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Environmental Education through Outdoor Education for Primary School Children

Pendidikan Alam Sekitar melalui Pendidikan Aktiviti Luar untuk Kanak-kanak Sekolah Rendah

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ABSTRACT

Global environmental education has long been introduced as early as the 18th century, but in Malaysia, it still can be considered as a new start, in the year 1979. Since then, various plans and programs have been implemented to produce environmentally literate society, involving school, local and international community. However, awareness and attitudes towards the environmental sustainability amongst Malaysians are still far behind compared to some other developed countries such as Japan, South Korea and Australia, though we are getting closer to the goal of Vision 2020 to become a developed country. Environmental education taught in primary schools in Malaysia is a cross-curricular subject, but its effectiveness on the level of knowledge, awareness and attitude of the environment amongst students are still low. Therefore, this research will identify: (i) the relationship between environmental education with outdoor education, and (ii) the importance and impact of this relationship to increase students' knowledge, awareness and attitude of the environment. The objective of this study is to generate an understanding of the implementation of outdoor education as an effective method and why it is said to be one of the best ways to educate children about the environment. Based on case studies in Malaysia, the level of knowledge and awareness of school children on the environment are presented. Results of these studies are useful for the development of effective implementation of environmental education programs. The last part outlines the importance of outdoor education to teach environmental education to pupils in primary schools.

Keywords: Environmental education; knowledge and awareness of the environment; school children; outdoor education

ABSTRAK

Pendidikan alam sekitar global telah lama diperkenalkan pada awal abad ke-18, tetapi di Malaysia ia masih boleh dianggap sebagai satu permulaan yang baru, iaitu pada tahun 1979. Sejak itu, pelbagai rancangan dan program telah dilaksanakan untuk menghasilkan masyarakat yang celik alam, sama ada di peringkat sekolah, masyarakat dan penglibatan antarabangsa. Walau bagaimanapun, kesedaran dan sikap terhadap alam sekitar dalam kalangan rakyat Malaysia masih jauh ketinggalan berbanding dengan negara-negara maju yang lain seperti Jepun, Korea Selatan dan Australia sedangkan kita semakin hampir dengan matlamat Wawasan 2020 untuk menjadi sebuah negara maju. Pendidikan alam sekitar diajar di sekolah rendah di Malaysia secara merentas kurikulum, tetapi adalah agak mengecewakan apabila tahap pengetahuan, kesedaran dan sikap terhadap alam sekitar dalam kalangan pelajar masih rendah. Oleh itu, kajian ini akan mengenal pasti: (i) hubungan antara pendidikan alam sekitar dengan pendidikan luar, dan (ii) kepentingan dan kesan hubungan ini kepada peningkatan pengetahuan, kesedaran dan sikap terhadap alam sekitar. Kajian ini adalah untuk menjana pemahaman tentang pelaksanaan pendidikan luar sebagai kaedah yang berkesan dan mengapa ia dikatakan sebagai salah satu cara terbaik untuk mendidik anak-anak tentang alam sekitar. Berdasarkan kajian kes di Malaysia, tahap pengetahuan dan kesedaran murid sekolah terhadap alam sekitar akan dibentangkan. Keputusan kajian ini adalah berguna untuk pembangunan keberkesanan pelaksanaan program pendidikan alam sekitar. Bahagian terakhir makalah ini menggariskan kepentingan pendidikan luar untuk mengajar pendidikan alam sekitar kepada murid-murid di sekolah rendah.

Kata kunci: Pendidikan alam sekitar; pengetahuan dan kesedaran alam sekitar; kanak-kanak sekolah; pendidikan

INTRODUCTION

Over the past few decades, the world economic and technology development have grown rapidly. However, it contributes serious impact on the environment and its inhabitants (EPA 2013; Fischetti 2005; Speth 2004), such as climate change, pollution, extinction of flora and fauna species, rising of sea levels, health decline and resource reduction (Wilbanks et al. 2007; Frederick & David 1997; Tilman et al. 2011). The effects are noticeable recently and it motivates the world

community to find a solution for this problems. Amongst them is educate people about environment through environmental education (Palmer 1998; Nath 2003).Various modules and methods to implement environmental education are planned and designed to be applied to all groups, from small children up to adults to improve their level of knowledge, awareness and to maintain positive attitude towards the environment (Mrema 2008; De Le Vega 2006; Fletcher 2000). Methods used were varied and implemented either in formal and non-formal education in the school system through various outdoor activities and dissemination of environmental information through the mass media (Agnes & Abd Rahim 2010; Olusanya 2005) such as television, radio and internet access.

Although the level of awareness and knowledge of environmental issues and problems in the world community can be considered as satisfactory, but the attitudes and practices on the environment has yet to be proud of. It is still at a low level and need serious attention from all parties. This is evidenced by several studies that have been done by previous researchers as Azizan (2008); Bradley, Waliczek & Zajicek (1999); Rosta et al. (2011); Tuğçe (2009) and Wahida et al. (2004).

Therefore, an effective method to teach environmental education should be implemented to ensure the issues and problems of environment can be handled wisely, and to increase knowledge, awareness and positive attitudes towards the environment. Outdoor education is said to be the best way to teach people especially small children about the environment because it is a self-learning education and learning through experience (Burriss & Burriss 2011; Priest 1986). This is consistent with the nature of children which have quite high curiosity on something around them and they learn effectively through their own experiences and by playing games.

Therefore, this research attempts to highlight two interrelated questions: (i) What is the relationship between environmental education and outdoor education? and (ii) What is the importance and impact of this relationship on increasing the level of knowledge, awareness and attitudes of primary school pupils on the environment? The objective of this paper is to increase the effort to develop an understanding of outdoor education as an effective method for teaching environmental education in primary schools and its impact on the level of environmental awareness, knowledge and attitudes amongst the pupils.

This study begins with an overview of environmental education in primary schools in terms of the history and methods of implementation in Malaysia and its relationship with the level of awareness and knowledge of students about environmental issues and problems based on case studies carried out in schools in Malaysia (Figure 1). This is followed by a discussion of the relationship between environmental education and outdoor education, and the importance and impact of this relationship on the level of environmental knowledge, awareness and attitudes of the children. Finally, the conclusion is on the importance and the need to use outdoor education as an effective method to teach the children about environment.

FIGURE 1. Malaysia map

Source: mapsopenresource.com

ENVIRONMENTAL EDUCATION IN MALAYSIA

In Malaysia, the history of environmental education started with the set up of Cabinet Committee in 1974 to review the National Education Policy in Malaysia. It aimed to improve national education implementation and to produce a unified and disciplined society to work together for national development. Results of Committee Report were published in 1979 to determine the implementation of environmental education in the structure of New Curriculum for Primary Schools (KBSR) and the Integrated Curriculum for Secondary Schools (KBSM) that began in 1982. KBSR then converted to the Integrated Curriculum for Primary School (also known as KBSR) in 1993. Recently in 2010, the Standard Curriculum for Primary Schools (KSSR) was applied on year 1 pupils to replace KBSR.

In 1982 to 1994, 'Man and Nature' subject has been implemented in primary schools as a subject that emphasis on environment, but in the same time included elements of History, Science, Geography, Health and Civic. The subject was then replaced

by two separated subjects i.e. Science (for year 1-6 students) and Local Studies (for year 4-6 students only).

Curriculum Development Centre, Ministry of Education has established a set of guidelines for teachers by producing a book entitled "KBSR Teacher's Handbook: Environmental Education across the Curriculum" in 1998. Environmental education is integrated in all subjects taught in schools, such as Science, Mathematics, Music, English and Islamic Education. It is embedded with the environmental knowledge, proficiency, skills and nurturing positive values and attitudes. Environmental education teaching strategies proposed in this country are through teaching and learning in the classroom and outside the classroom (Figure 2).

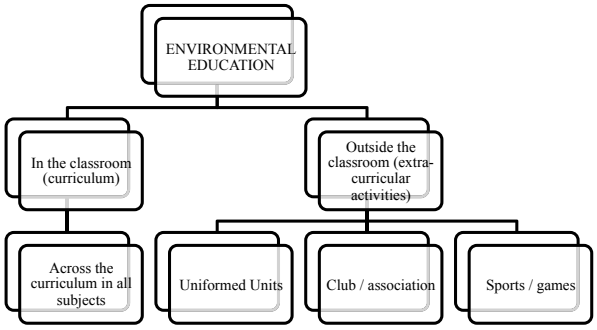

FIGURE 2. Teaching strategies for environmental education in Malaysia

Source: Ministry of Education, Malaysia

In the classroom, the educational elements; 'in', 'through' and 'for' the environment are applied in the teaching and learning methods in all subjects at school. In addition to the formal education taught in the classroom, environmental education was applied in extra-curricular activities, which are; (1) the activities of associations / clubs, (2) sports / games activities and (3) uniformed units activities. The teachers in charge will embed the values of the environment and other environmental aspects in the activities undertaken.

STUDENTS' LEVEL OF KNOWLEDGE AND AWARENESS ABOUT THE ENVIRONMENT: A CASE STUDY IN MALAYSIA

Several studies have been conducted by the previous researchers to determine the level of environmental knowledge and awareness amongst school children, including in primary and secondary schools in Malaysia (Cheong 1980; Fadzilah 1999; Nurul Hidayah et al. 2012; Quek 1992).

Cheong (1980) conducted a preliminary study about knowledge, perceptions and attitudes towards the environment on form 4 students (16 years old). The findings of this study indicated that the environmental level of knowledge of these students were low, especially about pollution, radiation, energy and population growth.

The results of study by Fadzilah Muhammad Ali (1999) showed that environmental awareness relates closely to academic achievement, students' gender, socio-economic status (education level and income level of parents) and school location. Students with high academic performance indicated a high level of awareness on the environment. In terms of gender, the female students were more concerned about the environment than male students. Family socio-economic status were found to play an important role in fostering students' environmental awareness with educated and higher income parents are more sensitive to the environment because they can obtain information from various sources easily and not just rely on the teachers alone. Students in urban schools are also found to be more concerned about environmental issues.

Nurul Hidayah Liew Abdullah, Haryati Shafii & Wee, S.T. (2012) found that students' environmental knowledge level (for specific topics related to the environment in the science syllabus of year 6) was high. However, the knowledge delivered by year 6 science teachers alone was not sufficient for students to act positively on the environment. Although the presentation and dissemination of knowledge about environmental issues are done in cross-curricular subjects, but it is still not enough to achieve the environmental education goals.

Quek (1992) conducted a study related to the knowledge about the environment. He found that the environmental level of the boys is low compared to the female students' knowledge level on the same issues. The data were collected before and after learning process which focuses on the impact, commitment and knowledge of the environment that have been delivered through lecture, video, slides presentation and films. He also found that adolescents' knowledge level of environmental quality was low before the process, however many students showed different results after the process.

Based on the above-mentioned studies, it is noticeable that the awareness and knowledge of school children on environmental issues and

problems are at the high level, but they still unable to translate it into action that can lead to the environmental wellness. Therefore, a new alternative should be implemented to teach environmental education to school children. The process of learning should begin in the early stage of children because in this stage, they began to form lifelong attitudes, values and patterns of behavior towards the natural environment (Bullock 1994). Forms of education also must be able to attract the interest of the children to learn about it, and the best way is through an outdoor education (Cornell 1998; Neilson 2009).

RELATIONSHIP BETWEEN ENVIRONMENTAL EDUCATION AND OUTDOOR EDUCATION

Data analysis performed in the study by Danny Parkin (1998) conducted in November 1994 of a sample proportion of outdoor educators from three outdoor associations in Queensland, Australia (the Outdoor Educators' Association of Queensland (OEAQ), the Rock Climbing Instructors Association of Queensland (RIAQ), and the Queensland Camping Association (QCA)) confirmed that the relationship between outdoor education and environmental education should exist. Eighty-three percent of respondents agreed or strongly agreed that outdoor education and environmental education should be inter-related (Figure 3).

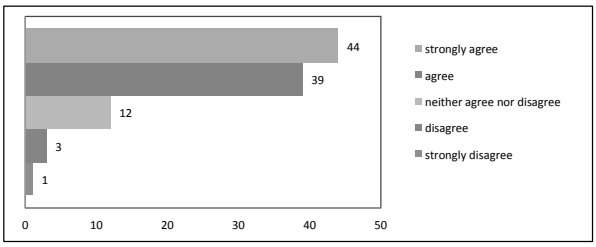

FIGURE 3. Response to statement that outdoor education and environmental education should be inter-related.

Source: Parkin, D. 1998

Many respondents also provided additional comments on the relationship between outdoor education and environmental education. For example, one respondent commented that outdoor education and environmental education should be inextricably linked because, while it was important for participants to experience natural areas, it was equally important to preserve the natural areas in which these experiences so often occur.

Many practitioners may argue that outdoor education and environmental education are separate disciplines or disciplines of a sequential nature. However, they are neither. They are methods for achieving goals (Oliver 1990). This is because outdoor education and environmental education are two methods of a process that aim to facilitate change in the individual through learning (Figure 4).

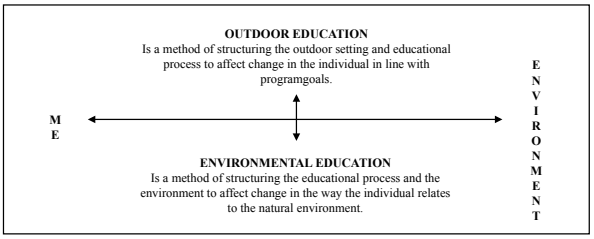

FIGURE 4. The relationship between outdoor education and environmental education methodologies

Source: Oliver 1990

Activities such as camping, study tours, trekking and mountain climbing are exciting and satisfying to the participants because these activities require direct involvement and provide a meaningful experience for everyone. These activities are known as outdoor education, which can be defined as education in, for and about the outside world, experiential learning method that occurs especially through exposure to the real world by using all the senses, and the emphasis is on the relationship between humans and nature (Donaldson & Donaldson 1958; Lund 2002; Priest 1986; Priest 1990).

Outdoor education has many benefits, including to help developing the intellectual, physical, spiritual, moral and social aspects of individual (Bell & Dyment 2006; Wells 2000); to support creativity and problem solving (Bell & Dyment 2006; Kellert 2005); to reduce the symptoms of Attention Deficit Disorder (ADD) (Kuo &Taylor 2004); to improve the nutritional quality (Koch, Waliczek & Zajicek 2006); to increase visibility (American Academy of Ophthalmology, 2011); to enhance self-discipline (Taylor, Kuo & Sullivan 2001) and to reduce stress (Wells & Evans 2003). Other than those aspects, outdoor education also give benefits in terms of environmental education, which is to shape behaviour and positive attitude of appreciation for the environment (Rickinson et al. 2004).

Children learn through playing by using all their senses to see, touch, feel, hear and smell the objects around them to get clearer information about that, especially regarding new things in their lives. According to Kriesberg (1999), 'They need to be outside. They need to explore, get dirty, find stuff they need to have fun'. Hands-on, informal, self-initiated exploration and discovery in local, familiar environments are often described as the best ways to engage and inspire children and cultivate a sense of place and a 'sense of wonder' (Carson 1998; Sobel 2008). Research showed that empathy with, and love of, nature grows out of children's regular contact with the natural world (Arnold, Cohen & Warner 2009; White & Stoecklin 2008). Therefore, outdoor education that has all these features need to be implemented to teach children about the environment.

Benenati (1992) and Bisson & Luckner (1996) insisted that meaningful and fun teaching-learning process that can be applied in everyday life will create a conducive and sustainable results. Outdoor education course has the characteristics of this set. Beside conducted in the environment, outdoor education learning process promotes fun and active interaction amongst teachers and students, to teach and learn with environment. In addition, the long-term self-learning in outdoor education activities (e.g. camping) allows students to develop an intimate interaction with the environment (Chenery 1994). This could inform students about the relationship between humans and the environment and thus can shape attitudes and positive behavior on the environment.

OUTDOOR EDUCATION AS AN EFFECTIVE METHOD TO TEACH ENVIRONMENTAL EDUCATION IN PRIMARY SCHOOLS

Lloyd Burgess Sharp had stated that "all of the learning included in the curriculum in any subject matter area and at any grade level which can be best learned outside the classroom" (Rillo 1985). Studies showed that learning about environment directly from the nature give more impact on learning that subject matter, provide understanding and deeper meaning of appropriate interconnections that exist in nature and can influence attitudes, interests and motivation (Nadelson & Jordan 2012; Smith 1972).

In a study involving 45 elementary, middle, and high schools in the Toronto school district, surveys regarding the impact of green school initiatives were conducted on 150 parents, teachers, and principles. 90% of the participants reported increased student enthusiasm and engagement in learning on green school grounds when compared to indoor teaching (Dyment 2005).

Outdoor experiences, specifically educational experiences, have been shown to increase students' appreciation for nature, connection with nature and willingness to participate in environmental activism. A study examining on how college students' environmentally responsible behaviors related to visiting natural areas on campus showed that out of 115 students, 76.5% had visited a natural area and about half of those were visiting for a class. Out of the students who visited a natural area, environmental responsibility was related to the frequency of their visits and was stronger for the students who visited for a class (Lawrence 2012).

A study on effects of Outdoor Education Programs for Children in California had been conducted by American Institute for Research (2005) on 225 sixth-grade students from four elementary schools who attended three outdoor education programs between September and November of 2004. Among the objectives of this study was to see how participation in outdoor education programs fosters students' stewardship of the environment and their appreciation of the importance of the wise use of natural resources. Study's finding showed that children who attend outdoor school showed significant increases in one of the three constructs: concern about environment. However, these increases were not significantly larger than gains by the control group. At the six- to ten-week point, the control group showed significant losses in two of the three constructs (attitude toward science and environmental behaviors) whereas the treatment group did not show any significant losses. According to parent reports, students who participated in the program had significantly larger gains in environmental behaviors, compared to children who did not attend the program.

The studies above are some examples of the effectiveness of outdoor education to teach environmental education to school children. This education should be implemented in all schools to ensure continuous awareness, attitudes and positive behaviors on the environment.

CONCLUSION

Environmental education has a long history. It was introduced to find solutions on the issues and problems of the deteriorating environment decade after decade. It also aimed to educate men to live in harmony with nature and how to maintain its balance. This education should be started in the early year of childhood so that they can appreciate the natural environment and maintain a positive attitude towards the environment when they grow up.

Various ways have been introduced to implement environmental education either formally in the classroom, or informally that occur outside the classroom. Many studies are also been conducted to test the effectiveness of the methods used, and one of the effective methods to deliver an efficient environmental education is through outdoor education. Outdoor education has a close relationship with nature because it makes real world as a space for learning. Method of experiential learning is implemented in the process of learning, in which students use their senses to understand the whole context of learning. They feel, touch, smell, hear and see things around them. Therefore, their understanding of the subject matter is clearer and memory about it become longer.

Outdoor education is in accordance with the nature of children that learn through play and use their senses to understand something. Therefore, outdoor education is a very effective medium to teach children about their environment, i.e. meet their high curiosity on something new and application of behavior through example that occurred in front of their eyes.

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