

Eco-Craft Training to Enhance Creativity and Environmental Awareness Among Elementary School Students through the Use of Recycled Materials

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Abstract

Waste management is an environmental issue that requires attention from an early age through education and the cultivation of eco-friendly habits. One approach is to provide training on transforming waste materials into craft products (eco-crafts). This community service initiative aimed to enhance the creativity, skills, and environmental awareness of elementary school students through such training. The activity took place on November 18, 2025, in Puguh Village, Boja District, Kendal Regency, targeting fifth-grade students from SD Negeri Puguh. It was organized by students participating in the Community Service Program (KKN) from UIN Walisongo Semarang, utilizing methods that included awareness-raising, demonstrations, hands-on practice, and the evaluation of participants' creations. The results demonstrated high levels of student enthusiasm throughout the training. Participants were able to transform various waste materials—such as plastic bottles, cardboard, and packaging—into craft products possessing both utility and aesthetic value. Beyond boosting creativity and motor skills, the activity fostered student awareness regarding the importance of waste management based on the "reduce, reuse, and recycle" (3R) principles. The eco-craft program serves as an effective medium for environmental education by integrating learning, creativity, and practical application in daily life..

Keywords: eco-craft, repurposed materials, creativity, environmental education, primary school

Introduction

Waste management is an environmental issue that continues to escalate alongside population growth, urbanization, and shifting public consumption patterns. Inorganic waste—particularly plastic—is a primary concern due to its extremely long decomposition time, posing a risk of contaminating soil, water, and ecosystems if not managed properly (Ministry of Environment and Forestry [KLHK], 2021). This situation demonstrates that waste management is not solely the government's responsibility; it also requires the active participation of all segments of society, fostered through environmental education starting at an early age (United Nations, 2015).

Environmental education is a learning process aimed at shaping students' knowledge, attitudes, and behaviors to cultivate a sense of care for environmental sustainability. UNESCO (2020) explains that Education for Sustainable Development (ESD) should be implemented starting at the primary education level through contextual learning experiences, enabling students to understand the relationship between human activities and environmental sustainability. Consequently, practical learning that directly involves students serves as an effective strategy for instilling an environmentally conscious mindset.

One form of environmental education implementation is "eco-craft" activity, which involves transforming used materials into craft products that possess both functional and aesthetic value. Eco-craft teaches students that waste is not merely something to be discarded but can be repurposed into more valuable products through creativity. This activity represents a tangible application of the Reduce, Reuse, Recycle (3R) principles, which form the foundation of sustainable waste management (KLHK, 2021).

In addition to raising environmental awareness, eco-craft activities play a role in developing students' creativity. Creativity is defined as the ability to generate new, useful ideas or works through flexible and original thinking processes (Munandar, 2014). At the primary school age, creativity can be nurtured through activities that offer the freedom to explore, solve problems, and create works based on one's own imagination. Crafting items from used materials serves as an effective learning medium for developing these capabilities. Practice-based learning—or "learning by doing"—offers a more meaningful educational experience than instruction focused solely on theory. According to Kolb (2015), hands-on experience enables learners to construct knowledge through a process of observing, experimenting, reflecting, and applying what they have learned. Consequently, eco-craft training serves as an ideal medium for integrating knowledge, skills, and attitudes into a single learning activity.

University students participating in the *Kuliah Kerja Nyata* (KKN)—or Community Service Program—play a strategic role in educating the public through various empowerment initiatives, in line with the "Tri Dharma" (Three Pillars) of Higher Education. One such initiative involves conducting eco-craft training for elementary

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school students, aiming to foster an environmentally conscious culture while simultaneously boosting children's creativity. Programs of this nature not only benefit the participants but also strengthen the bond between the university and the community through sustained service activities.

Against this backdrop, KKN students from UIN Walisongo Semarang organized an eco-craft training session for fifth-grade students at SD Negeri Puguh in Puguh Village, Boja District, Kendal Regency, on November 18, 2025. The activity aimed to enhance students' creativity through the repurposing of waste materials while instilling awareness of the importance of environmental preservation by applying the 3R principles..

Methods

The community service activity was conducted on November 18, 2025, in Puguh Village, Boja District, Kendal Regency, targeting fifth-grade students from SD Negeri Puguh. This program was organized by students participating in the UIN Walisongo Semarang Community Service Program (KKN) as an implementation of environmental education-based community service.

The methodology employed utilized the Participatory Learning and Action (PLA) approach, which emphasizes active participant involvement throughout the learning process, thereby enabling participants to gain direct, hands-on experience (Chambers, 1994). This approach was combined with demonstration and practical application methods ("learning by doing"), which are considered effective for enhancing students' skills (Kolb, 2015).

The activity stages included:

1. Preparation: Coordinating with SD Negeri Puguh, developing materials, preparing tools and supplies, and collecting waste materials such as plastic bottles, cardboard, plastic cups, food packaging, and scrap paper.
2. Awareness-raising (Socialization): Presenting information on the importance of environmental conservation, the impact of waste on ecosystems, and the application of the Reduce, Reuse, and Recycle (3R) concept in daily life (KLHK, 2021).
3. Demonstration: KKN students demonstrated the steps for creating crafts from waste materials, providing participants with a clear understanding of the crafting techniques.
4. Hands-on practice: Students created crafts in groups under the guidance of KKN students. During this stage, participants were free to develop designs based on their own creativity.
5. Evaluation: Conducted through observation of participant engagement, teamwork skills, the creativity of the finished products, and the students' understanding of the benefits of repurposing waste materials as a waste reduction strategy.

Data from the activity were analyzed using a descriptive-qualitative method, describing the implementation process, the level of participant engagement, and the learning outcomes achieved during the activity (Sugiyono, 2023).

Results

The eco-craft training session was conducted in an interactive and enjoyable atmosphere. From the outset, the students demonstrated great enthusiasm for the material presented by the KKN (Community Service Program) students. The participants' curiosity was evident as they asked various questions about the types of waste that could be repurposed into craft products. This enthusiasm demonstrates that an experiential learning approach can boost student motivation more effectively than instruction focused solely on theoretical content (Kolb, 2015).



During the outreach session, participants were introduced to various environmental issues caused by the rising production of plastic waste. The KKN (Community Service Program) students explained that plastic takes decades to centuries to decompose; consequently, improper management can lead to environmental pollution and harm living organisms. The material was presented using simple, relatable examples from daily life, making it easier for elementary school students to grasp. This contextual approach aligns with the concept of Education for Sustainable Development, which emphasizes linking learning to real-world issues in the local environment (UNESCO, 2020).

The demonstration phase served as a bridge for students to understand the process of transforming waste materials into valuable products. The KKN students showcased various craft examples and explained the step-by-step creation process. The demonstration not only helped students understand the crafting techniques but also provided inspiration, encouraging them to create unique designs based on their own creativity. This approach allowed participants to engage in divergent thinking and develop new ideas.

In the practical phase, students were divided into small groups. Each group received various types of waste materials, such as plastic bottles, cardboard, plastic cups, straws, and food packaging. Participants then transformed these materials into various craft items, such as pencil holders, flower vases, table ornaments, and simple storage containers. The freedom to choose the shape of their crafts boosted the students' confidence in expressing their creative ideas. This aligns with Munandar's (2014) view that creativity flourishes when individuals have the opportunity to explore without being constrained by a single "correct" answer.

Throughout the crafting process, the KKN students acted as facilitators, offering guidance whenever participants encountered difficulties. This support was provided without dominating the creative process, ensuring the students remained the central figures in their own learning. This strategy fostered independent thinking and trained participants to find solutions to challenges encountered during production. Such student-centered learning has been proven to enhance critical thinking skills, creativity, and a sense of responsibility for learning outcomes. Beyond fostering creativity, this activity also hones students' fine motor skills. Tasks such as cutting, folding, gluing, coloring, and assembling various craft components require effective hand-eye coordination. Such motor skill exercises are crucial during primary school years, as they contribute to the development of writing and drawing abilities, as well as other practical skills. Thus, the benefits of eco-craft activities extend beyond environmental considerations to support the physical and psychological development of the students.

The activity also strengthens participants' social skills through group work. During the crafting process, students learn to delegate tasks, discuss designs, assist one another when facing difficulties, and respect their peers' opinions. These interactions foster communication and collaboration skills—key components of 21st-century competencies. Furthermore, the experience of collaborating to create a shared product cultivates a sense of responsibility toward the group.

From an environmental education perspective, eco-craft training offers tangible experience in applying the "Reduce, Reuse, and Recycle" (3R) principles. Participants move beyond a merely theoretical understanding of these concepts, actively putting them into practice by transforming waste materials into new, functional products. Such hands-on experiences are more memorable than lecture-based instruction because they involve concrete engagement and reflection on the activity's outcomes (Kolb, 2015).

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The program's implementation also demonstrates that primary schools offer significant potential for instilling a culture of environmental stewardship. If similar activities are sustained through collaboration among schools, the community, and universities, eco-friendly behavior can become an integral part of students' daily habits. In this context, university students participating in community service programs (KKN) act as agents of change, bridging the gap between academic knowledge and community needs through practical, service-oriented initiatives.

Conclusion

Overall, the eco-craft training successfully achieved its objectives. High student participation, increased creativity in producing various craft items, and a growing awareness of the importance of waste reduction demonstrate that the program has had a positive impact on both educational and environmental fronts. Moving forward, similar initiatives could be expanded by incorporating elements of ecopreneurship—such as training on product packaging, basic marketing, and calculating the selling price of the crafts—thereby enabling students to not only understand environmental issues but also gain insight into the circular economy from an early age.

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