



THE ROLE OF PROBLEM-BASED LEARNING MODELS IN GEOGRAPHY LEARNING INBUILDING STUDENT ECOLITERACY

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Abstract

Ecoliteracy can be said to be ecological literacy or environmental literacy where humans have a high level of awareness of the importance of the environment for life. Problem Based Learning model is a learning model by presenting real problems that are happening, so that the model can be used in geography learning. Geography itself is a science that studies the interaction between humans and their environment, the existence of geography learning can make it easier for teachers to grow ecoliteracy in students. Cognitive knowledge of students increases where they can remember to the ability to solve problems, affective, namely the attitude of students has led to protecting the environment and for their own psychomotor students already have the desire to act such as throwing garbage in its place and doing things related to cleanliness at school . So with these things ecoliteracy in students has begun to grow.

Keywords: Role, Problem Based Learning Model, Ecoliteracy

A. Introduction

Ten major environmental problems in Indonesia include waste (40%), flooding (20%), polluted rivers (11%), global warming (10%), air pollution (6%), damage to marine ecosystems (4%), the difficulty of clean water (3%), forest destruction (2%), abrasion (2%) and soil pollution (2%). Indonesia is included in the top 10 countries with the largest population in the world. This has led to a number of further problems, including waste production and disposal (Suryadi, 2009). The larger the population, the more waste or waste generated.

The school environment that is often seen is that students still often litter, they tend to ignore the trash cans that have been provided by the school, there are even students who throw trash in the trash by throwing it in the trash but the trash doesn't enter so that garbage is scattered around the trash can. . In addition, sometimes students leave their food and drink waste under the table, even the picket schedule provided by the homeroom teacher is not carried out. The difficulty in maintaining the environment makes them still have a low level of ecoliteracy.

The problems that occur, make ecoliteracy very important for students to have. Environmental awareness and sensitivity to environmental problems can be instilled early on by developing students' ecoliteracy. Revealed that people who understand ecoliteracy are (Goleman, 2012): (1) Ecoliterate people recognize that they are members of a web of diverse relationship within their communities and beyond, (2) Ecoliterate people tend to be more aware that systems exist on various levels of scale, and (3) Ecoliterate people collectively practice a way of life that fulfills the needs of the present generation while simultaneously supporting nature's inherent ability to sustain life into the future. From this opinion, people who are ecoliterated are people whose way of life can meet the needs of the current generation to sustain life into the future.

Education plays a very important role in the dynamics of the life of a nation, education is an agent of development and an agent of change (Suryadi, 2009). With education, students will gain more knowledge which they will later use in both school and community environments because students are a young generation that has the potential to create an improvement in the future.

Geography emphasizes the distribution and spread of a phenomenon by taking into account the dimension of time so that it involves spatial diffusion, which means that geography is a field of scientific study that examines all phenomena in space which include natural phenomena and social phenomena where both are interrelated in space on earth (Kamil, 2002).

The environment and humans cannot be separated, where both are interconnected. The number of activities and human needs causes various disasters such as landslides, floods, fires and so on. The environment is an important component to be always maintained, as in human activities it must lead to sustainable life and development activities to save the environment from various damages. From a systematic point of view, the only solution that should be implemented is a sustainable solution (Capra, 2002).

The process of learning geography can foster student ecoliteracy. Because according to the explanation above, geography consists of both natural and social environments that are interconnected so that teachers have an important role so that students understand the importance of the environment. Ecoliteracy itself is the human ability to (1) understand key concepts and ecological connectivity, (2) think naturally about ecological problems and (3) appreciate the relationship between human actions and the environment (Reynolds & Lowman, 2013).

Problem learning models can be used to assist in instilling ecoliteracy in students, various real problems that exist in the environment can be used as material for them to think what, why, and how to solve these environmental problems. Problem-based learning is one of the learning approaches used to stimulate students' high-level thinking in real-world problem-oriented situations, including learning how to learn (Ibrahim & Nur, 2002). To create a pleasant learning atmosphere, the teacher provides comics media so that students are provoked to think with illustrated pictures and conversations that exist in the media, because comics are made more alive and processed by using the main colors freely (Sudjana & Rivai, 2010). Thus the research aims to identify a model of problem based learning in geography lessons in building students' ecoliteracy

B. Methodology

The study method uses a literature review, both primary literature, derived from research results and books related to the study. Problem based learning model as the dependent variable and ecoliteracy as the independent variable. The researcher is positioned as an instrument with a qualitative approach.

C. Findings and Discussion

1. Problem Based Learning Model

Problem-based learning is a model derived from constructivism theory. Constructivism was first proposed by Giambattista Vio, an Italian epistemologist in 1710 in his work "De Antiquissima Italorum Sapientia" then popularized by Mark Balwin and deepened and expanded by Jean Piaget (Hermanto, 2009). Constructivism learning theory states that students must construct knowledge in their own minds (Fitriana, 2013). Problem-based learning is based on Bruner's concept of "scaffolding". Scaffolding is a process where students

are helped to master certain problems beyond their development capacity through mentoring teachers or people who have more intelligence (Arendes, 2012).

The objectives of learning-based are (Hmelo-Silver, 2004): a) Construct or build a broad and flexible knowledge base, b) Build effective problem solving skills, c) Build self-directed learning, lifelong learning skills, d) Build effective collaboration, and e) Build intrinsic motivation in learning. With these problem-based learning objectives, the expected outcomes of students have the ability (Duch, *et al.*, 2011): a) Critical thinking, able to analyze and solve complex and real problems, b) Able to find, evaluate and use appropriate learning resources, c) Able to work together in teams and small groups, d) Realizing a variety of communication skills both verbal and written, and e) Able to use the knowledge and intellectual skills acquired in school to become a continuous learner.

The five phases of the problem-based learning model are (Arendes, 2012): a) orienting students to problems, b) organizing students to research, c) assisting independent and group investigations, d) developing and presenting work, and e) analyzing and evaluating. In the problem-solving process, the problems used in PBL are problems faced in the real world.

The advantages of the problem-based learning model (Pawson, *et al.*, 2006): 1) Student-centred approach, 2) Learning becomes more fun and satisfying for students, 3) Encourages deeper understanding, 4) High conceptual ability from participants students, and 5) Focus on developing the skills needed for lifelong learning. As for the shortcomings of the problem-based learning model, namely a) Previous learning experiences have not prepared students adequately to use this model, b) Requires quite a long time. This will have a negative impact on other learning, c) Students are less comfortable and feel confused because they are accustomed to traditional lecture learning, and 6) Failure can occur during group dynamics.

2. Ecoliteracy in Geography

Ecoliteracy comes from eco and literacy where eco comes from the word ecological which means it is a science that discusses the reciprocal relationship between humans and the environment while literacy means literacy, namely being skilled and understanding about something. Ecological literacy or ecoliteracy is a term used by Capra to describe humans who have reached a high level of awareness about the importance of the environment. Ecoliteracy stands for ecological literacy. Explained that ecoliteracy as a condition where people have understood the principles of ecology and live in accordance with these ecological principles in organizing and building life together with human beings on this earth in and to realize a sustainable society (Keraf, 2014).

Ecoliteracy or environmental awareness is defined namely environmental awareness is an effort to foster awareness so that they not only know about waste, pollution, reforestation and protection of endangered animals but more than that, raise environmental awareness of Indonesian people, especially today's youth, to love land and water to build a just, prosperous and sustainable Indonesian homeland (Neolaka, 2008). Furthermore, it is said that this awareness of the environment encourages the human person to live in harmony with nature and thereby fosters a sense of religion and infatuation with the love of Allah swt which is actually written through the contents of this earth. Ecoliteracy as a knowledge, must be able to provide several solutions to any environmental challenges and problems both local, national and global by providing information and knowledge about the use of locally available natural resources (Pilgrim, *et al.*, 2007)

Education is a forum used by teachers in teaching students, by learning they will have broad knowledge. With this knowledge, students can know what is good and what is not good for them to do. Similar to the opinion which states that learning is a process marked by a change in a person, change as a result of the learning process can be shown in various forms such as changing knowledge, understanding, attitudes, behavior, skills, abilities, abilities, reaction power, power recipient, and others (Sudjana, 1990). In this case, ecoliteracy is very important for students to have, because they are the nation's next generation who will later create a good life for the environment.

To grow the ecology of students, teachers use learning geography. Because geography itself is a science that studies the earth and everything in it. The material in the geography subject syllabus for the 2013 Curriculum Revised Edition in class XI that can be used in growing students' ecoliteracy is at KD 3.8 Evaluating appropriate actions in environmental conservation in relation to sustainable development and the subject matter of environmental conservation and sustainable development which discusses pollution, damage and environmental risks.

Learning geography is teaching about the spatial aspects of the earth's surface which are the overall phenomena of nature and human life with regional variations (Sumaatmadja, 2001). In addition, geography teaching is oriented to (1) the actual problems that develop around students, (2) the interests and psychology of the development of students, (3) improving living standards through the introduction and utilization of resources, (4) must be future oriented and (5) provides global insight both in the form of opportunities and challenges (Maryani, 2006).

Based on these things, learning geography can be used as a reference to build ecoliteracy of students, where ecoliteracy itself has developed a standard or structure of core competencies in learning, which is related to cognitive (*learning to know*), affective (*learning to be*) and psychomotor (*learning to do*).

Table 1. A Set of Core Competence Ecoliteracy from Center for Ecoliteracy

Competence	Sub Competency
Head (Cognitive)	a) Approach issues and situations from a systems perspective Understand fundamental ecological principles b) Think critically, solve problems creatively and apply knowledge to new c) situations d) Assess the impacts and ethical effects of human technologies and actions e) Envision the long-term consequences of decisions
Heart (Emotional)	a) Feel concern, empathy and respect for other people and living things b) See from and appreciate multiple perspectives work with and value others with different backgrounds, motivations and intentions c) Commit to equity, justice, inclusivity and respect for all people
Hands (Active)	a) Create and use tools, objects and procedures required by sustainable communities b) Turn convictions into practical and effective action and apply ecological c) knowledge to the practice of ecological design Assess and adjust uses of energy and resources

With the formation of understanding and knowledge of the environment, students can apply it in the surrounding environment such as participating in anything related to the environment. Ecoliteracy literate individuals are individuals who can understand and behave wisely in using the environment so that ecological sustainability occurs, in which ecological sustainability is an important component and has an important core in the era of globalization (Capra, 2002). A sustainable society is a society that is able to meet the needs of its present life without compromising the opportunities of future generations (Capra, 2007). This is similar to the opinion which states that sustainable development is defined by the World Commission on Environment and Development, namely that humans have the ability to achieve sustainable development for their own sake. Meet the needs of the present without compromising the ability of future generations to meet their own needs (Capra, 2002).

It can be concluded that ecoliteracy can prepare students who will have knowledge of the importance of the environment for life so that they will create good habits in utilizing the environment and awareness that the earth is the most important thing in this world that they must always take care of.

3. The Role of Problem-Based Learning Models in Geography Learning in Building Student Ecoliteracy

Ecology is indispensable in education to provide an understanding of the interdependence of natural processes and the human way of life (Orr, 1992). So here there needs to be a bridge to convey so that students can understand the meaning of ecoliteracy. Learning geography is the right bridge so that students can understand the meaning of ecoliteracy. Learning geography is essentially learning about the spatial aspects of the earth's

surface which are the overall phenomena of nature and human life with regional variances (Sumaatmadja, 2001).

The number of real problems that occur in the environment can be used to foster student ecoliteracy. Problem-based learning is a learning model that can build around real and complex problems that naturally require examination, information guidance and reflection, proving tentative hypotheses and being formulated for truth and solutions (Rianto, 2010).

The new knowledge that students know from various environmental problems in problem-based learning makes them have a caring attitude towards the surrounding environment. Teachers at schools familiarize students with environmental care such as throwing garbage in its place and doing class pickets, so that with this habit, students will get used to it and will always do it. The sense that is embedded in students will make them not feel burdened to always keep the environment clean.

D. Conclusion

Ecoliteracy must be owned by everyone, in the world of education ecoliteracy is grown through learning geography in which there are several subject matter that has a role in increasing student ecoliteracy and with the help of learning models in conveying it. Problem-based learning models can show real environmental problems to students so that they are able to analyze the causes and solutions of these problems. So it can be concluded that the problem-based learning model in geography learning has a role in growing students' ecoliteracy.

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