

## NATURE-BASED LEARNING MODELS FOR ECOLOGICAL CITIZENSHIP FORMATION IN SCHOOLS

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### ABSTRACT

*The aim of research was to form students' ecological citizenship by using a nature-based learning model. Some problems of natural damage such as forest fires, landslides, and floods must be everyone's concern and responsibility. Therefore, schools needed to prepare a generation who had a responsibility towards nature. The method applied in the research was a descriptive method, while data collection technique was done by means of literature study. Data analysis techniques were in-depth reading to find more accurate data. They were compiled using logical arguments based on the results of analysis. The results of research indicate that forming ecological citizenship in a school environment can be done with environmental knowledge, environmental skills, and environmental ethics. These three aspects can be obtained using a learning model that is in accordance with the basic competencies to be achieved. The learning model that brings students closer to nature is a nature-based learning model outside the classroom that is also adjusted to the basic competencies contained in the Pancasila and Citizenship Education subject. The three aspects of ecological citizenship formation in these schools can be implemented properly if they are socialized to teachers and students. The purpose of this socialization is that teachers can integrate environmental problems into lessons. In contrast, socialization to students is carried out in the hope that an attitude of loving the environment is formed.*

**Keywords:** learning model, nature-based learning, ecological citizenship, school environment

### INTRODUCTION

Humans and the environment are two things that cannot be separated and are always related to one another. Humans as social beings need a social environment to interact, and human needs for nature are unlimited. Natural damage is a problem discussed by various groups. The natural damage that has become a trending topic of discussion in the last few months is forest and land fires in Riau. Based on data obtained from the Ministry of Environment and Forestry, around 135.747 hectares of forest and land are burned from January to July 2019 (Ristianto, 2019). The data shows that forest fires cause haze that has not only hit Riau and other parts of Sumatra but has spread in neighboring countries, namely Malaysia and Singapore. These forest fires are caused by people who do not love nature, so it is necessary to build

public awareness.

Forest damage will cause problems in the community, such as landslides and floods. Floods are natural disasters that are experienced every year by almost all regions in Indonesia. It can be caused by a lack of human responsibility towards nature. In line with this, Handyaningsi (2018) has revealed that human activities that cause flooding reflect human nature that is not responsible for nature. It can also be said that flooding occurs because humans do not love nature. Forest damage will cause problems in the community, such as landslides and floods. Floods are natural disasters that are experienced every year by almost all regions in Indonesia. It can be caused by a lack of human responsibility towards nature. In line with this, Handyaningsi (2018) has revealed that human activities that cause flooding reflect human nature that is not responsible for nature. It can also be

said that flooding occurs because humans do not love nature. Damage to nature is a shared responsibility of all elements of society, and it is the main focus of attention to society. In protecting nature, active participation of all community groups is needed. A similar thing is also stated by Jagers and Matti (2010). They have stated that individual involvement in environmental work is needed to stop environmental damage. Their statement shows that students as the younger generation can take part in protecting the environment.

Nature can be used as a source of livelihood for the community. However, on the other hand, nature can be used by teachers as a learning resource. MacQuarrie, Nugent, and Warden (2013) have explained that nature is used as a resource that will animate humans. Also, nature is used by teachers as a learning medium for children (students) in order to get closer to nature. The concept of the nature-based learning model was first introduced to the 'real goods teaching' model by Jan Lightghart in 1859. The main idea of this concept is that education for students is carried out by inviting students to a real atmosphere (learning in a more realistic natural environment). Nature-based learning models are implemented as an effort to fight forms of teaching that tend to lead to intellectualism and verbalism.

Nature-based learning models are designed to direct students to get closer to nature and be able to think about the causes of existing natural environmental problems, and present the best solutions to anticipate natural damage. Nature-based learning models provide a concrete view of the reality of the natural environment by giving students a sense of responsibility towards the environment. Thus, Spannring (2019) has explained the concept of ecological citizenship, which emphasizes responsibility, community, and care. Responsibility towards nature will appear naturally when people look at natural problems.

Ecological citizenship is a type of citizenship that encourages individuals, communities, and organizations as global citizens to consider environmental rights and responsibilities (Karatekin and Uysal, 2018). The initial concept of the growth of ecological citizenship in the mid-1990s was driven by an awareness of transnational nature, environmental concerns, and a shared desire to see all people as citizens of the same planet of the same age (MacGregor, 2014). Ecological citizenship must grow in itself through various processes such as habituation. Habits can be carried out in learning activities by presenting nature-based learning models to see natural realities so that a sense of care for the environment grows. In line with this, Melo-Escrihuela (2008) has stated that ecological citizenship will not emerge spontaneously but must be created.

To foster students' ecological citizenship, learning models that blend in with nature are needed, for example, nature-based learning models. Nature-based learning models provide physical, cognitive, socio-emotional, and spiritual benefits (Christian,

2017). Nature-based learning models can foster knowledge related to nature and the surrounding environment. It can also develop children's abilities as a whole according to the level of delivery of all aspects of development, both cognitive, moral, social, and psychomotor abilities (Jiwaningrum & Suryono, 2014). Their opinion requires that Pancasila and Citizenship Education subjects have the opportunity to be able to apply nature-based learning models in the learning process on certain materials. Nature-based learning applies not only to natural science subjects and to children who are at Kindergarten level but can be applied to elementary, junior high, and high school students.

Nature-based learning models can be applied to everyone, from children to adults. In The Oakland Declaration (2019), the nature-based learning model applies to all ages in many societies. Nature-based learning models can be done in various places and are not bound by time, and can be done by everyone. Thus, nature-based subjects have the opportunity to be applied not only to subjects related to nature but also to other subjects with social science clusters such as Pancasila and Citizenship Education. This model is presented in order to develop all potential students. In the Pancasila and Citizenship Education subject, there are specific basic competencies that lead to the development of ecological citizenship of students. However, in implementation, it has not been implemented properly in accordance with the objectives of competence.

The formation of ecological citizenship is very much needed today, considering that many natural problems such as landslides, floods, forest fires, water pollution, and others are caused by humans who do not love nature. Thus, it is necessary to establish ecological citizenship in schools so that students can preserve nature. Loving nature means loving life because nature provides what humans need for their survival. This research aims to form students' ecological citizenship by using a nature-based learning model.

## METHODS

The research applies a descriptive method to describe a nature-based learning model to form ecological citizenship. The data collection technique is literature study by collecting journals, books, and websites related to the titles raised. The data analysis technique is an in-depth reading to find relevant references and marking the reading to make it easier for the author to collect more accurate data so that the data is arranged using logical arguments based on the analysis results.

## RESULTS AND DISCUSSIONS

Nature provides what humans want. Among other things, it can be used as a learning resource

by observing and paying attention to the meaning of the natural conditions that occur and can be used as learning material for oneself and others in the school environment. Schools have an important role in accommodating students and teachers to be able to observe natural conditions that occur in the surrounding environment and serve as sources, materials, and learning media. By seeing the phenomena that occur directly, sympathy will grow so that students can provide solutions to what is seen and heard.

Schools must be more sensitive in paying attention to environmental damage because students will enter the community in the future, so it is necessary to instill good knowledge, skills, and environmental ethics in students early. For this reason, schools as formal educational institutions must also equip students to be able to love the environment. Schools should provide space (opportunities) for students to express their desires related to natural phenomena that occur. Student acts to participate in the environment (environmental participation). Students are involved in activities that focus on the protection and improvement of the natural environment, such as conducting environmental conservation campaigns for the community, carrying out greening on critical land with the hope that the community will participate in planting trees, making an anti-environmental damage petition, and inviting the closest people to petition gardens. All activities carried out to instill in students will protect nature and build public awareness of protecting and preserving the natural environment around them.

Schools need to hold outreach on protecting the natural environment to school members, especially teachers and students. Socialization is carried out to the teacher to enter or integrate environmental issues into the material to be taught to students. Teacher's participation, in this case, can be categorized as important because they need to describe natural problems into the learning model. Then the model that has been created is applied to students aiming to form students' ecological citizenship. On the other hand, the socialization of the importance of protecting the natural environment is intended to form students' ecological citizenship.

Learning is a process of students' interaction with teachers and learning resources in a learning environment (Suardi, 2018). The learning process outside the classroom is carried out to build a sense of care, responsibility, and independence of students towards the surrounding environment so that a nature-based learning model is needed in this process. Nature-based learning models try to get students closer to nature, care about environmental sustainability, and learn to protect the natural environment (Wulansari, 2017). In building knowledge about nature, students are directed to understand nature first.

The nature-based learning model is a learning process planned consciously carried out by teachers or educators to get students closer to the natural environment so that the students love the natural

environment. Nature-based learning models can develop knowledge, attitudes, and skills in preserving the natural environment. There are nine principles of nature-based learning models written by Barus and Suratno (2015). They are namely: (1) centered on child development; (2) build children's independence; (3) learn from the surrounding natural environment; (4) learning and playing from the surrounding environment; (5) make use of easy and inexpensive learning resources; (6) learning with a thematic approach; (7) build habits of scientific thinking from an early age; (8) inspirational, thoughtful, creative, and innovative learning; and (9) provide space for children to learn actively. The several principles of this nature-based learning model have a common ground, including providing opportunities for students to develop themselves based on the experiences that children have gained through the learning process.

In a cosmopolitan view, ecological citizenship argues that to fulfill moral obligations in the context of global justice, citizens must experience a shift in attitude and adopt the virtues of green citizenship (Martinsson & Lundqvist, 2010). This is what makes ecological citizenship an interesting language trend apart from environmental degradation in the global era. The impact of the problem of environmental damage is now increasingly being felt; no wonder many scientists talk about this problem a lot. According to Yuniarto (2013), ecological citizenship is related to moral identity (citizen ethics) towards the environment. To shape students' ethics towards the environment, various ways are needed, one of which is by presenting learning content that directs students to care and love nature through the learning process.

The learning process is an alternative to guide individuals in loving the environment. The simplest form of environmental love can be manifested in the sense of individual responsibility towards the universe, for example, not polluting the air, water, not littering, and so on. Therefore, the formation of ecological citizenship in the school environment is needed to familiarize students with preserving nature. Jagers and Matti (2010) have revealed the function of ecological citizenship as a path to individual environmental responsibility towards the natural surroundings. Individual responsibility towards nature must be understood as part of nature conservation behavior. Ecological citizenship is suggested as a driver of pro-environmental individual behavior (Jagers, Martinsson, & Matti, 2013). This view implies that the ecology of citizenship emphasizes the individual's attitude in viewing or paying attention to the environment.

Action is a manifestation of an attitude that is repeated; loving nature is a consequence of ecological citizenship in society. Ecological citizenship must be understood as a different substance for a more conventional understanding of citizens (Hayward, 2006). Ecological citizenship is seen as another meaning of an agreement that applies in society, meaning that environmental awareness possessed

by individuals in a society is a form of ecological citizenship in themselves. It is a society's attitude to love and preserve nature because humans and nature are two inseparable things. The form of love for nature is responsible for preserving nature or the tendency to defend and protect nature. To establish ecological citizenship in a school environment, three conditions can be applied properly.

The first is environmental knowledge. Protecting the environment is the main task of humans as creatures in need. In carrying out these tasks, knowledge of the environment is needed to properly care for the natural environment. Students are part of society who need environmental knowledge to contribute to the preservation of nature. One way to gain knowledge is through the learning process inside and outside the classroom. The learning process carried out by students is guided by the teacher. To carry out learning well, teachers are required to have material knowledge to teach that is not only limited to the field of study (subjects) being taught. However, it must be broader to understand the existing symptoms or respond to signs that occur in the natural environment. If natural phenomena occur, it can be used as learning material. The hope is that students will be able to develop good knowledge about the natural environment.

Good environmental knowledge will present an environmental care attitude that is contained in students. The same thing is stated by Arcury (1990), which has stated that environmental knowledge is consistently and positively related to environmental attitudes, even though the relationship is not very strong. The statement implies that every action taken rests on thoughts acquired through knowledge. Environmental knowledge has an impact or influence on a person's environmental ethics. Good environmental knowledge has an impact on students' ethics in seeing the environment. The ability of students to apply environmental knowledge has an impact on the improvement of the environment around where they live. In general, students always interact with each other and act by environmental knowledge that will indirectly influence others to do the same thing. These actions are expected to influence other students to do the same thing, namely, protecting the environment.

The second is environmental skills. Students with their knowledge do not always guarantee that they can solve current environmental problems. They are deliberately directed to have skills in dealing with environmental problems that occur now and in the future. For that, people need environmental skills that must be presented to themselves. The environmental skills in question are the skills to find sources of environmental problems, identify causes of environmental problems, find solutions to these problems, and anticipate environmental problems well. Environmental skills can be presented in the learning process by building student knowledge related to natural phenomena that occur. Natural phenomena usually help students think to be able to

identify the causes of problems and find solutions to these problems. So that students can act directly in overcoming problems that occur.

The third is environmental ethics. In Law Number 32 of 2009 concerning Environmental Protection and Management, article 1 paragraph 1 is stated that an environment is a spatial unit with all objects, strengths, conditions, and living things, including humans and their behavior, which affect nature itself, its continuity life, and the welfare of humans and other living things. Human behavior towards the environment requires good. The ethics shown by humans in protecting nature gives the impression that humans care about the environment. Environmental ethics, or it can also be called ecological sustainability in broad terms, is an option to save the environment, natural resources, and ecosystems (Marfai, 2019). Environmental ethics is understood as part of the attitude shown because of love for nature. In learning, environmental ethics are needed to present to students as the nation's successor.

Anthropocentrism is an environmental ethical theory that views humans as the center of a universal system (Supriatna, 2018). This theory illustrates that humans have a full role in controlling or preserving nature. To maintain the existence of nature as the source of human life on earth, it is necessary to educate students as the nation's next generation to love nature. In cultivating environmental ethics, students are required to see the natural conditions around them so that there is a desire in students to protect nature. Also, a complete understanding of the environment is required. This can be done by providing an understanding of the importance of nature for human life through a nature-based learning model. Environmental ethics are attitudes or behaviors shown by humans as creatures who have full authority over nature. This attitude is reflected in how to treat and love the universe well without causing damage to nature in the long run. Environmental ethics can be transmitted through learning. It is contained in student directions to actively participate in activities that blend with the environment to protect it.

The three stages that have been described, namely knowledge, skills, and environmental ethics are indirectly contained in Pancasila and Citizenship Education learning. Therefore, this subject makes a good contribution to the formation of students' ecological citizenship. In the Pancasila and Citizenship Education subject, citizenship knowledge, citizenship skills, and citizenship characteristics must be possessed by students as the nation's next stick so that these subjects can implement nature-based learning models to form ecological citizenship. Basic competencies for Pancasila and Citizenship Education subjects that can be applied to nature-based learning models are the basic competencies 3.6 and 4.6 found in class IX. Table 1 contains competencies related to ecology.

Based on Table 1, the basic competencies 3.6 and 4.6 in the Pancasila and Citizenship Education subject

Table 1 Basic Competencies about Ecology in Pancasila and Citizenship Education Subjects

Basic Competence 3	Basic Competence 4
3.6 Creating the concept of patriotism/national defense in the context of the Unitary State of the Republic of Indonesia	4.6 Organizing environmental activities that reflect the concept of loving the country in the context of everyday life

(Source: Permendikbud No. 37 of 2018 concerning Amendments to the Regulation of the Minister of Education and Culture No. 24 of 2016 concerning core competencies and basic competencies of lessons in the 2013 curriculum in primary and secondary education)

provide opportunities for students to reveal the concept of love for the country into nature-based learning. It is because, in general, the concept of love for the country in this subject is interpreted only as a defense of the state in the context of defending the territory of the Unitary State of the Republic of Indonesia, whereas the concept of loving the homeland in a smaller scope that also means loving the environment, cultivating good environmental ethics, and environmental skills. In Pancasila and Citizenship Education learning, it is almost rare to develop nature-based learning models outside the classroom, even though the basic competencies 3.6 and 4.6 provide opportunities for teachers to develop nature-based learning models outside the classroom by taking into account the conditions of the surrounding environment. Inviting students to learn to love the environment is not limited to giving examples verbally. However, it can invite students directly to see the natural environment's condition using nature-based learning models outside the classroom. Cultivating ecological citizenship in a person needs to involve the individual himself/herself (Wolf, Brown, & Conway, 2009).

The implementation of nature-based learning can be done in two ways: learning in the classroom and learning outside the classroom (Sunanik, 2018). In this research, the implementation of nature-based learning is focused outside the classroom, considering that students need to directly observe environmental problems and also make learning more memorable so that students will easily practice it. Also, the nature-based learning model outside the classroom will be able to foster students' ecological citizenship because they will feel the condition of the surrounding environment. The steps of the nature-based learning model outside the classroom offered in the research include seven steps: (1) teachers learning plans include elaborating the indicators to be studied, drafting the concept of nature-based learning materials, determining nature-based learning themes, providing materials and tools needed according to nature-based learning themes. (2) The teacher delivers the material studied and provides information on the stages that will be carried out during the learning process. (3) Students pay attention to the material and stages presented by the teacher. (4) Students are led to find natural environmental problems by the material being studied. (5) Students are accompanied by a teacher to identify the causes

of environmental problems. (6) Students provide oral and written solutions based on what they see, observe, and feel. (7) The teacher and students conclude the material obtained from the learning that has been done.

The anthropocentrism theory that has been described in the previous section states that humans are a universal system. This theory must also be seen that humans are required to be directly involved in the repair of the damaged nature to gain experience and love nature. Love for nature for the body works well when humans engage in activities that lead to the improvement of nature. The nature-based learning steps outside the classroom described are expected to be used by teachers and students to foster students' ecological citizenship because they experience direct learning related to nature. Ecological citizenship is a normative theory used to explain how some individuals lead sustainable lives (Kennedy, 2011). This view illustrates that ecological citizenship influences people's lives, especially in environmental arrangements in one area.

## CONCLUSIONS

Ecological citizenship must be formed because of many natural problems faced by every change of season. Therefore, schools must prepare generations (students) who have ecological citizenship to love nature. The school facilitates the formation of students' ecological citizenship by disseminating the importance of protecting the environment to teachers and students.

The formation of ecological citizenship in schools can be carried out through three aspects, namely environmental knowledge, environmental skills, and environmental ethics. All these aspects are obtained by direct learning to get closer to nature. The learning model that directs students to be able to understand nature is a nature-based learning model outside the classroom. This model makes it easier for students to observe and experience the natural surroundings directly. The application of this model is not only in subjects related to nature but can also be applied to social sciences such as Pancasila and Citizenship Education subjects by paying attention to all the basic competencies possessed by these subjects, for example, basic competencies that are suitable

for applying outside nature-based learning models. Class is basic competence 3.6 and 4.6 regarding the concept of love for the country. This concept must be understood more broadly because loving the country can also be interpreted as loving the environment by caring for the environment.

The formation of ecological citizenship in schools is not limited to one learning model but can use other models and methods as well as adjusted to the needs and situations, and conditions at school. The research can also be used as reference material for similar writings.

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