

The Impact of Local Wisdom-Based Learning Model on Students' Understanding on The Land Ethic

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Abstract. Local wisdom-based learning model is motivated by global environmental crisis. Local wisdom has proven its significance in achieving a harmonious relationship between human and nature. This research aims to identify the impact of local wisdom-based learning on students' understanding on the land ethic. This study is conducted using the experimental method with factorial designs. Subjects involved in this study are Grade XI social students, composed of three experimental groups. The research variables are local wisdom-based learning model as the free variable and the land ethic understanding as the bound variable. The research instruments consist of observation, assignments, tests, and performances. The data are analyzed statistically. The results show (1) there is a difference of the land ethic understanding between before and after applying local wisdom-based learning on experimental group 1, 2, and 3; and (2) there is no significant change on the land ethic understanding between experimental group 1, 2, and 3. It is implied that local wisdom-based learning influences the land ethic comprehension.

1. Introduction

Environmental crisis is harming the Earth, indicated by ecological imbalance in developing and developed countries. It is believed that such environmental damage is caused by population explosion [1], as well as developments in science and technology [2]; thus, the balance of nature is disrupted. The presence of natural life as a living space has been degraded; both its supporting power and stability have. This state threatens the sustainability of nature as a living space and is likely to produce a precarious community [3].

Actually, environmental crisis has triggered ecological awareness, signaled by appearance of various beliefs promoting alignments with nature: environmental movement and natural resource management through ecofascism and ecopopulism approach [4], environmental ethics viewpoint and behavior, the land ethic in nature conservation [5], and sustainable manufacturing [6]. Ecological awareness is very essential as groundwork to embed values, ethics, and responsibility environment behavior/REB.

According to inclusionism view, human being is a part of nature [7]. At the local basis, local wisdom may come in the form of values, norms, customs, and knowledge [8], serving as natural resource conservation and preservation [9], and as the code of conduct within an ecological community [5]. Local wisdom is an ecological intelligence echoed in saying, attitude, behavior as well as supporting system; hence the nature can be conserved. Although it is pertained regionally, local wisdom has a universal sense.

The land ethic is closely related to morals [9], code of conduct [5], and responsible behavior toward the Earth [7]. The core principle of the land ethic is "*A thing is right when it tends to preserve the integrity, stability, and beauty of biotic community. It is wrong when it tends otherwise*" [5]. The land ethic is a viewpoint and moral behavior oriented to the Earth as a moral subject. Actions that uphold the Earth integrity as a part of



nature, retain the Earth supporting power stability, and preserve the harmonious interaction between human and other living things. The land ethic understanding reflects moral responsibility toward the Earth as a living space.

Education has an important and strategic role in the attempt to prepare a green generation through learning process. Based on learning perspective, environment is one of learning components [10] and learning sources [11]. Behaviorism emphasizes the importance of environment in shaping and transforming behavior, including ecological awareness behavior. Environment influences behavior [12]. Therefore, it is very important to employ environment as a learning means, a learning source, and learning outcome actualization. Learning is not only a process of acquiring new knowledge, but also a process of embedding values, norms, ethics, and morals.

From the mentioned above, local wisdom-based learning is very essential that the students acquire intelligence in thinking, behaving, and responsible behavior in preserving integrity, stability, and congruent interaction with Mother Nature. Local wisdom-based learning possesses components [13] and functions [14] based on practical-empirical results of analysis of theoretical-juridical studies as the academic underpinning. This study aims to analyze the impact of local wisdom-based learning on students' understanding of the land ethic.

2. Methods

The method employed in this research is the experimental method with factorial designs. The subjects involved are Grade XI social students studying geography in their second semester at three public high schools in Bandung. A class is selected from each school to be chosen as the experimental group based on results of the pre-test. The research variables are local wisdom-based learning model and the land ethic understanding as the free variable and the bound variable respectively. The research instruments consist of observation, assignments, tests, and performances. The collected data are analyzed using qualitative descriptive and statistical analysis.

3. Results and Discussion

3.1. Local Wisdom-Based Learning Model

Learning model is one of learning components [10], which contributes to the realization of learning effectiveness [15]. Local wisdom-based learning model has six components, i.e. rationale, competency, syntax, learning outcome, secondary effect, and instructional design [16]. Local wisdom-based learning model is visualized in Figure 1.

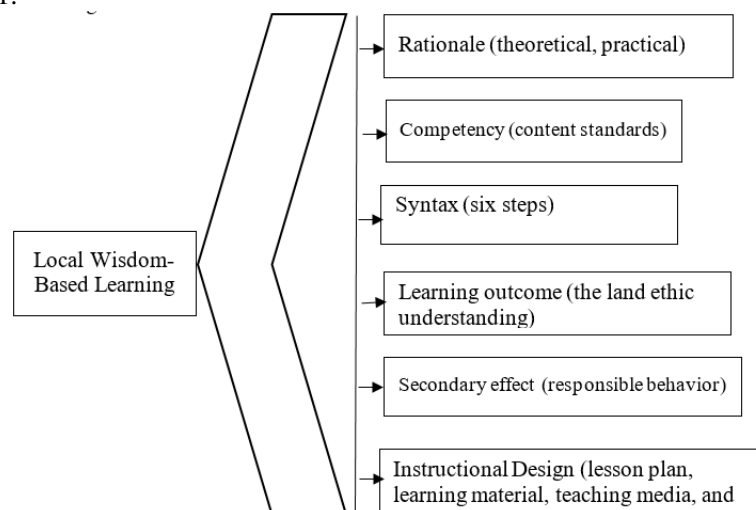


Figure 1. Local Wisdom-Based Learning Model [17]

Learning is a process consisting of three activity stages, namely planning, implementation, and evaluation [10], which are carried out simultaneously and constantly. The implementation of local wisdom-based learning is adapted to stages of learning activity [18], i.e. planning and implementation. This model employs environment as a learning source [11], specifically local wisdom as behavioral ethic [5] [8]. The land ethic understanding is the code of conduct of spatial relation as a form of moral responsibility for the preservation

of the Earth as a living space. The utilization of nature reserve as teaching media may increase nature conservation awareness [19].

Local wisdom-based learning model is applied on basic competencies by analyzing natural disaster mitigation and adaptation through educational process, local wisdom, and the employment of modern technology [20]. The learning material is local wisdom adopting themes such as: natural disaster mitigation and adaptation through the culture of will, mandate, fallacy, and consequences. Theoretically, the themes chosen which are derived from surroundings may affect the process of modeling the normative behavior [12]. The culture of will, mandate, fallacy, and consequences are the local wisdom known by indigenous people at Kampung Naga. They perform a harmonious life with their surroundings, that the nature as the life resource provider can be preserved incessantly.

Themes are chosen considering the accordance of local wisdom with content standards and geographical conditions at Kampung Naga which are prone to natural disasters. The utilization of local wisdom as teaching material can improve students' understanding and form congruent behavior with environment [21]. Learning by employing geographical conditions provides significant influence on attitude development, comprehension, skills, and motivation to preserve the nature [22]. The surrounding environment holds deep emotional bond and collectivity with students, so that they will possess motivational power leading to environmental awareness [23].

Local wisdom-based learning model contains syntax composed of six learning activity steps, namely: (1) orientation; (2) material application; (3) core concept identification; (4) inter-concept comprehension; (5) concept implementation; and (6) reflection. During the application, those six steps are adapted to learning activity stages, i.e. opening, main activity, and closing [18]. Learning activities are conducted in groups and make use of school garden as learning means for students. School garden holds a part in environmental education [24] and an effect in forming responsible behavior toward environment. Learning in groups as the social system in this model offers secondary effects in modeling responsible behavior toward environment.

3.2. *The Land Ethic Understanding*

The results of data analysis suggest that there is a difference of students' understanding of the land ethic from all three experimental groups between before and after the implementation of local wisdom-based learning. In addition, there is no change in the land ethic understanding among three experimental groups after the utilization of local wisdom-based learning. This goes to show that local wisdom-based learning model positively affects learning effectiveness [14] and the model components correspond with academic merits [13].

The implementation of local wisdom-based learning is reflected in the application of syntax in facilitating students to perform the learning activities and to achieve the learning objective. The model effectiveness is implied by the achievement of learning objective [15], that the students meet the minimum standard requirements arranged by the school. According to meaningful learning view, this model retains meaning academically and socially [10]. Academically, students attain the land ethic understanding [5], and socially, they develop ethics as the code of conduct to sensibly behave toward the Earth as a moral subject [5] [7].

Local wisdom-based learning model contributes to modeling of ecological awareness behavior which encompasses moral knowing, moral feeling, and moral action [25]. The land ethic understanding is implied by the land ethic mastery in translation, interpretation, and extrapolation [26] toward the concept of integrity, stability, and beauty of biotic community [5]. Students acquire knowledge, attitude, and behavior that uphold the integrity as a part of nature, sustain the stability of supporting power of the Earth as a living space, and the congruous interaction with natural life. The ethics ground behaviors toward the Earth as a moral subject and moral responsibility of every deed.

Learning material comprising the culture of will, mandate, fallacy, and consequences as the theme, theoretically holds the substance of local wisdom, disaster mitigation and adaptation [20]. In addition, it retains moral lesson about behavior that preserves integrity, stability, and a harmonious life as a form of moral responsibility for the preservation of the Earth as a living space. The land ethic understanding is a mental attitude and behavior toward the Earth as a moral subject which is acquired through learning process. Education is a civilizing process [27] through learning process which embeds the land ethic to produce a green generation.

Local wisdom is resulted from culture of the natives which have proven to possess durability in unraveling hindrances and life challenges, which is bestowed from one generation to another. This culture heritage process has produced a community that cares about their environment. They have a strong bond with their surroundings

and treat it as a priceless being. Such viewpoint and behavior are environmental morals which illustrate life-centered ethics [28].

The employment of local wisdom in learning may heighten environmental moral attitude, both as learning material and teaching media as well as the learning source. The application of literature in learning can motivate students to raise awareness and concerns toward environment [29]. The learning process which employs environment as learning activity means and learning target may enhance responsible attitude and behavior toward surroundings [12].

Local wisdom-based learning model facilitates students in acknowledging local culture, improving knowledge about how to preserve the environment [4], and natural resource conservation. The utilization of local culture as teaching material offers positive effects in forming responsibility environment behavior. The impact of local wisdom-based learning on the land ethic understanding is visualized in Figure 2.

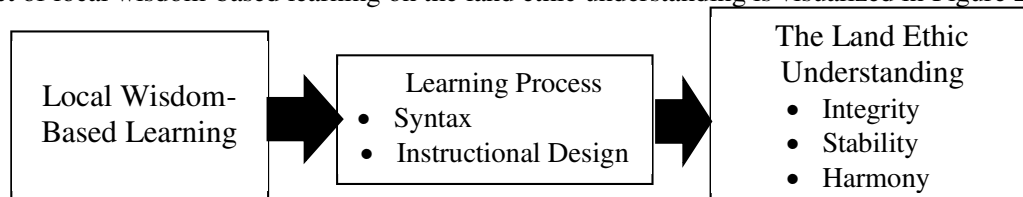


Figure 2. The Impact of Local Wisdom-Based Learning on the Land Ethic Understanding [17]

Local wisdom-based learning is in line with basic competencies [20] students should acquire. This model facilitates students to achieve the required competencies and provides them with learning experience about the land ethic. If this learning experience is acquired incessantly by students, it will become a habituation process. The land ethic turns to be a culture reflected in behavior of upholding integrity, sustaining stability, and congruent relationship with nature. Students will be a generation that conserves the Earth as a living space.

This model is applied by adapting syntax to learning application [18], viz. opening, main activities, and closing. This model efficiency is illustrated in every step, actively involving students' learning activities; thus, it serves as a social system. The social system in this model contributes to the attainment of secondary effect, which is responsible behavior. Additionally, the effectiveness of this model is indicated by the achievement of learning outcome, that the students manage to meet the standard of learning objective. If this learning model is applied insistently, it will produce a generation which will turn to be the main subject of sustainable manufacturing that respects congruent interaction among the aspect of planet, people, and profit [6].

4. Conclusions

Local wisdom-based learning affects the land ethic understanding. The learning model is applied according to the syntax consisting of six steps, namely: (1) orientation; (2) material application; (3) core concept identification; (4) inter-concept comprehension; (5) concept implementation; and (6) reflection. The themes chosen as learning material are natural disaster mitigation and adaptation through the culture of will, mandate, fallacy, and consequences. The land ethic understanding includes translation, interpretation, and extrapolation of the land ethic concept, i.e. integrity, stability, and harmony. A continuous utilization of this model may contribute to the realization of green generation as the main subject of sustainable manufacturing.

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