Eco-literacy-textbook: instructional need to improve students’ environmental awareness in a primary nature school

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Abstract. This study is aimed to identify the eco-literacy textbook as an instructional need to improve students’ environmental awareness so that it can be taken into consideration in the preparation of textbooks. One of the schools that need to improve students’ environmental awareness through textbook is a Primary Nature School in West Java, Indonesia. Qualitative descriptive method was used in this study. The data collection used observation, interview, and questionnaire. Participants were 15 students in fifth grade and 2 teachers. The result showed that instructional needs of the eco-literacy textbook are the textbook that has images used simple the language, it has material integrated with everyday life and the natural environment. It is equipped with an activity-based outdoor learning worksheet. The sustainable development will be achieved if the instructional needs through this eco-literacy textbook are fulfilled.

1. Introduction

Environmental problems that occur at recently are a problem caused by human beings who lack awareness of the environment [1]. If this is allowed, human survival will be disturbed because human behaviour that harms nature can threaten human survival [2]. Realizing how important the balance of ecosystems in life is so that ecological literacy (eco-literacy) is needed. Eco-literacy is knowledge and concept that supporting the Earth's ecological system can provide functions and support life[3].Children who have eco-literacy are expected have the basis of ecology, understand the process and have the skill of ecology so they will be more responsive in dealing with problems that occur around their environment [4].Awareness, knowledge and life skills that suitability with the preservation of nature will progressively determine the aim of eco-literacy that is complex in intellectual, social, emotional and spiritual intelligence [5].

People that have strong self-transcendence value orientation are more concerned with environmental problems and treat environmentally friendly ways [6]. This proves that a school is a place that is not only used for teaching and learning but also help students to develop knowledge about sustainable development by increasing the emphasis of resource barriers and the need for environmental protection so that the knowledge can affect behavior skill [7,8,9].

Many practices had been implemented in educational institutions to improve environmental awareness. One of the schools that start promoting eco-literacy is a Primary Nature School in West Java, Indonesia. The forest and nature schools are schools which are new alternatives for child
development that use nature as learning resources in outdoor learning and provide opportunities for students. An environment in these schools is risk of injury is inherent yet minimal [10].

But until today, public understanding and environmental awareness is still lack. The researcher found that the program to organize organic and inorganic rubbish at the Primary Nature School, West Java was not optimal even though there was already recycle bin. The results from the Ministry of Environment in 2012 showed that the Environmental Care Behaviour Index was only 0.57 (from absolute number 1). It shows that the Indonesian people do not care about the environment. Moreover, the fourth-grade students in Subang, West Java showed that only 16% of students could complete the pre-test about social problems related to students’ eco-literacy. This shows that the environmental program and learning which are used in some schools have not been optimal.

One reason for the lack of environmental awareness is learning resources only rely on textbooks and teachers that transfer the understanding that they have to students. They do not explore a variety of activities in the surrounding environment [11]. The other research shows that the students in Indonesia need other textbooks that tell about eco-literacy as the scoping documents especially explain environmental issues in Indonesia so that they have critical and responsible environmental awareness [12].

During the last few years, the attention of educational programmers has focused on the phenomenon of environmental damage. They teach environmental awareness to students as the majority of members in the community. They introduced environmental awareness by involving subjects in the textbook. Textbooks and related learning materials are the keys to effective teaching and learning which contained about pedagogical directions, practice exercises and assessment materials [13, 14, 15]. The next question is how eco-literacy textbook can become the instructional need of a Primary Nature School. The purpose of the research is to identify the eco-literacy textbook as an instructional need that can improve environmental awareness students so that it can be taken into consideration in the preparation of textbooks, especially in a Primary Nature School at West Java, Indonesia.

2. Methods
This research used descriptive qualitative. Qualitative descriptive research is a research method that tells about the case which occurs in now or in the past so that readers know what is happening in the field [16, 17]. In this study, researcher intends to explain a situation in depth with descriptive data in the form of words especially about the eco-literacy textbook. Participants were 15 students in fifth grade and 2 teachers at a Primary Nature School, West Java, Indonesia. The researcher determined the fifth grade as participants because they are the first generation in the school that was founded in 2014. In the other hand, they are entered the operational concrete stage that is capable of learning based on experience.

The data collection used observation, interview, and questionnaire. In addition to conduct learning observations in the room, the researcher also observed outdoor learning and conducted interviews with teachers regarding learning. Outdoor learning activities conducted at the school such as outbound, farming on school grounds, the rubbish bank program which helps the student to organize organic and inorganic rubbish and how to sell the inorganic rubbish and many other activities. Some of these activities are carried out to improve students’ environmental awareness through eco-literacy based learning activities.

After observing and interview, the researcher give questionnaires to the teachers and students. The questionnaire contained short and structured questions that discussed textbook that had been used in a Primary Nature School whether it had linked with eco-literacy in school programs and asked about teaching materials that they wanted and suitable for the needs of the school. The questionnaire responses were analyzed to confirm the results of the data obtained during the study.
3. Results and Discussion

A Primary Nature School in West Java, Indonesia is one of the schools that use nature as a learning resource in outdoor learning such as outbound, farming, and program rubbish banks. Based on the results of observations, information was obtained that during outdoor learning, student activities seemed to be more dominant in psychomotor aspects while cognitive and affective aspects had not been seen optimally. The lack of optimal eco-literacy-based learning on cognitive aspects also influences students' environmental awareness because the cognitive ability is an aspect contained in human psychology related to the environmentalism [18].

In addition, outdoor learning which is integrated with school programs has not guaranteed the success of eco-literacy-based learning for students' environmental awareness. This is caused by the deficiency of learning resources as teaching materials that are integrated with school programs. Based on the results of questionnaires distributed to teachers and students, information was obtained that all this time the textbooks used during learning had many disadvantages including (1) the page size of the book was too small; (2) the contents of the textbook have more words than pictures, (3) the integration of the material is too imposing with other material; (4) none of the material presented has been integrated with eco-literacy based school programs; (5) teachers have never developed an eco-literacy textbook. In addition, the researcher also shared questionnaires with students to find out the needs of the eco-literacy textbook content they wanted can improve students' environmental awareness. The students' responses are illustrated in Figure 1.

From figure 1, it can be argued that students as many as 55% want content of textbook is pictures, 15 % students want colourful book, 15% students want textbook that gives environmental material that short and vivid, 10% students want narrow book and 5% students to want a textbook that has simple language and easy understanding. The results of this questionnaire showed that students need the eco-literacy textbook that has images. The pictures in textbook are a necessary process of learning. Pupils often see the images before reading text after that they can improve the imagination so it can enhance students’ creativity [29]. Pictures also give opportunities and a time frame for pupils to make the decision and use their imagination to attract attention, to tell a story, to teach a concept, and to develop appreciation and awareness for them [19, 20]. Students prefer textbooks that have many images than writing because images are easier to know and understand than words [21].

Next, the researcher analyzed responses from teachers in fifth grade. The results are the teacher need an affordable textbook used simple language, textbook material integrated with everyday life and integrated with the natural environment and equipped with an activity-based outdoor learning worksheet. Some of these criteria are considered capable of motivating students to learn and care for the environment because so far the school has not provided a special book on eco-literacy which is integrated with the activities program in natural schools.
The need for textbooks relating to eco-literacy needs to be packaged in a book that adjusted by primary school curriculum. Textbooks are an important aspect in educational research because they provide benefits for teachers and students in the learning process and it will be comprehended by the majority of students [22, 23]. Language that used is the non-academic language which is easy to understand and directly related to life in the environment [24]. With the eco-literacy of textbooks that suitable with the instructional needs to increase students' environmental awareness.

Increasing environmental awareness for elementary school pupils is an important investment for sustainable development [25]. In addition, the identification of instructional needs of eco-literacy textbook is supposed to be the basis and consideration in the preparation of a book in a Primary Nature School that is integrated with curriculum and environmental education involving pupils during the learning process that has benefits for sustainable life such as the use of natural lighting, recycled water, parks and outdoor classrooms [25]. If the instructional need has been achieved, learning will activate cognitive, affective and psychomotor aspects that are useful for sustainable development.

4. Conclusion

Eco-literacy textbooks in natural schools are one of the alternative teaching materials that are important for meeting instructional needs in an effort to increase students’ environmental awareness. Eco-literacy textbook must be packaged as attractive as possible with children's language that is easy to understand, contains interesting images, has relevance to the curriculum in elementary schools and is associated with a program of activities that are typical in natural schools that exist in everyday life. For this reason, the researcher gives recommendations to the school and the relevant government to compile the book according to the needs desired by students and teachers. If the instructional needs through this eco-literacy textbook are fulfilled, sustainable development will be achieved.

Acknowledgment

This project was made possible with the funding given by Indonesia Endowment Fund for Education (Lembaga Pengelola Dana Pendidikan), Indonesian Ministry of Finance for taking part in providing me with the financial support to continue my master degree at Universitas Pendidikan Indonesia.

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