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USE OF ECOBRICKS AS A SOURCE OF LEARNING SCIENCE FOR CLASS V PRINCIPAL STUDENTS IN SOUTHEAST PONTIANAK

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Abstract

Study this aim for study effectiveness use *ecobricks* as a Natural And Social Science learning media, as well impact to understanding draft environment And involvement participant educate in activity learning. Method research used is approach qualitative with technique data collection via observation, interviews, and documentation. Study done at school base with involve participant educate class V as subject study. Results study show that use *ecobricks* as source study no only increase understanding participant educate about Natural and Social Sciences concepts such as cycle repeat and style life sustainability, however also increase motivation study and involvement participant educate in activity practical. Use *ecobricks* as a learning medium give benefit double: educational and environment. Participant educate study for manage waste plastic in a way creative and responsible answer, as well apply deep Natural and Social Sciences knowledge life daily. That is, improvement in quality learning and interaction with participant educate. *Ecobricks* can become source effective learning in Natural And Social Science, helpful develop character care environmental, creative, and responsible answer on participant educate.

Keywords : Ecobricks, Source Study, Natural and Social Sciences.

INTRODUCTION

In the era of globalization and rapid technological development, environmental challenges are increasingly complex and require serious attention from various parties, including the world of education. One environmental problem that continues to increase is the uncontrolled production of plastic waste. Plastic, as a material that is difficult to decompose, has a significant negative impact on the ecosystem if not managed properly. Therefore, creative and educational solutions are needed to overcome this problem while simultaneously building environmental awareness in the younger generation. One innovation that has developed as a solution to the problem of plastic waste is *ecobricks* , namely plastic bottles filled solidly with non-organic waste, especially plastic, which can then be used as an alternative building material. *Ecobricks* not only reduce plastic waste, but also open up opportunities to be used as contextual learning media that are relevant to students' daily lives.

Fatmawati et al (2023) are not only used in developing media instruments for learning, but supporting media in education can be through *ecobrick learning media* . Plastic is widely used in various aspects of human life. This includes materials for food packaging and materials needed to make building materials. Plastic is the material most commonly used in popular automotive and is used as a material for making car components that are not made from ferrous metals. The main problem with plastic is that it is waste that cannot be decomposed naturally. It takes a very long time to remove plastic waste from the ground. In addition, because the use of plastic is relatively low it can be controlled. Apart from that, plastic makes the air temperature hotter day by day, because the polymer has no pores (Suminto, 2017) .

In the context of education in Indonesia, the implementation of the Independent Curriculum prioritizes project-based learning and environmental exploration as learning sources. The use of *ecobricks* as a natural sciences (natural and social sciences) learning resource is in line with these efforts. *Ecobrick* -based learning allows students to not only understand science concepts theoretically, but also apply them in real actions that have an impact on the environment. Critical thinking is not only done in the school

environment but also in the surrounding environment in everyday life, namely caring for the environment (Puspitasari et al., 2016) . This approach helps students to develop critical and creative thinking skills, as well as a caring and responsible attitude towards the environment.

Ecobricks not only have the function of destroying plastic waste, but also extending the life of these plastics which have many benefits for human life (Zuhri et al., 2020) . The use of *ecobricks* as a learning resource has the potential to strengthen students' character. The learning process that involves making *ecobricks* can teach the values of togetherness, cooperation, perseverance and social responsibility. Sitepu (2017) explains that learning resources can be grouped on the basis of sharing points of view seen from how to obtain information. Learning resources can be divided into visual, audio and audiovisual types. Learning resources in school learning influence student learning outcomes. Teaching and learning activities are not only students and educators interacting but also include learning resources to achieve the desired results so that the learning process can be achieved inside and outside the classroom. Supriadi (2015) explains that learning resources are all sources such as people, tools, materials, techniques, messages and places that students use as resources in learning activities and can increase the quality of students' learning. By utilizing plastic waste as the main material *for ecobricks* , students are invited to think holistically about the impact of daily consumption and how they can contribute to reducing environmental problems through simple but meaningful actions.

This research aims to examine the effectiveness of using *ecobricks* as a science learning medium, as well as its impact on understanding environmental concepts and students' involvement in learning activities, not only enriching students' knowledge, but also shaping them into individuals who are more responsible and care about the environment.

METHOD

This research uses a descriptive qualitative approach with phenomenological methods. Kurniawan (2018) stated that qualitative research is research using qualitative data so that analysis uses descriptive research methods. The qualitative research method in this research uses descriptive research methods. Descriptive research is a research method that analyzes problems in the form of current facts from objects according to what they are (Sudaryono, 2018) . The phenomenological approach is a qualitative strategy in which researchers identify the nature of human experience regarding a phenomenon as described by participants in a study.

In the qualitative method, the phenomenological approach is the presentation of descriptions and themes conveyed by participants and detailed descriptions of a person or individual. This description can also be written from a personal, first person, and subjective perspective where the researcher positions himself in his life. By using the strategy of applying qualitative methods, these results can also provide a chronological narrative in a detailed description of their or the respondent's experiences. Researchers connect themes into story lines (as in narratives) or develop them into theoretical models (as in grounded theory). These themes are analyzed for each individual case and across different cases (as in case studies) or formed into a general picture (as in phenomenology). Sophisticated qualitative studies go beyond description and identification of themes and establish complex thematic relationships (Creswell, 2014) . The phenomenological approach is a psychological theory that focuses on subjective experiences and personal interpretations of the world.

This approach includes four main components: observation, imagination, abstract thinking, and feeling/perception. Observation involves an intrapsychic replica of an object, while imagination involves seeing an object as a representation of other things. Abstract thinking, based on observation, eliminates typical characteristics to create a general idea. Feeling, a symptom of experienced consciousness, is closer to humans than observation or imagination. These approaches aim to understand the phenomena experienced by individuals (Nuryana et al., 2019) . The research was conducted at the State Elementary School in Southeast Pontianak District with the research subjects being students in class V of Elementary Schools in Southeast Pontianak. Data was collected through observation, interviews with teachers and students and documentation.

RESULTS AND DISCUSSION

Results

Application of *ecobricks* in science learning

The results show that the application of *ecobricks* as a science and science learning resource in class V went well and received a positive response from students. In the learning process, the teacher starts with an introduction to the concept *of ecobricks*, starting from what *ecobricks are*, the materials needed, to their benefits for the environment. Students are invited to bring plastic waste to be used as *ecobricks*. This activity not only involves cognitive aspects, but also affective and psychomotor. The students seemed enthusiastic about the process of making *ecobricks* and this activity encouraged them to care more about waste management in the surrounding environment. Learning with *ecobricks* can help students understand the concepts of recycling, sustainability and social responsibility in a real way.

Students' perceptions of *ecobrick- based learning*

Results explained that the majority liked ecobrick-based learning. Some students stated that they felt they understood the science material better through direct practice with *ecobricks* compared to conventional learning methods. Students also stated that they felt more involved and motivated in learning, because they could see the real results of their efforts in making *ecobricks* .

Apart from that, there were also more than a few students who stated that this learning made them more aware of the importance of protecting the environment. They realized that plastic waste which is usually considered waste can actually be used for useful things, such as making *ecobricks* . Some students even expressed their desire to continue making *ecobricks* at home as a form of contribution to the environment.

Impact on student character development

Interviews with teachers and school principals revealed that the use of *ecobricks* as a learning resource had a positive impact on the character development of students. Teachers noted an increase in aspects of responsibility, cooperation and social awareness among students. For example, students become more responsible in collecting plastic waste and helping each other in the process of making *ecobricks*.

The principal also added that this activity helps students to develop a sense of togetherness and mutual respect. Students work in small groups to make *ecobricks* , and they learn to appreciate the contributions of each group member. This activity also strengthens students' sense of concern for the school environment and its surroundings.

Discussion

Application of ecobricks in science learning

Lestari (2018) believes that Natural Science (IPA) is rational knowledge and natural objects with all their contents also using natural methods, scientific processes and natural attitudes. Meanwhile, Surahman & Mukminan (2017) states that Social Sciences is the study of integration or combination of individual life events in all aspects of space and time with all activities that study problems in social life and the community environment for the benefit of the world of education. So science learning is a science that studies the lives of living creatures in their natural and social environments.

Zuhri et al (2020) stated that *ecobricks* are a way of processing plastic waste which is diverted into an environmentally friendly form or in other words, environmentally friendly bricks. The use of *ecobricks* not only enriches the science learning experience, but can also be a holistic approach that includes cognitive, affective and psychomotor aspects. Project-based learning and direct practice can increase students' involvement and understanding of learning material.

Students' perceptions of *ecobrick- based learning*

Slameto (2015) believes that perception is the entry of information into a person's brain which is responded to through the five senses. Meilidia et al (2022) revealed that perception is a response that is directly obtained from an individual's absorption to recognize some events through the five senses. Perception is subjective, because it depends on the conditions and abilities of each person, so people's interpretations are different. The positive response from students to *ecobrick- based learning* shows that this innovation is effective in increasing their interest and motivation to learn. Direct experiences that involve students in the learning process, such as making *ecobricks*, deepen their understanding of

IPAS concepts, especially those related to the environment and sustainability.

Impact on student character development

Strengthening the Pancasila Student Profile functions as a source of educational policy as well as guidance for teachers in developing the character and competencies of students (Fauzan, 2023) . In line with Saputra et al (2023) explain that character development is a sustainable way of educating students to care, understand and act in accordance with their moral, ethical and social values. Character development through *ecobrick -based learning* is very clearly visible in the aspects of responsibility, cooperation and social care. *Ecobrick* making activities not only teach students about the importance of managing waste, but also foster positive values that are important for their personal development. This shows that learning that is integrated with environmental values can be an effective tool for shaping the character of students. Mauludea et.al (2023) emphasized that the character of social awareness is the key in forming proactive attitudes and actions towards environmental conservation.

Figure 1. Interview documentation

Figure 2. Students' activities in making *ecobricks*

Figure 3. Students' activities installing *ecobricks* created at school

CONCLUSION AND SUGGESTION

This research shows that the use of *ecobricks* as a learning resource not only increases students' understanding of science concepts such as recycling and sustainable lifestyles, but also increases students' learning motivation and involvement in practical activities. Using *ecobricks* as a learning medium provides double benefits: educational and environmental. Students learn to manage plastic waste creatively and responsibly, as well as apply IPAS knowledge in everyday life. This means an increase in the quality of learning and interaction with students. *Ecobricks* can be an effective learning resource in science learning, helping to develop environmentally caring, creative and responsible characters in students. Overall, the use of ecobricks as a learning resource is not only successful in increasing students' understanding of science material, but also instilling environmental values that are important for character formation. learners. This learning model is in line with a holistic and integrative educational approach, in accordance

with the demands of the Independent Curriculum which prioritizes project-based and contextual learning.

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