

Conservation Education for Elementary School Students

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Abstract

The success of a sustainable development program requires support from nature conservation efforts. It happens because one of the assets for development is natural resources. Pro-conservation people are needed to ensure the sustainability of the nature conservation program is a success. Therefore, conservation education is urgent to be learned in school. The purpose of this study was to observe the responses of elementary school students and teachers in studying nature conservation concepts. The research methods were using the experimental treatment in elementary schools in Jakarta and qualitative analysis. The results showed that both of the students and teachers gave positive responses to learn nature conservation conveyed through various games because the learning situation was amusing and unique. The use of a combination of learning methods is following constructivist learning theory.

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INTRODUCTION

The development program in Indonesia is the sustainable development program. This sustainable development program is listed in Laws of the Republic of Indonesia number 32 of 2009 concerning Environmental Protection and Management. Development that provides benefits is a development whose process pays attention to the concept of environmental sustainability (Rosana, 2018). The pillars of sustainable development are economically sustainable, socially sustainable, and environmentally sustainable, all of which must develop in a balanced manner (Suparmoko, 2020).

From an economic perspective, development in Indonesia requires capital in the form of natural resources, both living and non-living resources. The human need for natural resources continues to increase all the time (Cahyani, 2020). This is because the use of natural resources without considering their sustainability will accelerate the destruction of these natural resources. Damaged or unsustainable environments can have an impact on the extinction of life (Rosana, 2018). Development in Indonesia shows more improvement in the economic and social fields but puts pressure on the environment (Fauzi & Oxtavianus, 2014). In this regard, the concept of sustainable development requires all parties to change the way education is delivered and ensure we make the right decisions in the future (Sutanto, 2017). Supporting the success of the sustainable development program requires nature conservation efforts. Thus, the success of the implementation of nature conservation can be achieved because it is supported by competent human resources. These competent human resources master the professional field and have a pro-conservation attitude. Individuals who are pro-conservation are individuals who can utilize natural resources sustainably while still protecting and preserving germplasm resources so that they do not become extinct (Soenarno, 2016). Education can accelerate sustainable development programs because it will change the perceptions, behavior, and attitudes of the student (Sutanto, 2017).

To form pro-conservation individuals, this is done through nature conservation education from an early age, namely through nature conservation education in elementary schools. Primary school is the most appropriate place to provide students with an understanding of the environment (Afandi, 2013). A long-term environmental education program for elementary school student do not affect students only but also their teachers, many of which are active and influential members of local societies (Dimopoulos et al., 2009). This shows the importance of environmental education including natural conservation education to be taught to elementary school students. Elementary school students already have a curiosity about their environment, besides that their bodies also support them to carry out various kinds of physical activities in the teaching and learning process (Soenarno, 2017).

Environmental education is integrated into other subjects but does not succeed in achieving its goals due to the unpreparedness of the teacher in teaching, and the inaccuracy of the methods used in teaching which are generally in the form of lecture methods (Nurzaelani, 2017). Environmental education is given to students so that the character of students who care about the environment is formed and a conducive school environment is formed so that the learning process can run well (Hidayanti *et al.*, 2018). The purpose of environmental education for students is so that students have awareness, knowledge, attitudes, skills, and participate actively in environmental issues (Indahri, 2020).

Nature conservation education is a part of environmental education. In the curriculum, nature conservation material is integrated manner into the various other subject matter, so that it does not appear significant to students. Therefore, nature conservation education can be taught in elementary schools in an integrated manner into the various subject matter which can also be separately taught, namely nature conservation material specifically taught. This research is to find a solution to how

nature conservation education for students can be done in a fun way so that students can easily understand material about nature conservation.

This research was based on constructivist learning theory. Previous researches have shown that constructivist instructed students had higher scores than the students who were exposed to the conventional method (Dagar and Yadav, 2016). Constructivist teaching and learning theory advocates a participatory approach in which students actively participate in the learning process (Fernando and Marikar, 2017). The basic of constructivism theory is that teachers participate in equipping students and playing a role in developing student abilities so that students can construct their knowledge (Jampel *et al.*, 2018). Thus the application of constructivist learning theory will make students active in learning and make it easier for them to understand the subject matter.

Constructivist learning theory recognizes that students will be able to internalize information into their minds, in the context of their experiences and knowledge, on their needs and interests (Budinarsih, 2012). Constructivism also states that students create knowledge when trying to understand their experiences (Husamah *et al.*, 2016). The current problem lies in the learning environment, the classroom environment is teacher-centered which makes the learning process boring for less competent students (Dagar and Yadav, 2016). Constructivism highlights the interaction of people and situations in the mastery and refinement of skills and knowledge (Suparlan, 2019). The learning process in the classroom can take place effectively if there is an interaction between teachers and students (Saputra, 2019). Students need to actively construct knowledge in their minds (Olusegun, 2015; Bhattacharjee, 2015). This shows the importance of student activity in the learning process so that learning objectives can be achieved. If the teaching style closely matches the students' preferred style of acquiring knowledge, learning becomes easier and more natural, results improve, and learning time is reduced (Dagar and Yadav, 2016). Students will also be more enthusiastic in the learning process because they feel that they are suitable for learning methods and fun learning situations.

Lack of student response to learning will hinder the learning process (Anastasha and Movitaria, 2019). Student responses in learning show their attitudes towards the learning situations they face. Student responses will produce the expected behavior changes, both cognitive, affective, and psychomotor behaviors (Anton, 2018). In a study conducted by Saputri *et al.* (2018), students gave good responses and liked the use of game-based interactive multimedia, because these games make it easier for students to understand the material taught by the teacher. According to Seker and Sahin (2012), the concept of teaching through games in social studies teaching can be considered as an effective teaching method in having students explore and restructure information. Then Al-Tarawneh (2016) stated that the use of educational games increased the learners' motives and interests in the material taught and increased their concentration and attention for the stimulations in the teaching-learning process. Makalintal and Malaluan (2019) stated that active involvement in game-based learning activities will develop conceptual understanding and motivate students to seek further information. Research by Nurhayati *et al.* (2017) showed that students felt happy, enthusiastic, and active with the educational game method when learning social science education. Thus the use of educational games will help students in learning at school.

Kang and Noh (2017) stated that science class is composed of questioning the natural and social phenomenon of students as a starting point of scientific inquiry and organizing and creating their thoughts and ideas. Although science material includes material that is quite difficult for students, so we need learning methods that are fun for students. Further Laksana (2017) stated that one of the objectives of research in natural science learning is constructing a method that can help students to understand a scientific concept. Jampel *et al.* (2018) conducted initial observations of natural science learning in elementary schools which revealed that students had low motivation, negative attitudes towards teachers, low self-esteem, and low self-confidence in self-efficacy. Desstya

(2014) stated that when teachers teach science in elementary schools, teachers must create pleasant conditions by facilitating students with various kinds of activities and showing concrete objects. Furthermore, Suwandi (2015) stated that various learning media in the form of pictures of animals and plants, writing on paper, and LCD help students to generate interest and creativity in improving science learning outcomes. Therefore in natural science learning teachers need to develop learning methods and media that facilitate understanding and are fun for elementary school students.

This research aimed to observe the responses of students and teachers in elementary schools when studying nature conservation material. Nature conservation material is integrated with other subject matter so that it does not appear significantly. Therefore, it is necessary to explain the concept of nature conservation to students in a fun way. The learning method used was a combination of the lecture method and the learning-by-game method.

METHODS

The research method used was the pre-experimental design in the form of the one-shot case study. The technique of collecting data was by observation and interview. The experiment was conducted with a lecture on flora and fauna native to Indonesia which has experienced scarcity. This lecture used an LCD projector and PowerPoint computer program to display pictures and videos of plants and animals protected by Indonesian government regulations. Then proceeded with the learning-by-game method, which is a game that contains nature conservation education content. During this teaching and learning process, the researcher observed student responses and continued with interviews with the teacher. The results of observations and interviews were recorded and then analyzed.

The games played by the students were chain messages and word search. The type of game that is done in groups is the chain messages. Students stand in a line facing forward with a distance of one meter between students. Students whisper conservation messages from the back of the student to the student in front of him. The student at the forefront mentioned the message he received. The true or false of the message stated determines the victory of the group. The word search game is an individual game. Students look for words in the game table according to the instructions given. The letters forming the words are placed randomly, so students need to find the correct word.

Data collection in the study as follow:

Table 1. Data Collection Technique

Data Collection Technique	Description
Observation	The objects of this observation were students who take part in learning with lecture and game methods. The observed target was their response to learning
Interview	Interviewees were students and teachers. Students were asked about their impressions when studying nature conservation materials and the methods used by researchers. The teacher was asked about the learning methods used and the nature conservation material presented.

RESULTS AND DISCUSSION

This study provided information about students' responses when learning about nature conservation by lecturing and learning-by-game methods. The experiment, which was carried out on 5th-grade elementary school students, began with a lecture on the concepts of nature conservation.

The subject matter began with an introduction to the concepts of nature conservation, namely protection, preservation, and sustainable use of natural resources. The example given is the conservation of native Indonesian plants and animals that are already threatened with extinction. The examples were presented in the form of color images and the form of videos. It is important to teach students to know the native plant and animal species, and then to know the plant and animal species that are protected by Indonesian regulations. The protection of animals and plants is carried out because their status is already rare or endangered.

During the presentation, several students commented on the animals and plants they had seen on television or in zoos, Safari Park, or the aquarium. Since students saw animals in zoos or safari parks, they are mistaken in recognizing which types of animals are native to Indonesia and which are not. They thought zebras and giraffes were native to Indonesia because they can be found in zoos. This lecture on nature conservation provided students with new knowledge about animals that are native to Indonesia and those introduced from abroad. After the lecture was over, students asked many questions about the animals and plants they had seen and whether these species need to be preserved. The presentation material that they saw succeeded in generating lots of questions and comments from students. This showed the emergence of students' curiosity about the material they were studying. These results were the same as those of Saputri's research *et al.* (2018) which showed that the material usually presented by using the lecture method is more interesting because it is shown in the form of video.

Table 2. Results Data Collection Technique

Data collection technique	Results
Observation	<p>Lecture on protected flora and fauna. Students actively asked questions about things they did not know, and actively answered questions from researchers. Sometimes they made comments when they saw pictures of animals they had seen in person.</p> <p>Group games. The type of game that is done in groups was chain messages. The students encouraged each other to be quick to whisper messages that had to be conveyed, sometimes they shouted cheerfully so that their friends could move quickly. The classroom atmosphere became bustling with student voices.</p> <p>Individual games. The type of game was a word search. Students worked on this game with full concentration. Sometimes they discussed with their friends if they were having difficulties. The class was quiet because each student worked on the game individually.</p>
Interview	<p>Students. When students were interviewed, they gave answers that showed their enjoyment of playing these games, both in groups and individually.</p> <p>Teachers. The teacher gave positive responses to the material and games provided by the researcher. There was a discussion between the teacher and the researcher regarding the method being used.</p>

After introduced the concepts and examples of protected species of Indonesian flora and fauna through the lecture method, students then learned through various games. This educational game consists of individual games and group games. Various games and various educational purposes are used for this learning such as word-search, cross-word, chain-messages, puzzles, match-and-link, etc.

Group games, namely chain messages, are performed in class or outside of the classroom. Students lined up facing forward and each student was at least one meter away from each other. The

researcher whispered a conservation message to the last student. An example of the content of the conservation message is "save the Javan rhino and the Sumatran rhino". The last student stepped forward to whisper the message to the friend in front of him. This action was repeated until the first student. The front student would say the conservation message, whether the message is true or not. In one class students were divided into several groups. These groups would compete for the fastest to finish the game correctly so that they are declared the winning group. This game made students work together in their groups and compete with other groups, as well as actively moving and not standing still in place. If it is carried out in-door, the classroom atmosphere will become crowded with laughter and shouts of students.

One example of an individual play was word-search (see Picture 1). This game made students feel curious about the content in the table. They tried to solve the puzzle. When the word-search game is played, the atmosphere of the classroom was quiet. The sound that was heard was the voice of the student spelling out the letters to get the correct answer. Sometimes they discussed with their friends because the content of this word-search has been explained by the researcher during the lecture.

N	U	R	A	S	P	E	N	Y	U
O	B	A	R	Z	X	Y	R	P	P
R	J	K	W	M	N	L	I	M	E
A	G	B	A	D	A	K	C	E	S
N	W	A	N	Q	V	H	S	R	U
G	A	J	A	H	R	T	J	A	T
U	I	K	A	O	P	L	R	K	E
T	F	K	O	M	O	D	O	M	E
A	S	T	H	A	R	I	M	A	U
N	R	U	I	K	O	N	U	R	I

Figure 1. Word-search of protected animals in Indonesia

Based on the results of observations and interviews (see Table 2), it appeared that students enjoyed the games they did so that the learning atmosphere was not boring. This shows that students gave a positive response to the application of a combination of lecture and game methods. The game involved cognitive aspects in the form of knowledge about Indonesian flora and fauna, psychomotor aspects in the form of their activeness in movement, and affective aspects in the form of students' attitudes towards nature conservation.

After playing various games, then a question and answer session was held between researchers and students related to conservation. Students could ask questions about things they did not understand. This question and answer process was useful for deepening student material. It

turned out that many students asked questions, both about plants and animals, as well as protected and unprotected ones. From this question-and-answer process, there was a discussion between the researcher and the students.

The final stage of the research was interviewing teachers about the use of learning methods and teaching materials about nature conservation. In general, teachers were happy with the learning-by-game method because it made students happy and active in the learning process. This showed that the teachers gave a positive response to the material and a combination of learning methods about nature conservation. According to the teachers, students quickly understood the new knowledge they received. Besides that, students were also actively moving when playing group games that require cooperation between students.

Regarding the nature conservation material presented through the lecture method, students have seen it interesting. The things that attracted students' attention were: (1) use of audio-visual learning media with an LCD projector to display color pictures and videos about protected plants and animals in Indonesia; (2) the examples given are species that are known to students, then new information is added related to the student's previous knowledge. This is related to constructivist learning theory; (3) examples are manifested in the form of games that require physical activity and concentration of students' minds.

So the two learning methods used were mutually reinforcing so that the learning objectives of increasing the cognitive, psychomotor, and affective aspects of elementary school students can be achieved. Jadal (2012) stated that activity-based joyful learning follows the principles of learning-by-playing, learning by doing, learning by enjoying & learning by problem-solving. Thus, the combination of learning methods in research made students feel happy in learning so that students responded positively to this conservation learning.

This learning process is following the concept of learning according to constructivist learning theory, where students actively construct new knowledge based on previously acquired knowledge (Husamah et al., 2016). Previously, students knew various animal and plant species. They got this knowledge from various sources knowledge, namely from various books, whether textbooks or other books, information from their parents, explanations from their teachers, information from television, they also saw it themselves when they visit ex-situ conservation institutes such as zoos. or a safari park. However, their knowledge was sometimes wrong, such as the species contained in conservation institutes are not necessarily native to Indonesian animal species. Therefore it was necessary to rectify the mistakes that have occurred so that these errors do not continue.

The existence of this native Indonesian animal and plant conservation material had increased students' knowledge about the abundance of plant and animal species that live in Indonesia. Students also understood that Indonesia is one of the mega biodiversity countries in the world. However, natural damage can threaten the existence of these species so that they can become extinct. Students were also invited to understand that these wild plant and animal species have benefits for humans, but at this time humans have not found their benefits. Therefore, nature conservation is an important thing to do so that the Indonesian nation does not lose the beneficial potentials obtained from the wild plants and animals that still exist. This was where the researcher hopes that there will be an increase in students' awareness of the importance of conservation after students gain enrichment of knowledge about nature conservation in Indonesia. This is because these elementary school students are the younger generation who are the successors of the Indonesian nation who are sovereign over the natural wealth belonging to their nation.

CONCLUSIONS

Both of the students and teachers gave positive responses to learn nature conservation conveyed through various games because the learning situation was amusing and unique. The learning-by-game method can be applied to various subjects of matter in elementary school. The application of a combination of learning methods and the use of various learning media is following the concept of learning according to constructivist learning theory. The student can construct new knowledge based on their previous knowledge.

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