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Environmental ESD in Indonesia

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1．Introduction

　　Pandemics have become the catalyst for major changes in school learning. This is a global trend. Online classes are being developed, and especially in 2020, face-to-face classes will no longer be easy to teach. ESD learning is also affected by this dramatic change. In Indonesia, online eco-literacy learning has been tried and tested. In Indonesia, online eco-literacy learning has been tried and tested. However, learning about the environment is not enough to acquire knowledge; students need to be able to think about problem solving and take environmentally conscious actions. The impact of the pandemic has also been felt in the Adiwiyata program. This research note aims to review how environmental ESD practices and research have been carried out in Indonesia during the pandemic.

2．Method

　　A literature review of selected articles from journals published after the pandemic was conducted to provide and review an overview of existing research. A systematic literature review consists of three main steps: identification, collection of articles, selection of articles based on criteria, and selection of key articles. This method is referred to as SLR (systematic literature review). The first step is the identification and collection of articles. This step aims to obtain an initial retrieval of key articles. The strategy used in this study is to screen the articles; the title, abstract, and keywords must contain the specific words "Adiwiyata" and "eco-literacy". The second step is the selection of articles based on the criteria. The next and last step is the selection of

the main articles. In this step, articles that have passed the previous step are either continued or reviewed for quality check. The articles that pass will be used as the main papers for the analysis.

3. Results

Out of the number of articles retrieved in the first collection of articles from the direct knowledge or insight search, twenty-three articles met the criteria created in this study. Therefore, another article was excluded from this study. Finally, after qualitative checks, thirteen articles were used as the main study. Based on the literature review, it was found that there were three factors Based on the literature review, it was found that there were three components: environmentally friendly policies, participatory learning activities and online learning, and environmentally based curriculum and competencies.

3.1 Policy

Many indicators of sustainable development in the field of education are not integrated in terms of the interrelationship between environmental, social, and economic aspects, and are often of a type that focuses on one of the three. In [1], the actual situation is analyzed in three elementary schools, each of which has a different approach to environmental ESD according to the school's policy: one focused on environmental conservation, one on social entrepreneurship, and one on social and environmental activities. Environmental ESD is being implemented in line with school policies. In this case, since the municipality where the school is located is focusing on environmental policy, the budget is allocated as part of the environmental policy, contributing to the promotion of ESD. Schools that focus on socio-economic activities learn about the value of sustainability in addition to maintaining the environment through practical activities.

[12] discusses the Adwaita program in a SWOT analysis. The success of the program depends on the role of the leader as a driving force and decision-maker. Principals are expected to have certification in environmental management as a requirement for leading Adiwiyata schools. If poorly monitored, it will affect poor performance. On the other hand, if it is good, motivation and performance will improve.

Comprehensive and interdisciplinary education such as ESD can be enriched by a whole

school approach.

3.2 Participatory Learning and Online Learning

One of the key elements driving the Adiwiyata program is participatory learning. The learning methods implemented by the teachers in [3] in implementing environmental education in both of the two elementary school are demonstrations, group discussions, and simulations. Environmental activities such as waste sorting and after-school classroom cleaning, outdoor learning activities, composting activities, plant nursery activities, and 4R programs are also implemented. Activities such as cleaning up the school and its surrounding environment with a radius of around 500 meters are also conducted after the event.

The study by [8] promotes environmental learning in cooperation with the local government, and there are many initiatives such as hydroponics and composting that practice environmental sustainability and care. Ecoliteracy is the awareness that nature and humans influence each other in all aspects of life and form a sustainable society that recognizes the importance of environmental protection. On the other hand, the impact of COVID 19, the new infectious disease that has swept the world since 2020, has changed many aspects of human life today. It has also affected the context in which we learn about the environment, first in terms of what we learn, and then in terms of how we learn.

[5] focuses on preventing the transmission of COVID 19 during the pandemic to promote green behaviors based on ecoliteracy. They are promoting health and personal hygiene activities for children, such as learning the importance of maintaining a healthy lifestyle, personal health and environmental cleanliness, and washing their hands frequently with soap and running water. They also advise children to get used to leaving the house with a mask and to always keep their distance from others. Since March 2020, the government, through the Ministry of Education, Culture, Sports, Science and Technology, has issued a notice to implement a policy of moving face-to-face classrooms to online classrooms called the School from Home program (Indonesian Government Regulation No. 21, 2020).

Among them, [6] focuses on the formation of ecoliteracy through social studies; by building a network between the set of core and basic competencies included in the 2013 curriculum and the indicators of their achievement, it is possible to operationalize the concept of ecoliteracy or environmental education in social studies education. The concept can be operationalized.

Specifically, it is a zero-waste learning activity. This can be used as an enjoyable learning experience for students because they can be directly involved in local environmental conservation through 4R activities.

In [7], the PjBL model is modified by nature schools. Home Based Learning (HBL) is one of the developed PjBL models as a form of learning adaptation in the pandemic era and this study experiments with the modified learning model in improving science learning achievement of third grade students.

[9] study conducted in Adiwiyata school revealed non-significant results in the investigation of the relationship between knowledge and behavior. It points out that the role of more learning done online and lack of flexibility in social activities are likely to affect the knowledge and behavior of students. It has been two years since the question was asked whether Adiwiyata schools can successfully respond to these situations.

[13] found that during the pandemic, activities related to the Adiwiyata program were implemented on a limited basis.

The pandemic has had no small impact on ESD, which has participatory learning at its core. The introduction of online learning in the methods and the emphasis on health maintenance in the content are characteristic trends.

3.3　Curriculum Implementation and Competencies

Adiwiyata based textbooks focus on the practice of the knowledge acquired during the learning process. In this section, ways in which students can be environmentally conscious are described. As an example of learning ecotech gardens, plants that can be used to conserve water and its benefits are described. For example, water plants and jasmine plants are not only ornamental plants, but can also be used to purify water used to clean appliances that flow into the flume, so that used water can be reused but not used for consumption. The water is again useful because it waters other plants. This is a solution to the large amount of wastewater that often occurs in urban areas where sewers are dirty and smelly. With this kind of learning, students not only gain knowledge, but also practice the knowledge they have gained as a solution to environmental management problems around their place of residence.

[4] focuses on the character education aspect of the curriculum. Environmental education teaches students about the positive and negative effects of their actions. It builds students' skills

and attitudes to enhance their thinking, maintain their values in life, and influence their decision-making. The environmental education that students receive influences the process of problem solving and solution finding, so that students become interested in acting successfully towards the environment through small actions that they can take independently. The internalization of the values of environmental awareness involves the formation of several characters such as independence, creativity, discipline, religiosity, curiosity, and responsibility. Participation in environmental conservation is based on good morals through the character of discipline, responsibility, and high concern. Members of the school are invited to do things repeatedly, unintentionally, to make it a habit, to influence their behavior, to shape their character.

[10] investigated the relationship between environmental learning and academic achievement; a study of students in Adiwiyata school showed a sufficiently strong positive relationship between ecological literacy, environmental awareness, and academic achievement with environmental problem-solving skills. Environmental awareness is a concern for environmental problems. Students with environmental awareness are better able to understand environmental issues and develop critical thinking and environmental problem-solving skills. Students who live in urban areas are more environmentally conscious than those in rural areas. Typically, city dwellers live in a polluted environment and are more aware of environmental issues than villagers. Eco-literacy, environmental awareness, and academic skills can jointly support students in trying to understand environmental issues and problems, and help students find effective solutions that will influence them to improve their environmental problem-solving skills.

[11] analyzed the tendency of teachers from the survey. Teachers who were categorized as the unprepared group in the cluster analysis had the most difficulty in implementing environmental education curriculum. Teachers in this cluster were less likely to develop environmentally based learning plans, produce materials related to local/global environmental issues, develop indicators and questions, and did not implement active learning through fieldwork, projects, or demonstrations. In the planning and implementation of the curriculum, it will be essential to ensure that workshops are held to form environmental competency and eco-literacy of teachers as well as students.

4． Conclusion

Many indicators of sustainable development in the field of education are not integrated in terms of the interrelationship between the three dimensions of environment, society and economy, and often focus on one of the three. The impact of COVID 19, the new infectious disease that has swept the world since 2020, has changed many aspects of human life today. The impact has also been felt in the context of learning about the environment, first in what we learn and then in how we learn it. Children are learning about healthy lifestyles, the importance of maintaining personal health and environmental cleanliness to promote green behaviors based on eco-literacy, and promoting activities to maintain health and personal hygiene, such as washing hands frequently with soap and running water. The PjBL model is also being modified, and other learning alternatives to learning that cannot be done face-to-face are being tried and tested. Character building as well as eco-literacy is also expected through the curriculum. Environmental learning is also effective in improving socalled academic skills due to its characteristics. In order to support this learning, it is important to build the competence of teachers, but this is still not enough, and it is necessary to enhance the professional development of teachers to be in charge of environmental learning.

The pandemic limited the use of direct observation and interview research methods. Researchers from outside the country were forced to use indirect methods when conducting research on ESD in Indonesia. While "direct" observation of actual teachers' classes and students' behavior is essential for educational research, in the Pandemic situation, indirect observation is conducted through online systems with the help of counterparts. This method is convenient, but it also has the disadvantage that substitute, and detailed observation cannot be done as the researcher wishes. How to obtain the thick data that can be collected by direct research while using the new methods? The epidemic is also an opportunity to rethink research methods.

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Abstract

　パンデミック下のインドネシアにおいて環境 ESD の実践と研究がどのように進められてきたのかをレビューすることを目的とする。手続きにより文献を精査しレビューを行った。文献レビューに基づいて、次の３つの要素があることをわかった。つまり、環境配慮型の政策、参加型の学習活動とオンライン学習、環境に基づいたカリキュラムとコンピテンシーである。

Keywords: Adiwiyata,eco-literacy