research outcomes showed that secondary school students had “high level” of environmental awareness in the concept of sustainable development. The t-test analysis showed significant differences on the significant level of 95% (p<0.05). It indicated that the level of environmental awareness for the (i) female students were “higher” than the male students, (ii) science stream students were “higher” than the arts stream students, and the (iii) urban school students were “higher” than suburban school students. The Pearson correlation showed that there was positive but weak relationship between the level of environmental awareness in the concept of sustainable development and the practices, attitudes and moral values of sustainability. The research also revealed the three classifications of concepts for environmental awareness were emotional, attitude, and practices of sustainability awareness.

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1. Introduction

In 1960s, the knowledge about environment was taught only to students in Biology classes applying the concepts of ecology. In 1970s, it was taught as a subject by itself when technology had effected the environment. The Langkawi Declaration on Environment (1989) recommended the need to protect environment be viewed in a balanced perspective and emphasis accorded to promoting economic growth and sustainable development. This included the eradicating of poverty, meeting basic needs, and enhancing the quality of people's life. Malaysia government realised that the effort to educate public needed to increase awareness on the importance of preserving and conserving the environment. This agenda attracted educators' and researchers' attention to implement

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Environmental Education Program across curriculum in schools (Ministry of Education 1998). Currently, this concept of sustainable development becomes an important principle in managing Malaysian development progress. It was included in the Ninth Principle Teaching where Conservation of Natural Environment is a must. It is hoped that this approach will promote harmony in peoples' life as related to the surrounding environment.

2. Statement of the Problems

The 1993 resolution during Malaysia Science Seminar Towards Educational Reformation decided that the curriculum taught to students must include contents and strategies. The three contents agreed related to environmental education were (i) **courses** (increase awareness), (ii) **laws and policy** (increase awareness towards conservation and industrialization), and (iii) **noble values** (increase appreciation on environment) (Mohd Yusof & Khalijah 1993). It is seen that the environmental awareness concept on sustainable development can only be achieved through education (formal and informal). Programs should fulfil **four** objectives as proposed by UNESCO (1999): (i) **Knowledge**, (ii) **Awareness**, (iii) **Skills**, and (iv) **Participation** (Arba'at 2006; 2009). Focus should be given to students and courses be well planned (with activities, fieldworks, researches, and projects).

Sustainable development education is a recent innovation in educational reform which starts from environmental and sustainable education (Subahan et al. 2005; Ruhizan & Norzaini 2005). This emphasizes that all level educators be responsible to ensure transformation towards sustainable development to become reality. Sustainable development is the development that provides people with better life without sacrificing, depleting resources, or causing environmental impacts which will undercut the needs of future generations (Wright 2005).

This paper presents a study on the level of environmental awareness on the concept of sustainable development among secondary school students in Hulu Langat District, Selangor, Malaysia. The results show correlation on the level practices, attitudes, and noble values of sustainability and the environmental awareness level in the concept of sustainable development.

3. Methodology

The methodologies used for this research were (i) literature review (on the concept of sustainable development); (ii) collection of data (using questionnaire survey); (iii) quantitative data analysis (descriptive measure for environmental awareness level and concept for sustainable development), and (iv) Pearson correlation analysis (to see the strength of correlation on the level of practices, attitudes and noble values of sustainability and environmental awareness). The research instrument is the questionnaire using Likert scale with five (5) alternatives rating. The Cronbach alpha coefficient was 0.81.

4. Data and Findings

4.1 Environmental awareness level, sustainability practice, and attitudes for concept of sustainable development

Descriptive analysis of mean showed that the level of environmental awareness in the concept of sustainable development amongst secondary school students) was “high” (mean=3.80; sd=0.46). The practices, attitudes, and noble values of sustainability were at “medium” (mean=3.54; sd=0.53) (Fig 1). The Pearson Correlation Analysis, i.e.: the level of practices, attitudes and noble values of sustainability and the level of environmental awareness in the concept of sustainable development amongst the secondary school students showed “weak” but positive correlation between two variables [$r=0.31$; $p=0.000$] (Table 1).

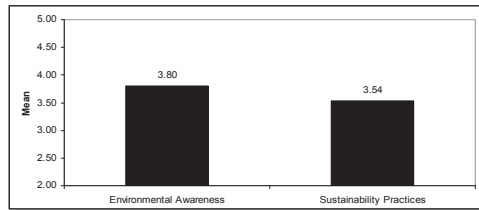


Fig 1: Means of the level of environmental awareness and the sustainability practices and attitudes

Table 1: Pearson Correlation

Variables	Practices, attitudes and noble values of sustainability
Level of environmental awareness in the concept of sustainable development	Correlation coefficient, r
	Sig. p (2-tail)
	n

4.2 Environmental Awareness Level in the Concept of Sustainable Development Based on Subject Streaming

In this study, 57.6% (196) of the respondents were students of science stream classes, while 42.4% (144) were students of art stream. The t-test showed that there was a significant difference between the science stream students (mean=3.86; sd=0.49) as compared to art stream students (mean=3.71, sd=0.40) (Table 2). Science stream students have higher level of environmental awareness in the concept of sustainable development.

Table 2: t-test on the level of environmental awareness in the concept of sustainable development based on subject streaming

Respondent	n	Mean	Std Dev	Df	t	Sig. p
Science stream	196	3.86	0.49	338	2.92	0.004
Art stream	144	3.71	0.40			

Table 3: t-test on the level of environmental awareness in the concept of sustainable development based on school locations

Respondent	n	Mean	Std Dev	Df	t	Sig. p
Urban area	189	3.88	0.44	338	3.92	0.000
Suburban area	151	3.69	0.46			

4.3 The Level of Environmental Awareness Based on School Location

In this study, 55.6% (189) of the respondents were students from urban, while 44.4% (151) were students from suburban. The t-test showed that there was a significant difference between the urban (mean=3.88, sd=0.44) as compared to suburban school students (mean=3.69, sd=0.46) (Table 3). Urban school students have “higher” level of environmental awareness in the concept of sustainable development.

4.4 Categories of the Sustainability Awareness

There were 15 items to survey students’ perception on the sustainability practices, attitudes, and values in their everyday lives. Table 4 shows the means, standard deviations (sd) and total percentages (VA+A) of student responses for each items.

Table 4: Mean score, standard deviation and total percentage “very agree (VA)” and “agree (A)”

Item	Statement	Mean	sd	Total (%) VA+A
1	I read about environmental issues in the mass media	3.72	0.94	67.0
2	I concern about environmental problems at my place	3.82	0.86	70.3
3	I always discuss about environmental problems with my friends	2.98	1.03	28.5
4	I feel dissapointed with air pollution	4.36	0.81	86.7
5	I feel dissapointed with river pollution	4.42	0.78	88.9
6	I appreciate biodiversity	3.93	0.89	69.1
7	I concern about smoke that is omitted by vehichels	3.88	0.97	68.2
8	I try to reduce amount of waste at home by collecting materials that can be recycled	3.37	1.08	46.2
9	I composting the food residue to become fertilizer	2.68	1.06	19.1
10	I do not use plastic bag to wrap things	2.51	1.12	18.3
11	I conserve the use of electric energy at home	3.76	1.03	65.9
12	I conserve the use of water supply	3.66	1.07	62.7
13	I deliver informations on environment to my family members	2.98	1.04	27.6
14	I involve in the environmental awareness activities in school	3.06	1.07	33.2
15	I aware my responsibility towards environment	4.04	0.99	75.8
Overall (Level of sustainability practices, attitudes and noble values)		3.54	0.53	

* Level indicators: Means: 1.00–2.33 low; 2.34–3.66 medium; 3.67–5.00 high

Student responses towards the items, sustainability practices and attitudes, and how many students responses reveal the total percentages of “very agree” and “agree.” When the data were analyzed, there were three categories found on sustainability practices. Table 4 presents the detailed illustration of the mean score, standard deviation and total percentage for each statement items. These data were ranked ascendingly, therefore, it could set up three groups based on students preferences of responses. In addition to that, the three categories of sustainability awareness is shown in Table 5.

Table 5 Categories of Sustainability Awareness

Sustainability Awareness Category	Item	Percentage response (%)
A. Sustainability practice awareness	3, 9, 10, 13, 14	0.0–39.9 (Practices that seldom or dislike to be done)
B. Behavioral and attitude awareness	1, 6, 7, 8, 11, 12	40.0–69.9 (Practices that are done/ happened moderate/medium)
C. Emotional awareness	2, 4, 5, 15	70.0–100 (Practices/feelings that are most likely one/happened)

5. Discussion

This study showed that the level of environmental awareness in the concept of sustainable development amongst secondary school students was “high.” Respondents believed and understood that there must be a balance between environment and development for an area being developed. About 75.8% respondents said they were “aware” of the responsibility to environment. However, they could not relate some aspects, such as social, economy and energy sources with the environmental protection issues. This showed that students “did not understand” clearly about sustainable development and their components interaction. The level of practices, attitudes and noble values of sustainability was “medium.” The aims of learning science in schools were to promote scientific attitude and noble value (Sharifah Zarina & Lilia 2005). There were four components of environmental education be considered: knowledge, awareness, skills, and values. Skills and values were the hardest parts in teaching the students. The components of appreciation and value would take time to be assimilated, thus they were difficult to be achieved. The relationship of the environmental awareness level in the concept of sustainable development and the sustainability practices seemed to be “very weak.”

Analysis of items based on the percentage responses identified three categories of sustainability awareness. These three levels of practices related to environment that students carry out in their daily lives are (i) always done, (ii) seldom done, and (iii) occasionally done. Students were very aware about their responsibility to environment problems around them. They felt “very dissatisfied” about air and river pollutions (items 4 and 5). This is all about emotional awareness category. For behavioral and attitude awareness categories, students are required to implement actions (reading, appreciating, recycling, and conserving energy and water). About 40–69.9% respondents said, they acted only once. The category that was “seldom done” by students was namely the sustainability practice awareness. Less than 40% respondents admitted that they carried out practices (discussing and delivering informations on environmental problems, composting food residues, avoid using plastic bags for wrapping, and involved in environmental awareness activities). As conclusion, even though they had “high” level of environmental awareness, they felt so difficult to act and practice some attitudes in making their surrounding better. Students were least practised in discussing and delivering information on environment to their family members (27.6%) and friends (28.5%). Instead, involvement in environmental awareness activities showed the “least” percentage (33.2%). At home, practise in composting left-over foods (19.1%) and using non-biodegradable plastic bags (18.3%) were the most difficult to be practiced in their everyday chores.

There seemed to be significant difference of the level of environmental awareness on the concept of sustainable development between two groups: (i) science stream (SS) versus art stream (AS) students; and (ii) urban school (US) versus suburban school (SS) students. The SS students showed “higher” level of awareness compared to AS students. The SS students learned more concepts on environment and ecology in Biology lesson. They even showed more interest in joining the club and conducting environmental activities in school. These students love their environment! In contrast, AS students learned basic science and they only needed to understand the contents of the syllabus without details.

The second group of comparison was between the urban (US) versus suburban (SS) school students. The US students had “higher” level of awareness compared to SS students. Urban area consisted of educated and wealthy residents. These students might get environmental and awareness lesson from home and neighbourhood. They carried out some practices at home because they had limited space to dump their waste materials. They managed the waste wisely before the sanitation service came in schedule. The SS students stayed in the area without proper

sanitation service. They usually have wide area behind their house to dispose wastes. The parents might also have low level of education, thus have less awareness on environment, and their involvements related to environment.

6. Conclusion

Generally, there is a relationship between the level of practice, attitude and sustainable noble value, and the level of environmental awareness in the concept of sustainable development amongst secondary school students. The development of noble value in students takes a long time and complex process, thus, the relationship is weak. In the effort to heighten the noble value level and attitude practices among students and society, students have to act as an agent in the family to deliver informations about sustainable development. This is because students are the closest group to reading materials (books, magazines, and also internet access). They should conduct discussion and reading activities, then implement them in their everyday practices. School management and teachers should take an initiative to provide more reading materials and internet access to their students with information related to environment and sustainable development.

Through Programme of Environmental Education and Education for Sustainable Development, there will be one more characteristics to be added to the human capital development, i.e. responsibility and appreciation to environment. The sustainable society will appear if all people possess this sustainable development in mind. The sustainable mind is the quality of humans that appreciate environment and other lives around them.

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