ENVIRONMENTAL EDUCATION IN BASIC EDUCATION SCHOOL: A CASE STUDY OF SCHOOLS IN THAILAND

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ABSTRACT

Environmental Education is a learning process which encourages students'knowledge, passion and realization the importance of environment, and participation in action regarding to live without impacting the environment. In order to help an individual and societies are able to exist and develop in a sustainable manner. However, there are many factors affect such the purposeful educational practices, especially, the management and practices of school. This article illustrates how to adjust the policy on environmental education in a basic education school and how it will succeed according to the perception of the school staffs and students. The study was conducted by means of a case study research. Two participants were purposively selected as a representative type of basic education schools, including an opportunity expansion school and a secondary school where areas are in the same metropolis and suburb.

Keywords: environmental education, transformative instructional approach, eco-schools, basic education

INTRODUCTION

Environment has become one of the dominant issues and challenge of the 21st century; since the increasing needs of the growing global population has affected the limitation of the earth's resource and ecosystem. Many countries are becoming more concerned with the idea of being a country with high standards of ecology and with leading green lives. Even people in all countries should have access to the basic requirements of life, including a balanced diet, clean water, decent shelter, and clothing. Within the next few years, it will become difficult to meet these basic needs, especially, in an underdeveloped country to a developing one. Such as Thailand where has been faced with the use of chemicals in many areas makes it spread in the air and water. Also, there has been an increasing the amount of waste from household consumption, air pollution from automobiles and the burning of agricultural plots. To deal with the crisis in the nearest future, there needs to be education to protect and conserve the environment.

Hence, UNESCO announces that the school has a decisive role to play in promoting those ideals and educating students how to do it [1], [2]. The teacher will have a crucial role to play in the students developing to achieve the ultimate goal of all environment and development policies.Environmental Education occurs throughout the world, particularly, in the part which guided by the international environmental education goals and standards adopted by United Nations Educational, Scientific and Cultural Organization (UNESCO) and United Nations Environment Program (UNEP) who encouraged the concern conferences that have given the Belgrade Charter (in 1975) and the Tbilisi Declaration (in 1977). The announcements have provided guidelines on the environmental issues of the global consequences. According to the Tbilisi Declaration [2], [3]: Environmental education is defined as a learning process to increase people's knowledge and awareness about the environment and associated challenges, to develop the necessary skills and expertise for

addressing the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible actions on environment. As stated in the Belgrade Charter [4], environmental education should be aimed to develop global citizens who are aware of and concerned about the environment and its associated problems, and have the knowledge, skills, attitudes, motivations and commitment to work individually and collaboratively toward solutions of current problems and to prevent the new ones. Moreover, the Brundtland Report [5] named "Our Common Future" and Agenda21 [6] mentioned to the contents of environment education which should have been integrated to all core subjects and taught in all grade level as the usual curriculum and as the extra program. Besides, it stated to preparing teachers' required ability to achieve the purpose of environment education, including a sustainable development that depended on the suitable education about environment, economic, and society.

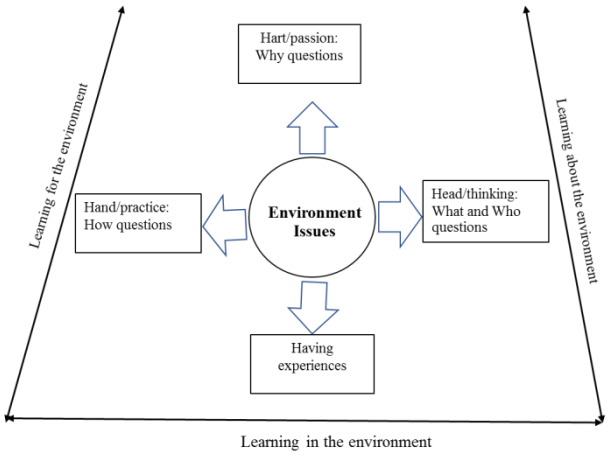
According to the environmental education guideline on purposeful practices, they should be managed in a climate of activation trinity or triangle which focused on how to effectively combine "head" (thinking), "hands" (practice) and "heart" (passion and realization) [7], [8], [9]. Therefore, the learning activity should be integrated among learning about the environment, learning in environment, and learning for environment. Learning about the environment is emphasized on improving cognition in contents related nature and environment and consequences of human action. Learning for environment is by means of learning activities focused on the actual practice for being skilled of thinking, decision making and problem solving on environmental issues. Finally, learning in environment is emphasized to truly application of knowledge, ability, and skills that being learned into action in real lives. Those purposeful learning activities indicate a new pedagogy of "transformative education" which the teacher facilitates students' acquisition of essential values, skills and knowledge, that must be replaced the "transmission model" of traditional teaching and learning. Typically, the transformative pedagogy is seen to include the following features: (1) action-oriented, inquiry-based learning, (2) systems-based learning, (3) integrated, holistic approaches, and (4) creative use of technology [10].

Regard as the international policies and tendency approaches, in Thailand, there have been initiated environmental educational policies and guidelines for over 30 years. In particular, the Ministry of Education (MOE) has authorized the Office of Basic Educational Level to develop environmental education curriculum of primary and secondary schools since 1978 [11]. Furthermore, the tendency instruction of environment education has been covered a wide spectrum of activities and a range from general to the specific. In harmoniously, by means of the Tbilisi Declaration (UNEP, 1978) [3], the contents of environmental education have been integrated in core subjects, including Social Study, Sciences, and Career Studies [12]. Besides integrating other subjects, there have been special projects related to environment crisis that required the responsibility and cooperative working of school and organizations concerned with environmental issues. Such as the Eco-School Project provided by Department of Environmental Quality which cooperative experiment with 180 committed schools in 2008-2011 [13]. It was aimed at investigating the results of instructional activities of environment education on students' expected attributes, including understanding, evaluation and decision skills, and awareness the importance of the environment. In addition, an investigation the relationship between lifestyle and the environment through the scientific process, creative practice and the sustainability for social and environmental. However, the results of the project monitoring which conducted by Yowapui & Thatthong [14], and Nopakoah et al. [15] harmoniously indicated the average practice of Eco-schools in the Northeast provinces were at moderate. Furthermore, the school administers and teachers who were responsible for programs management of environmental education congruently agreed that they had not enough a deep understanding and could not collaboratively teach by integrating between subjects. There was

a rarely involvement of community in instructional activities and training in the realistic context. In addition to students' perception on the instructional activities of environmental education that were satisfied them, but they expected much more various activities. Unfortunately, this type of project is lacked of continuity and also there is no concrete assessment that students have the knowledge, ability, and awareness of environment in accordance with the expectations. Correspond with Dillon et al. [16] who studied about the learning activity in the real situation and with involvement of stakeholders to environment issues. The findings implied that it could encourage students to develop their knowledge and recognize how to apply them, furthermore, they could remember what they had learned outside class better than they had done in class. As well as Buasaman & Polnun [17] discovered the direct experience of community cooperation in planning and solving environmental problems were able to encourage students' holistic developing and create a good attitude toward environmental conservation.

Nevertheless, other learning activity outside classroom, e.g. a research about environmental education aimed at forest conservation reveals that besides student-centered learning programs, it needs a teacher development for improving students' responsibility in forest preservation and awareness of the natural resource utilization [18], [19]. Furthermore, the research findings of Wilson [20] and Stavrianos & Spanoudaki [21] indicated that leaning activities concerning environmental conservation could be provided to students with special needs and cognitive impairments. In conclusion, the reviewed literature which within the framework of the relevant policy, and tendency practice, indicated that environmental education composed the key elements as shown in Figure 1.

Figure 1 Model of triangle learning activities of the environment



OBJECTIVE OF THE STUDY

The purpose of this study is to explore the adjustment of environmental education policy in basic education schools. And how to succeed in accordance with the perception of school's staffs and students.

METHODOLOGY

In order to examine the environment not as a scientific subject matter, but as an educational process at a school level, the research method was conducted by means of a case study of two basic education schools in Bangkok and suburb areas. An opportunity expansion school and a secondary school were purposively selected to be a representative of a type of basic educational schools. The key informant person of each school consisted of the school's principal and/or administer staffs, head teachers of core subjects (Social Study, Science, and Career Studies), teachers who were responsible for management special programs of environmental education and students who were randomly sampled as a grade representative, including primary school students, junior high school students, and high school students, all in total 120 students. A semi-structured interview and a questionnaire survey were undertaken with principals and/or administer staffs and all teachers. Since reading literacy capability of the primary school students may be an obstacle of responding the questionnaire, the structured interview was conducted to them for to maximize their response rate. Research instruments were two 5-point Likert-Type Scales questionnaires which items covered the criteria synthesized by researcher. The first one was a 20-item questionnaire for collecting the school staffs' opinion concerning 3 aspects of the school management and practice related to policy making (5 items), instructional approaches (6 items), and providing the involvement of communities and the ones concerned (4 items), and their perceptive outcomes of environmental education (5 items). The other was a 21 item-questionnaire for collecting students' perception of their own 3 aspects related to environment conservation, including, knowledge about environment (7 items), passion and realization the importance of environment (8 items), and practical ability to environment conservation (6 items). These instruments were validated via a pilot study with 30 teachers and 30 students at other secondary schools and opportunity expansion schools. Then the internal reliabilities were analyzed via Cronbach Alpha Coefficient which they were 0.877 and 0.895, respectively. The results of study were analyzed through descriptive statistics for quantitative data after recoding a few negative items. Furthermore, the qualitative data collected from interviewing the school staffs were analyzed by means of content analysis.

RESULTS OF THE STUDY

The corresponding findings to the research questions and the related themes which emerged from the data analysis were revealed as following.

School 1 is a secondary school located in Nonthabury province where educates both the junior high school students and the high school ones. The school has been encouraged environmental education by the 6th Regional Environmental Office where is the local authorities in the management of environmental conservation. Its activities of environmental education were conducted by means of integrating its contents in all subjects of school curriculum, e.g. in science, there were water quality checking, carbon reduction, and diversity conservation of plant and animal. Moreover, there has been an extracurricular on environmental education called "Zero Waste Project" which its reason for setting was the school had been facing garbage problems, so it wanted to create a good environment of the school.

School 2 is an opportunity expansion school located in Bangkok where arranges from kindergarten level, primary level, till junior high level. This school also has managed environmental education through integrating the contents related environment to all subjects. In further with the project of waste management named "Project of environmental development" which aimed at developing students' manners for being keen on 5 practical rule composed of clearing up, cleaning, organizing, hygiene practice, and create a personality. Other environmental

campaign focused on special projects to be a green school, use cloth bags, conserve energy, and especially, plant mangrove forest that interested most of students.

According to Table 1, it indicated that both schools could manage and practice environmental education as high as possible with the average performance were from the high level till the highest level. Particularly, school 2 could perform each aspect of practice at the highest level, respectively from related policy made ($\bar{X}$=4.80, SD=.231), instructional approaches ($\bar{X}$=4.75, SD=.396), and providing opportunities for involvement of communities and the ones concerned ($\bar{X}$=4.50, SD=.456), and the school' s perceptive outcome of environmental education ($\bar{X}$=4.50, SD=.577). Similarly, School 1 had two aspects which were at the highest level namely, the school's perceptive outcome of environmental education ($\bar{X}$=4.56, SD=.456) and related policy made ($\bar{X}$=4.28, SD=.540), but the high level were instructional approaches ($\bar{X}$=4.17, SD=.675) and providing opportunities for involvement of communities and the ones concerned ($\bar{X}$=4.15, SD=.675)

Table 1
The schools' environmental education management and practice

management and practice of environmental education	School 1		School 2	
	$\bar{X}$	SD	$\bar{X}$	SD
1. Average of management and practice related to the school's policy making: clearly determined its policy related environmental education, its purpose and outcome, a working group, monitoring system, and developing teacher's abilities in environmental education	4.28	.540	4.80	.231
2. Average of management and practice of the school's instructional approaches: integrated contents, special program based on schools' context and communities, emphasized students real-life experiences, and by using various learning materials.	4.17	.500	4.75	.396
3. Average of management and practice related to the school's providing the involvement of communities and the ones concerned: emphasized relation of environment issues within school and surrounding communities, providing involvement of a person and/or organizations outside school, and also cooperated with them on activities concerning environment conservation.	4.15	.675	4.50	.456
4. Average of the school's perception of outcome related to environmental education: especially students' abilities in utilization knowledge in daily lives, inspiration and wholeheartedly take action, moreover, their intent to perform learning activities concerning environmental conservation.	4.56	.456	4.50	.577

In Table 2, it showed the average outcome of the school's management and practice which indicated by students' perception of their own abilities concerning environmental education composed of (1) knowledge about environment, (2) passion and realization the importance of environment and (3) practical abilities to environment conservation. According

to the first aspect, the junior high school students of both schools had got higher means score of knowledge about the environment than the other in school, especially the students in school 1 ($\bar{X}$= 4.27, SD=.481). But the ones who had got the lowest means score of both schools were the primary students of school 2 ($\bar{X}$= 3.47, SD=.679). The aspect of passion and realization the importance of environment, all grade students except primary school students had got average means score at the highest level, in particular, the junior high school students of school 2 ($\bar{X}$=4.62, SD=.296). And the primary school students had got average means score at the high level ($\bar{X}$=3.42, SD=.998). Similarly, the third aspect, all grad students had got the highest level of means score, especially the junior high school students of school 2 ($\bar{X}$=4.51, SD=.459), while the primary ones had got the high level mean score ($\bar{X}$=3.36, SD=.973).

Table 2
Students' perception of their abilities on environmental conservation

Students' abilities on environmental conservation	School 1				School 2			
	High school level		Junior high school level		Junior high school level		Primary school level	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1. Average of knowledge about environment: basic knowledge, essential feature, and principle of environmental sustainability.	4.11	.630	4.27	.481	4.15	.479	3.47	.679
2. Average of passion and realization the importance of environment: believe, willing to do and to persuade others concerning environment issues.	4.55	.432	4.36	.525	4.62	.296	3.42	.998
3. Average of practical ability to environment conservation: applying knowledge, explaining and demonstrating procedures, implementing the steps of procedures, developing or inventing, and suggestion to others concerning environment conservation	4.37	.425	4.47	.485	4.51	.459	3.36	.973

CONCLUSION AND DISCUSSION

The analysis of quantitative data showed that both schools could manage and practice environmental education in accordance with the policy concerned at a high level. They adopted teaching and learning activities by means of integrated environmental contents in some core subjects as stated in the Tbilisi Declaration [2], [3]. In particular, School 2 put the environmental issues of school and communities into the learning process that provided the opportunity of communities' involvement, including learning media and local wisdom, in addition to management of environmental education. Such the practice of school 2 was

conformed to the Belgard Charter [4]. Besides the mention practices, school 2 had a clear policy on environmental education management, that positively affected to its performances and outcome. According to the students' perception of their abilities, the results of study showed that the junior high school students had higher capabilities than other students in the same school. In particular, junior high school students of School 2 had the highest passion and realization the importance of environment, and practical ability among all students, consisted that School 2 effectively managed and practiced the environmental education. In conformity with the clear policy of environmental education that school made, School 2 could perform the instructional approaches which was in line with transformative pedagogy defined by Moore [7], Von Humboldt [8], and Van Tulder [9] which teachers should play a role in facilitate the students' activation trinity or triangle composing of knowledge, practical skills and passion an realization in importance. Moreover, the teaching activities on the basis of real-life situations will help students to take advantage of their practical skills as by means of compliance in Agenda 21 [6], [16], and [17]. However, the result of study related to the elementary school students who had the lowest overall abilities among other grade students. It may be implied that environmental education, should be taken depending on the students' background, especially their ages, its corresponded with the studies of Wilson [20], Stavrianos & Spanoudaki [21] and Mahimuang et al. [22].

RECOMMENDATION

The recommendations from this study are as follows:

1. Activities of teaching and learning environment should depend on the students'demographic characteristics, especially their ages and availability of physical.
2. Environmental issues taken as learning situations will help to create opportunities to use the learning resources obtained from the community while creating opportunities for community involvement. It also allows students to put their knowledge in practical use.
3. There may be quantitative research to investigate the causal relationship between management and operational factors concerning environmental education and three-dimension of learning achievement.
4. Examine the effect of teaching activities according to Transformative pedagogy to three outcomes: knowledge, skills, practice and attitude.

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REFERENCES

[1] United Nations Environment Program. Stockholm 1972: Report of the United Nations Conference on the Human Environment. [Online]. Documents Multilingual/Default.asp?documentid=97

[2] UNESCO. (1987). *Intergovernmental Conferences on Environmental Education Organized by UNESCO in Co-operation with UNEP*. Tbilisi (USSR). October 14-16.

[3] UNESCO. *Intergovernmental Conference on Environmental Education, Tbilisi (USSR).* [Online]. http://www.gdrc.org/uem/ee/EE-Tbilisi_1977.pdf

[4] UNESCO. *The Belgrade Charter: A Framework for Environmental Education*. [Online]. http://unesdoc.unesco.org/images/0001/000177/017772eb.pdf

[5] UN Documents: Gathering a body of global agreements. *Report of the World Commission on Environment and Development: Our Common Future*. [Online]. http://www.un-documents.net/wced-ocf.htm
[6] United Nations. *Agenda 21.* [Online]. http://www.un.org/esa/dsd/agenda21/TheUnited Nations Conference on Environment and Development: UNCED
[7] Moore, T. (1997). *The Education of the Heart: Readings and sources from care of the soul.* New York: Harper Collins.
[8] Von Humboldt, Wilhelm (1903–36). *Gesammelte Schriften: Ausgabe Der Preussischen Akademie DerWissenschaften.* Bd. I—XVII, Berlin.
[9] Van Tulder, R. (2018). *The 21st century skill challenge: Skill development in an increasingly complex and volatile society*. http://www.educationoftheheart.nl/files/Booklet_21st_century_skills_Final.pdf
[10] Bell, D.V.J. (2016). Twenty-first Century Education: Transformative Education for Sustainability and Responsible Citizenship. *Journal of Teacher Education for Sustainability*, 18(1): 48-56.
[11] Peampongsan, P. (2005). *Environmental Education*. Bangkok: Tarmmada Press.
[12] Office of the Basic Education Commission, OBEC (2535). Environmental Education for the Primary School. Bangkok: Kurusapa Printing Ladphrao
[13] Department of Environmental Quality Development. (2012). *A guideline on creating Eco-school: A school for sustainable development.* [online] http://www.deqp.go.th/media//36848development-resize.pdf
[14] Yowapui, S. & Thatthong, K. (2009). The Outcome of Eco-School a Case Study of the School in Khon Kaen Province. *KKU Research Journal (Graduate Studies),* 9(4): 114-122.
[15] Noppakro, N., Singsiroe, A. & Chukamheng, C. (2013). A Study Operations School of Environmental Studies in the Northeast provinces of Thailand. [Online]. http://apps.qlf.or.th/member/blog/detail.aspx?id=147
[16] Dillon, J., Rickinson, M., Teamey, K., Morris, M., Choi, M.Y., Sanders, A., and Benefield, P. (2006). The value of outdoor learning: evidence from research in the UK and elsewhere. *School Science Review*, 87: 107-111.
[17] Buasaman, S. & Polnun, T. (2014). *Best Practice of Somdethpimpattanawittaya School*. [Online]. https://www.slideshare.net/siricom4/bip-decs-model.
[18] Thathong, K., & Leopenwong, S. (2014). The Development of Environmental Education Activities for Forest Resources Conservation for the Youth. *Procedia - Social and Behavioral Sciences*, 116: 2266 – 2269.
[19] Kasemsawat, S. (2019). Integration of wastewater management and community participation for sustainable water management in Amphawa district, Samut Songkhram province, Thailand. *Proceedings of the 8th International Conference on Informatics, Environment, Energy and Applications* https://doi.org/10.1145/3323716.3323747
[20] Wilson, R.A. (1994). Integrating outdoor/environmental education into the special education curriculum. *Intervention in School and Clinic***,** 29: 156-159.
[21] Stavrianos, A. and Spanoudaki, A. 2015. The impact of an environmental educational erogram of a school garden on pupils with intellectual disabilities-A comparative approach. *Open Journal of Social Sciences* 3: 39-43.
[22] Mahimuang S., Youin, D., and Punjasuptawee, P. (2019). Enhancing Students' Ability in Environmental Conservation Based on Professional Learning Community at School Level. *Proceedings of the 8th International Conference on Informatics, Environment, Energy and Applications* https://doi.org/10.1145/3323716.3323742