

NATURAL RESOURCES UTILIZATION IN CONTEXTUAL EDUCATION

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Abstract

This community service focuses on the implementation of natural resources utilization as contextual learning media, especially through simple photosynthesis experiments using leaves and used mineral water glasses. The activity was carried out with a participatory action research approach involving active participation of teachers and students. The goal was to create learning that not only emphasizes academic understanding, but also instills humanist values, environmental awareness, and sustainability principles. The results of the activity showed that this method succeeded in improving students' understanding of the photosynthesis process in a real and applicable way. In addition, students also developed science process skills, creativity, and awareness of the importance of utilizing natural resources wisely. Through a participatory and experiential learning approach, this activity succeeded in creating emotional and intellectual bonds between students and nature. This activity proves that contextual learning based on natural resources is not only effective in achieving academic goals, but also able to shape the character of students who care about the environment and others. By utilizing available resources creatively and sustainably, education can be a means to realize a generation that is intelligent, humanist, and responsible for nature conservation.

Keywords: Contextual Education, Natural resources, Utilization



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INTRODUCTION

Education is a fundamental pillar in shaping future generations who are not only academically intelligent but also have character and care for the surrounding social and natural environment. This is in line with the mandate of the 1945 Constitution and Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System which emphasizes that every citizen has the right to obtain quality education, which is organized in a democratic, equitable and non-discriminatory manner. Education is expected to be an instrument of social transformation that is able to answer the challenges of the times, including environmental and sustainability issues (Saputri & Juliadilla, 2024).

In the current context, where global challenges such as climate change and environmental degradation are increasingly evident, education is required to not only transfer knowledge but also instill values of sustainability and love for nature from an early age. One strategic approach to achieve this goal is through the integration of natural resource utilization into the learning process. Natural resources, which are abundant in Indonesia, offer enormous potential to be used as a contextual learning medium that is real, applicable, and close to the lives of students (Maulana et al., 2024)

The utilization of natural resources in learning is in line with the theory of experience. This theory asserts that the most effective learning is that which involves direct, purposeful experience. By utilizing natural materials such as plants, rocks, wood, and water in observation or practicum activities, students are not only passive recipients of information but are actively involved in experiencing, analyzing, and building their own understanding. This approach is also in line with the principles of Contextual Teaching and Learning (CTL) which emphasizes the connection between teaching materials and the context of students' real lives (Cotič et al., 2020).

More than just improving academic understanding, the use of natural resources is also an effective means to instill character education, local wisdom values, and awareness to preserve the environment. Activities such as gardening, recycling, or making works from natural materials can develop students' attitudes of responsibility, cooperation, creativity, and independence (Andriyanti et al., 2024).

Based on this background, this article aims to describe the importance, strategies, and benefits of utilizing natural resources in education, especially as a form of community service to realize quality, contextual, and environmentally sound learning.

RESEARCH METHOD

This community service activity is designed to implement the concept of utilizing natural resources (SDA) in contextual learning. The implementation method uses a PAR (Participatory Action Research) approach, which involves partners (schools, teachers, and students) actively in the whole process, from planning, implementation, to evaluation. This approach was chosen because it is in accordance with the service objectives that want to create sustainable change and empower partners (Dahal, 2023).

Preparation Stage (Observation and Socialization). Initial Observation: The team conducted observations to map the potential of natural resources in the school environment, understand the needs of teachers, and identify problems in learning. Coordination and Socialization: Conduct meetings with principals, teachers, and committees to socialize the program, equalize perceptions, and develop a mutually agreed upon activity plan. Training and Mentoring Phase (Workshop and Practice). Workshop for Teachers: Conduct intensive training for teachers Field Assistance: The service team accompanies teachers directly to apply the knowledge from the workshop to the real classroom. Hold Implementation and action (direct

practice by students), namely by utilizing leaves, water, sunlight for simple science experiments. Monitoring and Evaluation stage through the results of projects produced by students

RESULTS AND DISCUSSION

Community service activities that focus on the utilization of natural resources (SDA) in contextual learning have been carried out at MI Al wathoniyah Jatinegara Village, Cakung District, East Jakarta involving 5th grade students. One of the featured activities carried out is a photosynthesis experiment using leaves placed in used mineral water glasses (Aqua). The following are the results achieved:

1. Implementation of Simple Photosynthesis Experiment

A total of 30 students were actively involved in the photosynthesis experiment with the media of used mineral water glasses filled with water and fresh leaves. Students observed the process of air bubbles (oxygen) forming on the leaves when exposed to sunlight. As a result, 95% of students were able to explain the relationship between sunlight, water, and oxygen production in plants.

2. Utilization of natural resources and used goods

This activity successfully utilizes natural resources such as leaves from the school environment and used goods (Aqua cups) as learning media. This teaches students the concept of reduce, reuse, recycle (3R) as well as saving practicum costs.

3. Improved Understanding of Science Concepts

Based on a short quiz after the experiment, 85% of students showed an increased understanding of the photosynthesis process compared to the previous theoretical learning. Students were also able to relate the photosynthesis process to the importance of maintaining plants as oxygen producers.

4. Development of Science Process Skills

Students are trained in the skills of observing, recording data, and concluding experimental results. They also learn to work together in groups and communicate the results of observations.

The photosynthesis experiment using leaves in used mineral water glasses has proven the effectiveness of utilizing natural resources and used goods as contextual learning media. The following is an in-depth discussion related to the results obtained:

1. Contextual Learning and Direct Experience

This activity is in line with (Ida mutiawati, 2023) where learning through direct experience such as experiments can significantly improve student understanding. Through observation of oxygen bubbles produced by leaves, students not only understand the theory of photosynthesis in the abstract, but also witness the process in real life. This approach also strengthens the principles of Contextual Teaching and Learning (CTL) (Kurniasih, 2021) by connecting the subject matter with everyday life.

2. Integration of Sustainable Environmental Values

The use of used mineral water glasses and leaves from the school environment teaches students about the 3R principle (Reduce, Reuse, Recycle). Students realize that used goods and natural resources around them can be used for learning without damaging the environment. This instills an awareness to reduce plastic waste and appreciate natural resources.

3. Improving 21st Century Skills

This experiment exercises 21st century skills such as critical thinking, collaboration and communication. Students work in groups to design experiments, observe results and

present their findings. This activity also hones science process skills such as observation, prediction, and analysis.

4. Relevance to the Independent Curriculum Relationship

The natural resource-based photosynthesis experiment is very relevant to the Merdeka Curriculum, which emphasizes project-based learning and strengthening the Pancasila Student profile, especially the dimensions of faith, fear of God, and noble character, as well as independence and mutual cooperation. Students not only learn science, but also develop the character of environmental care and cooperation.

5. Challenges and Solutions

Challenges during the activity were the dependence on the weather (sun) and the availability of fresh leaves. The solution applied was to conduct the experiment in the morning when sunlight is optimal and use leaves from plants that are easily found around the school (such as cassava or kale leaves). The teacher also prepared a backup of simple experiments using lights as an alternative if the weather is not favorable.

6. Long-term Impact

This activity is expected to inspire teachers to develop more simple practicum based on natural resources and used goods. Students are also expected to get used to utilizing the resources around them for learning, so that a creative, critical, and environmentally conscious generation is formed.

Photo 1: photosynthesis experiment



CONCLUSION

Based on the implementation of community service activities that have been carried out, it can be concluded that the utilization of natural resources through simple photosynthesis experiments using leaves and used mineral water glasses has succeeded in creating meaningful and contextual learning. This activity not only increases students' understanding of the photosynthesis process scientifically, but also instills humanist values and love for the environment. Through a participatory and experiential learning approach, students are not only passive recipients of knowledge, but actively involved as discoverers and doers of learning. The results can be seen from students' enthusiasm in observing natural processes, the development of science process skills, and the growing awareness of the importance of preserving nature. This activity also proves that humanist education can be carried out by utilizing existing resources around, without ignoring the principles of sustainability and environmental care. Thus, this community service not only has an academic impact, but also shapes the character of students who are more sensitive to the environment and others. Finally, I hope this activity can inspire educators to continue to develop creative, contextual, and environmentally sound learning, so as to produce a generation that is not only academically intelligent, but also has a high concern for the preservation of nature and humanity.

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