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Environmental education and disaster mitigation through language learning

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Abstract. This study aims to determine the knowledge of the environment, attitudes towards the environment, and skills in designing learning that contains the environment of prospective language teachers. In addition to the environment, this research also links environmental learning with disaster mitigation. This study uses a survey method. The instrument used was a questionnaire in the form of a question sheet consisting of twelve questions relating to the attitudes and knowledge of prospective teacher students regarding environmentally charged learning and disaster mitigation. The results of the study indicate that students still need to improve knowledge about the environment and disaster mitigation to be able to design language learning with environmental education and disaster mitigation. When becoming a teacher, scholar have been able to integrate environmental education and disaster mitigation to provide students with an understanding of it and foster an attitude of environmental awareness and care for the environment.

1. Introduction

Worldwide, everyone faces serious environmental problems, such as global warming, acid rain, ozone layer destruction, environmental pollution, natural damage, and loss of biodiversity that can seriously threaten the lives of current generations, especially future generations [1,2]. Environmental problems are caused by careless and intensive human activities in natural areas to improve their quality of life [3,4]. A more threatening aspect is the unconsciousness of human influences in their environment [5]. Environmental damage results in an ecological crisis that will cause a series of problems with natural resources, climate, pollution, food, and the economy [2,6]. This is because the environment determines the dynamics of life, public health, spiritual and moral development [7].

Humans living today are faced with environmental problems [2]. Humanity has long recognized that its existence depends on the status of its environment [8]. Everyone has the same responsibility to overcome these problems [1,9]. Because environmental damage is not caused from a certain place, but it can come from the surrounding environment. The damage not only affects the future life, but also the present.

Around the world many methods have been applied to solve environmental problems, such as government policies, appeals to society, nature lovers' movements, and strengthening government



regulations [1,10]. However, this method is not effective enough to reduce environmental problems. Developing conscious and environmentally responsible individuals is needed to deal with these problems so that a sustainable environment and quality of life are better [5,11,12]. This can be realized through education, more specifically environmental education [5,11,13,14].

Environmental problems are inherently inseparable from environmental awareness, values, and attitudes of people. This encourages countries to start assessing environmental education [2]. Environmental education is a joint effort that is consciously organized to teach or attract human attention about how the natural environment functions and how these humans can manage and protect it [9]. This education takes place in the practice of seeking creativity and discovery, and the exploration of reality without realizing it [15]. Developing knowledge about scientific and social significance of the environment is the first step in the formation of an environmentally friendly society. Through knowledge and awareness, positive values and attitudes emerge that will encourage actions to make adjustments to lifestyle and consumption habits that will reduce the burden we place on the environment [16,17].

The aim of environmental education is to make students participate in protecting the environment [18]. In order for students to participate in protecting the environment, it is important to develop knowledge about the environment, environmental awareness and changes in behaviour toward the environment [19,20,21,22,23]. Individuals should be encouraged not to view the environment as something that should be exploited for their purposes, but as a valuable asset that is worth protecting for human survival [22].

Environmental education can help students re-think the correlation between humans and the environment, begin to understand their environment, be aware of environmental problems and consider environmental issues related to their lives [2,24]. It can also change the overall system of consumer mentality, worldview and education [25]. In addition, it also produces certain behavioural skills and rules in relation to the environment, and develops optimization and harmony between humans and nature [26].

The National Environmental Education Foundation explains the three levels of environmental education described below. First, namely environmental awareness, general familiarity with key environmental issues. Second, knowledge of personal behaviour, which translates awareness into actions to preserve the environment. Third, environmental literacy, which allows students to learn basic principles and acquire skills to carry out their own projects [27].

Educational institutions as key stakeholders are obliged to increase student environmental awareness. In Indonesia, environmental education is not a compulsory lesson in school. Therefore, environmental education can be integrated into other subjects, one of which is language learning. Research on environmental education in language learning has been carried out by other researchers before [9,15,28,29,30]. Using environmental themes in text learning can trigger interest in students learning languages and implicitly can increase students' knowledge of the environment [12,28,31,32]. It can also open a window of opportunity to develop students' thinking skills and communicative skills by using materials that are challenging on global issues, especially about the environment [29].

The themes related to the environment in Indonesia need to be simulated. Indonesia is one country that has many environmental problems. Based on the Sindo newspaper R & D survey in 2018, there were ten major environmental problems in Indonesia. These problems include waste (40%), flooding (20%), polluted rivers (11%), global warming (10%), air pollution (6%), difficulty in clean water (3%), forest destruction (2 %), abrasion (2%), and soil contamination (2%). To foster students' understanding and awareness of the environment, education has a big role. Through language learning, issues regarding this matter need to be integrated [33].

Based on research conducted by previous researchers, it shows that the level of knowledge and environmental awareness of students is low [25,34,35]. This is very worrying, because students are future generations who must be able to maintain the environment. Students need to have experience in taking initiatives relative to urgent requirements in the field of global challenges in society [36]. In

environmental education, students need to develop environmental advancement, increase capacity, have experience on environmental issues and develop a vision for a sustainable future [22].

To overcome this, teachers play an important role in teaching environmental education and fostering student awareness about the environment [9,13,28,29,37,38,39]. In addition, the teacher must also develop the ability of students to understand, criticize, and participate rationally in every discourse on environmental issues [8,39]. To make this happen, the teacher must have the necessary knowledge and readiness about the environment in order to have efficient activities in the classroom [40].

As the subject of pedagogical activities, the teacher must produce knowledge, beliefs, and skills in environmental preservation and protection of nature [8]. The teacher views environmental science as an aspect of nature protection that is applied. This attitude does not raise awareness about harmony with nature and knowledge of the relationship between humans and nature [41]. To achieve this, the teacher must have an interest in using themes related to global issues regarding the environment, having a qualified understanding, and a positive attitude towards the environment. However, it was reported that teachers were inefficient in terms of introducing environmental education goals to students, possessing the necessary information and skills, and having self-confidence in relation to environmental education [40,42].

As language teachers, we are the luckiest teachers, all subjects are ours. Whatever our students want to communicate, whatever they want to read, is our subject matter [43]. Language teachers are in a unique position to promote environmental awareness [28]. Many educators today understand the importance of protecting the environment, but language teachers generally do not see themselves as science teachers, nor do they, as the general public understands environmental issues [44]. By integrating environmental education into language classes, educators can increase students' interest in contemporary issues that might directly affect their future; teach students how to contribute to a healthier and more sustainable world; and promoting meaningful language learning and communication [28].

The decrease in environmental carrying capacity is characterized by the number of natural disasters that occur due to human behaviour. Forest fires, floods and landslides that occur in Indonesia are evidence of a crisis of environmental awareness. To prevent further damage, it needs to be anticipated early through environmental education and disaster mitigation [4]. Many natural disasters are caused by environmental damage from humans. Creation of awareness and sensitivity about environmental changes related to mitigation as fraudulent natural hazards needs to be done [45]. An understanding of disaster mitigation can reduce loss and loss of life. Thus, students need to know this through language learning.

To integrate environmental education in language learning is not easy. The teacher must have the necessary knowledge and readiness about the environment in order to have efficient activities in the classroom [40]. Based on these explanations, this study aims to determine the knowledge of the environment, attitudes towards the environment, and skills in designing learning that contains the environment of prospective language teachers. In addition to the environment, this research also links environmental learning with disaster mitigation.

2. Method

This study uses a survey method. The instrument used was a questionnaire in the form of a question sheet consisting of twelve questions relating to the attitudes and knowledge of prospective teacher students regarding environmentally charged learning and disaster mitigation. The selection of question sheets as a research instrument, because the questionnaire cannot accommodate the knowledge and opinions regarding the problems under study and interviews require a considerable amount of time to obtain information. In addition, students also write environmentally charged learning designs and disaster mitigation for language learning. It aims to see the skills of students as prospective language teachers to try to integrate environmental education in language learning. The correspondent is an Indonesian language student who is studying at Universitas Negeri Padang consisting of 30 people.

3. Results

The results of this study are elaborated based on the research objectives which consist of three, including the following. First, knowing the understanding of prospective language teachers about environmental education and disaster mitigation. Second, knowing the attitudes and actions taken by prospective language teachers for environmental education and disaster mitigation. Third, looking at the skills of prospective language teachers in designing learning with environmental education and disaster mitigation. The results of these studies are described as follows.

3.1. *Understanding of environmental education and disaster mitigation*

The Result of the study on the understanding of prospective language teachers about environmental education and disaster mitigation are described as follows. First, based on students' understanding of environmental education and disaster mitigation, it shows that 19 students (63%) understand and 11 students (37%) do not understand about environmental education and disaster mitigation. This understanding is evidenced by the student's explanation of the nature of environmental education and disaster mitigation and can explain with examples related to it. Students who understand this can explain that environmental education includes cognitive and attitudinal aspects of the environment and knows that disaster mitigation is a human effort to prepare for disasters.

Second, based on information that students have known about environmental education and disaster mitigation, it shows that 21 students (70%) have received information and 9 students (30%) have not received information on environmental education and disaster mitigation. Information obtained by students regarding environmental education is through the government's call for environmental preservation with policies, public service advertisements and posters. In addition, it is also known through counselling about environmental hygiene and practicing how to deal with disasters. Information is also obtained from news about disasters caused by environmental damage. Of the 14 students who knew the information, there were 2 students who had been directly involved in disaster mitigation.

Third, based on students' understanding of environmental impacts, it shows that 30 students (100%) know the environmental impact on humans. The general answer is that the environment has positive and negative effects on humans. Positive impact if the environment is well maintained and has a negative impact if the environment is not maintained. The environment has an impact on human health; besides it also affects the economy of the community. An environment that is not maintained can also cause disasters that will harm humans for their survival.

Fourth, based on student opinions regarding the importance of understanding disaster mitigation, it shows that 29 students (97%) stated that disaster mitigation is important and 1 student (3%) stated that disaster mitigation was not important for humans. Student opinions regarding the importance of understanding mitigation so that people are more aware of disasters that occur and minimize environmental damage resulting in disasters. If a disaster occurs, disaster mitigation can be useful for knowledge about saving oneself in the event of a disaster. This can reduce the losses incurred and especially reduce the loss of life.

Fifth, based on the opinions of students regarding the role of language teachers to provide environmental education and disaster mitigation, it shows that 30 students (100%) stated that language teachers play an important role in delivering environmental education and disaster mitigation. However, the explanation of the role that language teachers can play in environmental education and disaster mitigation is that not all students can provide a detailed explanation of this. In general, students argue that the role of language teachers in environmental education and disaster mitigation uses these themes in language learning, especially in text learning. Language teachers can use environment-themed texts on learning.

Sixth, based on the student's explanation of the approaches / methods that are effectively used in implementing language learning by applying environmental education and disaster mitigation, it shows that 6 students (20%) suggest using environmental, picture, video and audio-visual media, about environmental damage, and disaster mitigation in language learning. 5 students (17%) suggested

using the direct method, namely inviting students to directly observe the environment (observation), whether the environment around the house, or school. 6 students (20%) suggested using environment-based (text-based) texts in learning that, through text, students gained knowledge about the environment. 6 students (20%) suggested using the discussion method, learning activities carried out by discussing the environment and the impact of environmental damage, and how to deal with the damage through class discussions. In addition, 2 students (7%) suggested using a contextual approach and 2 students (7%) suggested using a problem-based approach. 3 students (10%) did not know the effective approach / method used in implementing language learning by applying environmental education and disaster mitigation.

Seventh, based on the knowledge that students have known about environmental education and disaster mitigation shows that 29 students (97%) stated that they did not have sufficient understanding to explain environmental education and disaster mitigation in language learning and 1 student (3%) stated that they had sufficient understanding. The insufficient understanding of students is because this knowledge is known through some reading and knowledge that is known to be still in personal interest. Students also stated that environmental education and disaster mitigation were not obtained through formal education and it was suggested that presenters who understand this be brought to prospective language teachers.

3.2. Attitudes towards environmental education and disaster mitigation

The Result of the study regarding the attitude of prospective language teachers regarding environmental education and disaster mitigation are described as follows. First, based on the importance of environmental education and disaster mitigation in language learning shows that 30 students (100%) stated that it was important. The importance of this is because in Indonesia there have been many environmental damages caused by humans. Because the damage to nature causes natural disasters that can disrupt human activities. In addition, Indonesia is also a country prone to natural disasters. So that teaching about environmental education and disaster mitigation to students is very important thing to do to provide understanding and caring attitude towards the environment.

Second, based on the readiness to be a language teacher to shape students' awareness of the environment and disaster mitigation, it shows that 23 students (77%) are ready, while 7 students (23%) are not ready. Of the 23 students who are ready, only 3 students can present actions taken to foster student awareness about the environment and disaster mitigation. What teachers can do is to show that caring for the environment is important, this is done by doing small things such as properly disposing of garbage and carrying out activities related to environmental sustainability.

Third, based on students' thinking about improving environmental knowledge and disaster mitigation, it shows that 30 students (100%) are ready to improve their knowledge because it is important. Environmental problems are a shared responsibility. Students advise that environmental policies need to be socialized and disaster mitigation needs to be simulated so that people know. The most important thing is to grow public awareness, starting with ourselves, to pay more attention to this problem.

Fourth, ways that can be done to increase students' interest in studying environmental education and disaster mitigation show that 27 students (90%) know how to do it and 3 students (10%) do not know how to do it. Students suggest ways that can be done to increase student interest by showing the news or text that relates to this, that the current environment has suffered a lot of damage and can cause disasters. These disasters can affect human life.

Fifth, based on students' interest in studying environmental education and disaster mitigation, 30 students (100%) study it. Because students realize that learning this matters both as human beings and as prospective teachers who must be able to integrate environmental education in learning.

Sixth, based on students' interest in researching environmental education and disaster mitigation, 12 students (40%) were interested, while 18 students (60%) were not interested in doing the research. However, students who are interested in conducting research do not yet know how to start and link their research with the field of education that they undergo. The students' interest regarding this

research was motivated by the fact that environmental problems were a topic that could benefit humans.

3.3. Language learning designing skills containing environmental education and disaster mitigation

This research data is a learning design written by students to integrate environmental education and disaster mitigation in language learning. Based on the learning plan, the following points are summarized. First, in the introductory part of learning, the learning design written has not yet seemed to motivate the teacher so that students are interested in studying environmental education and disaster mitigation. Second, in the learning activities section, the themes related to environmental education are still limited, students provide examples of garbage, floods, earthquakes, and tsunamis. Even though the environmental theme is very broad to be given to students. Third, students have not been able to write a design or learning scenario using a particular method, in general students use a lot of learning using media images, audio, or audio-visual. Fourth, the text used in learning to integrate environmental education and disaster mitigation has varied, such as exposition texts, explanations, procedures, poems, and observational reports. Fifth, reflection on the closing part of learning does not appear to foster student attitudes towards the environment.

4. Discussion

Every individual has the same obligation to protect the environment. Lack of knowledge and environmental awareness has caused environmental damage. This incident certainly cannot be left alone. There is still hope to improve it by increasing environmental awareness among the younger generation. School is one of the important roles to make this happen.

Environmental education is important to improve students' attitudes and awareness of the environment. Environmental education must be designed to contribute to the development of cognitive, emotional, linguistic and psychomotor students, and enable them to develop positive attitudes towards the environment [24]. However, environmental education in the school curriculum in Indonesia is not a compulsory lesson that must be learned. To overcome this, environmental education can be integrated in other subjects, namely language learning.

Language teachers play an important role in integrating environmental education in language learning. Teachers can use global issues as a context for developing language skills [46]. This context can be integrated into the text being studied. In accordance with the language learning curriculum, namely text-based language learning. Through the texts learned, students gain knowledge about the environment and are expected to have an impact on environmentally conscious behaviour. Environmental education can be seen through the learning design used by the teacher.

Based on the results of the research that has been done, it shows that the knowledge of students (prospective teacher) to teach environmental education in language learning is not enough. Their understanding is still around general issues about the environment, even though as a 21st century teacher, the world faces serious global issues and must be known by all individuals, especially teachers [13]. The results of the study show that there is a lack of understanding of students (prospective teacher) about the environment, because the students in question rarely get information about the environment. The lack of reading about environmental issues and lack of interest and caring for the environment is one of the factors causing this. Knowledge about the environment is still about understanding concerning matters and personal interests.

Based on the learning design written by students (prospective teacher), it shows that students have been able to integrate environmental education through the texts learned. Students are able to determine diverse texts for environmental education. However, students have not been able to use diverse learning methods. Learning is still about the use of media such as image, or videos that are useful for providing information to students about the environment.

Many methods or approaches that can be used in language learning contain environmental education, such as genre-based learning [30], task-based learning [9,29], and content-based learning [29]. Learning is done by integrating environmental education in language learning. In addition to

these methods, teachers can also use other appropriate approaches such as contextual based learning, problem-based learning, project-based learning, and etc.

Based on student (prospective teacher) attitudes towards environmental education shows that students agree to improve their ability to understand the environment, because they realize that environmental education is important to know. The importance of environmental education is useful for oneself and as a teacher whose job is to convey information to students. Teachers need to grow the ability of students to understand, criticize, and participate rationally in every aspect of the environment (human, cultural, physical). It can foster a holistic approach that addresses social, cultural and ethical [39]. If teachers do not have expertise in knowledge, skills, and commitment to the environment, they may not be able to lead effectively to environmental changes [8].

5. Conclusions and Suggestions

Based on the research conducted, that everyone has the same obligation to protect the environment. To be able to maintain the environment requires understanding and knowledge about the environment. Teachers play an important role in conveying this knowledge to students, because students are the next generation who are in charge of protecting the environment.

Environmental education can be integrated into other lessons, one of which is language learning. integration can be done by using themes about the environment in text learning. Through text that is learned, students can learn the language and get environmental knowledge through the contents of the text being read.

Based on this, it is important for teachers to have environmental knowledge and have an environmentally caring attitude. If the teacher does not have the knowledge and attitude, then language learning will be less meaningful. Teachers must be able to design language learning by integrating various topics, one of which is environmental education. You can use text related to the environment or use the appropriate learning method.

This research can be used as an evaluation for all parties, especially prospective language teachers to be able to increase their knowledge about environmental education. By increasing this knowledge, it can foster an attitude of environmental awareness and can improve skills in integrating environmental education in language learning. Teaching environmental education to students to form a generation that understands the environment and has a caring and loving attitude towards the environment.

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